The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees
Vol. 134, No. 1 CHICAGO, ILLINOIS MAY 3, 1947
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THE SURGICAL TREATMENT OF ESSENTIAL HYPERTENSION

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The study of results obtained from extensive thoracolumbar sympathectomies performed on patients with hypertensive disease is important. Only a few noteworthy series have been reported.[1] They include a sufficient number of cases, however, to indicate without much question that surgical intervention in the treatment of hypertension is worth while in well selected patients.

That hypertension is a disease that must remain primarily the problem of the internist is not questioned by the surgeons interested in the surgical aspect of the treatment. It is important, however, to emphasize that neurosurgeons Peet[1a] and Adson[2] were instrumental in stimulating wide interest in the study of hypertension by attacking the sympathetic nervous system in a sufficient number of patients to establish the fact that in a few patients a definite and prolonged fall in blood pressure could be expected, as well as relief of disabling subjective symptoms in a still greater number.

The results obtained in 100 consecutive cases by extensive thoracolumbar sympathectomy performed one and a half to four years ago by the same surgeon (J. L. P.) were selected for study. More than 300 patients have been subjected to surgical intervention for the treatment of hypertensive disease by the same surgeon. The early experiences have been previously reported,[3] and the others are too recent to permit definite conclusions to be drawn from their study.

The surgical attack on the sympathetic nervous system in the treatment of hypertension was suggested in 1923 by Daniélopolu,[4] and Bruning[5] in the same year made similar proposals. Pende[6] in 1924 suggested resection of the left splanchnic nerve for hypertension. Pieri[7] in 1927 performed a unilateral splanchnicectomy for intestinal atony. In 1930, at the suggestion of Pende, he resected the left splanchnic nerves by a supradiaphragmatic approach in 2 patients who had arterial hypertension. Pereira[8] objected to the supradiaphragmatic approach because of the danger of entering the pleura and suggested in its stead resection of the splanchnic nerve below the diaphragm. Craig[9] in 1932 performed a subdiaphragmatic resection of the greater and the lesser splanchnic nerves and section of the sympathetic trunk between the twelfth thoracic and the first lumbar ganglion. On April 1, 1933, by the removal of a 4 cm. section of the eleventh rib, Craig resected the major and lesser splanchnic nerves. The pleura was inadvertently opened during the surgical procedure, so he discarded this technic. Peet[10] first performed his bilateral one stage supradiaphragmatic resection in November 1933. His technic, which has changed little since that time, consists of resection of a 4 cm. segment of the eleventh rib and a supradiaphragmatic resection of segments of the greater and lesser splanchnic nerves as well as the sympathetic chain from the ninth or tenth through the twelfth thoracic ganglion. In 1935 Adson[11] carried out a two stage bilateral subdiaphragmatic resection of all the splanchnic nerves at the point at which they penetrated the diaphragm, with resection of the first and second lumbar ganglions. Through this approach exploration and biopsy of the suprarenal glands and kidneys are possible. Crile[12] began celiac ganglionectomies for hypertension in 1936. In the fall of 1938 Smithwick,[1b] after experience with some of the aforementioned procedures, combined the Adson and Peet technics and removed longer segments of the sympathetic chain extending from the tenth thoracic through the second lumbar ganglion, including the splanchnic nerves

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[1] (a) Peet, M. M., Woods, W W, and Braden, S The Surgical Treatment for Hypertension. Results in Three Hundred and Fifty Consecutive Cases Treated by Bilateral Supradiaphragmatic Splanchnicectomy and Lower Dorsal Sympathetic Ganglionectomy, J A M A **115:** 1875 1878 (Nov 30) 1940 (b) Smithwick, R H. A Technique for Splanchnic Resection in Hypertension, Surgery **7:** 1 8 (Jan) 1940 (c) Grimson, K S · Total Thoracic and Partial to Total Lumbar Sympathectomy and Celiac Ganglionectomy in Treatment of Hypertension, Ann Surg **114:** 753 775 (Oct) 1941. (d) de Takats, G, Heyer, H. E, and Keeton, R W The Surgical Approach to Hypertension, J A M A **118:** 501 507 (Feb 14) 1942. (e) de Takats, G, Graupner, G W, Fowler, E F, and Jensik, R J.· Surgical Approach to Hypertension. Second Report, Arch Surg **53:** 111 163 (Aug) 1946

[2] Adson, A W, and Brown, G E Malignant Hypertension· Report of Case Treated by Bilateral Section of Anterior Spinal Nerve Roots from the Sixth Thoracic to Second Lumbar, Inclusive, J A M A **102:** 1115 1118 (April 7) 1934 Rowntree, L G, and Adson, A W Bilateral Lumbar Sympathetic Neurectomy in the Treatment of Malignant Hypertension, ibid **85:** 959 961 (Sept 26) 1925

[3] Bartels, E C; Poppen, J L, and Richards, R. L · Surgical Treatment of Hypertension Results in Fifty Four Cases, Ann Int Med **17:**

[4] Danielopolu, D, cited by Pereira[8]

[5] Brüning, F.· Die operative Behandlung der Angina Pectoris durch Exstirpation des Hals Brustsympathicus und Bemerkungen über die operative Behandlung der abnormen Blutdrucksteigerung, Klin Wchnschr. **2:** 777 780 (April 23) 1923

[6] Pende, cited by Santucci, G La thérapeutique chirurgicale de l'hypertension arterielle selon la methode de Pende, Clinique **27:** 9-11, 1932

[7] Pieri, G La resezione dei nervi splancnici, Ann ital. di chir. **6:** 678 684 (July) 1927.

[8] Pereira, A Nervi splanchnici contribucão para o estudio de anatomia e cirurgia dos nervos esplanchnicos, Porto, Portugal, Tipografia Porto Medico, Ltd, 1929.

[9] Craig, W M, and Brown, W E Experiments on the Control of Blood Pressure by Operation on the Sympathetic Nervous System, Proc Staff Meet, Mayo Clin **7:** 61 64 (Feb 3) 1932

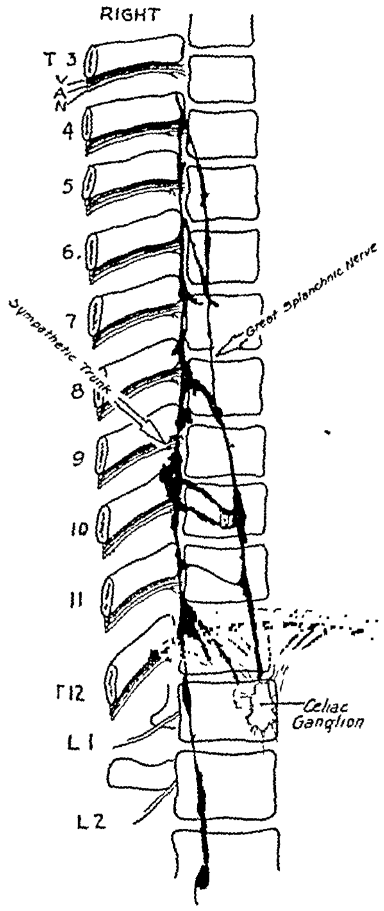
[10] Peet, M M Splanchnic Section for Hypertension· A Preliminary Report, Univ Hosp Bull, Ann Arbor **1:** 17-18, 1935

[11] Adson, A W· A Report of the Results Obtained by Bilateral Ventral Rhizotomy and Bilateral Resection of Splanchnic Nerves, J. Nerv. & Ment Dis **82:** 190 193 (Aug) 1935

[12] Crile, G The Clinical Results of Celiac Ganglionectomy in the Treatment of Essential Hypertension, Ann Surg **107:** 909 916 (June) 1938

transdiaphragmatically. Grimson[1c] in 1941 suggested complete sympathectomy transpleurally.

The surgical experience of one of us (J. L. P.) with hypertension began in 1934, the technic of Peet being followed. In 1936 the technic employed by Adson and Craig was adopted. From 1938 to 1940 the Adson technic combined with a unilateral nephro-omentopexy was used. Since 1940 the supradiaphragmatic technic of Peet and the subdiaphragmatic technic of Adson have been combined by one of us (J. L. P.) in a modified form, approximately the same ganglions and corresponding lengths of the splanchnic nerves being removed without dividing the diaphragm.[13] Since 1942 we have come to believe that a more extensive removal of the sympathetic nervous system is indicated, not only to influence the immediate postoperative results but also to attain, if possible, a more permanent lowering of the blood pressure, the fact being recognized that the sympathetic nervous system has a great capacity for regeneration. The technic was modified considerably as time went on, so that at present an operation is employed in which the ganglions from the fourth thoracic through the second lumbar ganglion are removed in a long, connected segment, as shown in the illustration.



Factual evidence of the extensiveness of the sympathectomy is recorded in all cases by photographing the operative specimen placed on a schematic drawing.

The thoracolumbar sympathectomy as performed by Smithwick has been modified by one of us (J. L. P.) into a more extensive surgical procedure in the hope that a more complete and permanent splanchnic denervation can be accomplished. This method allows one to resect the sympathetic chain at a higher level, including the entire splanchnic system, thus interrupting any smaller unrecognized paravertebral fibers and also any fibers that may descend along the aortic network from high in the thorax.

The diffuse and variable nature of the autonomic nervous system is well recognized. It is known that an incomplete denervation seriously compromises the results in sympathetic nerve surgery of the extremities. There is no reason to assume that a different situation exists in denervation of the splanchnic area. We have gathered experimental evidence, to be published later, that the thoracolumbar operation performed in most of the cases in our series does not result in a complete splanchnic denervation. It is highly probable that there exist fibers or alternate pathways with which we are unacquainted. The operative approach also permits removal of the ganglions on the left side up to the stellate ganglion in patients with angina pectoris, so as either to abolish or to ameliorate their subjective attacks.

OPERATIVE TECHNIC

Early in this series the operation extended from the ninth thoracic through the second lumbar ganglion. While the present technic was being gradually evolved the thoracic sympathetic chain was resected at a higher and higher level. When the last patients in the series were operated on, the resection was carried out from the fifth thoracic to the second lumbar ganglion. Throughout the past twelve months the resection has extended from the third or fourth thoracic through the second lumbar ganglion.

Briefly, the operation as performed today[14] is done under high spinal anesthesia with a sensory level at the third or fourth thoracic segment. This anesthesia is supplemented by pentothal sodium and occasionally curare, which induces shallow, slow respiration, care being exercised to see that the patient is well oxygenated. With the patient in a lateral, slightly prone position, a semicurved incision is made from the level of the sixth rib over the eminence of the paraspinal muscles to the eleventh rib and is curved anteriorly just below the border of the twelfth rib. The iliocostal and longissimus dorsi muscles are separated over the eleventh and eighth ribs, allowing 3 or 4 cm. sections of the ribs to be removed paravertebrally. The line of cleavage between the endothoracic fascia and the parietal pleura is developed. The sympathetic chain and splanchnic nerves are mobilized, and the thoracic chain is divided just above the third or fourth thoracic ganglion after severing the rami communicantes. Below the diaphragm the greater and lesser splanchnic nerves are severed at the point where they enter the celiac ganglion and the least splanchnic nerves as they enter the aorticorenal ganglion. The sympathetic trunk is sectioned below the second lumbar ganglion. In an attempt to prevent regeneration, tantalum clips may be placed on the chain above the third or fourth thoracic ganglion, below the second lumbar ganglion and at the site at which the splanchnic nerves have been divided at the celiac and aorticorenal ganglions. The surgical specimen is now mobilized at the diaphragm, allowing removal of the entire thoracic and lumbar chain with its splanchnic branches through the aperture at the eleventh rib. Although opening of the pleura is carefully avoided whenever possible, this occurred in 5 per cent of our operations. The kidney and adrenal gland are palpated routinely and visualized whenever this seems warranted. Coagulation of bleeding points with the neurosurgical unit and the use of the silk technic for closure allow this surgical procedure to be performed in an average time of one to one and a half hours. The second stage is completed in a similar manner about ten days later.

The immediate postoperative complications in this series of 100 cases were wound infections (minor) in 4 cases; atelectasis in 6, pulmonary embolus in 2 and coronary thrombosis (fatal) in 1. Slight pleural effusion occurred in only 1 case, in which it was necessary to aspirate.

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[13] Poppen, J. L.: Technic for Supradiaphragmatic and Infradiaphragmatic Sympathectomy for Hypertension, Lahey Clin. Bull. 3: 151-158 (July) 1943.

[14] Poppen, J. L.: Extensive Combined Thoracolumbar Sympathectomy in Hypertension, Surg., Gynec. & Obst., to be published.

SELECTION OF PATIENTS

Sympathectomy for hypertension has been performed in a large number of cases. An unfavorable impression of the operation is gathered from many of the early reports. However, in the evaluation of this procedure one must remember that many of the early operations were performed on an unselected group of patients, many of whom would not be subjected to surgical intervention at the present time. Results have shown to our satisfaction that this operation is of little or no benefit to those who have suffered severe cardiovascular and renal damage. We believe that the splanchnic operation for high blood pressure in a selected group of cases has definite merit in securing relief of symptoms and lowering of the blood pressure and in prolonging life expectancy.

The patients with early hypertension and those with hypertension of a slowly progressive, mild nature have not been subjected to surgical operation. Usually these cases are satisfactorily treated by conservative medical management. We consider this opinion to be based on sound clinical experience. It has been clearly shown that in mild cases there is a practically normal life expectancy and that the duration of the disease has no significant effect on good results following operative intervention. It is imperative, however, that these patients receive regular and careful examination. Those showing evidence of progression into a more advanced form of the disease should immediately be considered for surgical treatment.

Table 1.—*Results Indicated by Sodium Amytal Test*

	Good		Fair		Unsatisfactory		
	Indicated	Actual	Indicated	Actual	Indicated	Actual	Total, Actual
Grade 2	51	37	11	13	7	15	3
Grade 3	7	9	13	7	3	8	2
Grade 4	4	1	2	3	2	0	2
Totals	62	47	26	23	12	23	7

In well established hypertension there is a pressing need for a test or some method of selecting cases that will indicate the good or poor results to be expected from surgical intervention. The meticulous and extensive studies of these patients done in most clinics represent an attempt to find some such criteria. Several tests are of considerable value in determining the merits of operation, but none of them alone is of great significance. The correlation of all these tests and the clinical picture helps one to predict the probable poor results more accurately than the good results. In too many of our patients the results thus indicated as good subsequently proved to be unsatisfactory (table 1). This may have been due not to the test but to the method of denervation, as previously suggested, but this cannot be true in all the patients who have not been benefited by the operation.

The results indicated by the different preoperative studies in general use will be compared with the actual postoperative results.

The study of hypertensive patients at this clinic consists in a general history and physical and laboratory examinations. Special emphasis is placed on age, duration of disease, the family and obstetric histories, the psyche and cardiovascular and renal studies. The cardiovascular examination includes determination of the nature of the peripheral vessels and the pulse rate and rhythm, roentgen examination of the chest, an electrocardiogram and study of the ocular fundi with the pupils dilated. The renal study includes intravenous pyelograms, phenolsulfonphthalein sodium excretion, a urea clearance test, a urine concentration test, and determination of the nonprotein nitrogen and blood urea nitrogen. The clinical laboratory studies include a complete blood cell count, a urinalysis, a Hinton test and determination of the chlorides, protein and cholesterol. The blood pressure readings are taken every hour for twenty-four hours with the patient at rest in bed and during the sodium amytal test; in a few cases an epidural procaine block test has been utilized.

Table 2.—*Distribution by Sex and Age*

Age, Yrs.	Men	Women		Years
50 and over	2	3	Average age of series	36.4
40 to 49	17	14	Average age of women	35.2
30 to 39	18	26	Average age of men	38.1
20 to 29	5	13	Youngest (both women)	15 and 19
10 to 19	0	2	Oldest (woman)	54

There were 42 men and 58 women in the series (table 2). The known duration of hypertension is given in table 3.

RESULTS

That symptomatic improvement occurs and that incapacitated persons are rehabilitated has been clearly shown by all who have instituted the different recognized surgical procedures for hypertension. These effects are often present even though the blood pressure is not reduced. In other reported series studies of the heart, ocular fundi and kidneys have demonstrated that reduction of high blood pressure is not harmful but is actually beneficial. A survey of our results is in complete accord with these reports. It is believed that this reduction increases the life expectancy and that the closer the blood pressure approaches the normal range the better are the ultimate results. It seems reasonable not to expect restitution of normal blood pressure in all cases even though the preoperative tests may so indicate. Undoubtedly some pathologic changes have occurred in patients with hypertension, and these may account for the maintenance of the blood pressure at varying degrees above normal.

Table 3.—*Known Duration of Hypertension*

Years	No. of Cases
2	31
3 to 5	29
6 to 10	34
11	6

The large number of factors that cause a variation in blood pressure make comparable conditions for satisfactory studies difficult to obtain. Any one who has attempted to correlate blood pressure readings realizes that it is a most unsatisfying task. At present, however, the blood pressure as a single factor is the best prognostic sign. Until a sufficient number of years have elapsed to prove beyond a doubt that the operative survival curve is materially prolonged as compared with that of the medically treated cases of Keith, Wagener, and Barker,[15] results must be determined by blood pressure readings, reversal of electrocardiographic changes, roentgenologic evidence that the size of the heart has diminished or remained stationary, improvement in the arteries of the retina and the subjective relief of symptoms.

TABLE 4.—*Results from Extensive Sympathectomy*

Good		47%
Fair		24%
Unsatisfactory		22%
Over 15 mı		
No blood ı		
(22% rec		
operation)		
Fatal *		7%
Operative mortality	0.5%	
Case mortality	1.0%	

* Six patients died since dismissal from hospital; 1 patient died two days after the second stage operation from a coronary occlusion.

Peet [16] has indicated by his results that the operative survival curve is prolonged in hypertension grades 3 and 4.

The demonstration of an increase in life expectancy together with a more comfortable existence is a real criterion and cannot be refuted. All indications point in this direction, but many years of careful follow-up must be instituted to verify this.

The preoperative blood pressure was considered to be that taken on admission to the clinic or at the patient's last visit before hospitalization. It was frequently the maximal blood pressure reading taken. The admission blood pressure was taken as the preoperative pressure because it more closely approximated the conditions under which the follow-up blood pressure readings were taken, with the patient ambulatory in the clinic or in the referring physician's office. The sodium amytal test revealed the minimal blood pressure reading.

CRITERIA FOR BLOOD PRESSURE RESULTS

The blood pressure results (tables 4 and 5) were considered good when the patient was symptomatically relieved of his hypertensive complaints and was in good physical condition, and when the blood pressure dropped to and remained at a level generally accepted as nondangerous. In the literature, a blood pressure of 150 mm. systolic and 100 mm. diastolic has frequently been considered as a maximal normal one. It has also been used to indicate a good operative result. To set up such an arbitrary figure would make some of our good results fair and some of our poor results good. For example, with a blood pressure of 142 mm. systolic and 104 mm. diastolic in a rehabilitated man working full time who is in excellent health and feels well, the result must be considered fair rather than good if an arbitrary standard is used. On the other hand, a patient with anasarca whose blood pressure is 132 mm. systolic and 92 mm. diastolic or a patient with recurrent coronary infarction with a blood pressure of 125 mm. systolic and 95 mm. diastolic would have to be considered to show a good result. Surely these patients had poor results, regardless of blood pressure. With this in mind, we have carefully selected from this series the cases in which we consider the results to have been good.

TABLE 5.—*Results from Extensive Sympathectomy*

	Patients	Good	Fair	Unsatisfactory	Fatal *
Grade 2	72	39	16	16	1
Grade 3	19	4	8	4	3
Grade 4	9	4	0	2	3
Totals	100	47	24	22	7

* See footnote, table 4.

The patients with fair results were chosen in a similar manner, except that their postoperative blood pressure readings were higher than those of the group with good results. They have sustained and maintained a lower blood pressure in a relatively nondangerous zone. These patients were as comfortable and as well off in general as those with good results, except for a higher blood pressure.

TABLE 6.—*Cases Showing Evidence of Regeneration of Sympathetic Nerves and Possible Candidates for Further Surgical Intervention*

		Operation			Follow-Up		
		Date			Date		
Case	Preoperative Blood Pressure	Mo.	Yr.	Ganglions Resected	Mo.	Yr.	Blood Pressure
5	210/140	9	42	T10-L2	11 2	43 46	115/ 86 150/115
7	230/140	11	42	T8-L2 T10-L2	8 9 11	43 44 45	122 (letter) 120/ 88 138/120
15	220/148	1	43	T9-L2 T8-L2	8 2	43 46	145/105 224/145
21	230/150	3	43	T8-L1 T8-L2	10 7 11	43 44 45	[illegible] [illegible] 188/120
22	220/150	3	43	T8-L1 T8-L2	7 2 4 11 2	43 44 45 45 46	135/110 145/110 204/122 205/142 222/150
37	210/120	9	43	T7-L2 T8-L3	3 2 4	44 45 45	164/110 170/108 210/120
38	210/140	9	43	T8-L2 T7-L2	3 7 11 1	44 44 45 46	138/100 118/ 85 138/114 200/156
51	240/140	4	44	T7-L2 T7-L2	6 10 2 6 11 2	44 44 45 45 45 46	165/ 95 170/ 94 180/100 170/ 95 190/106 222/122

The unsatisfactory results were those that occurred in patients who had no reduction in blood pressure, even though its level might qualify them for a rating of fair. For example, in a patient with a preoperative blood pressure of 170 mm. systolic and 100 mm. diastolic and a postoperative blood pressure remaining at this level, with recognition of the fact that hypertension is a progressive disease, it is possible that the progression was retarded or stopped by the operation. Nevertheless, these patients should be included in the group with unsatisfactory results. Patients with blood pressures that have been reduced but remain at 200 mm. systolic and 120 mm. diastolic, regardless of symptomatic relief, are included in the unsatisfactory group, because we consider these pressures to be in the danger zone. Also, patients ill from complications of hypertensive, cardiovascular or renal disease, such as cardiac decompensation and coronary infarction, are included in the group with unsatisfactory results, although the drop in blood pressure was good or could be classified as good or fair. As would be expected, the relief of the hypertensive symptoms occurred less frequently in the group with unsatisfactory results.

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[15] Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. **197:** 332-343 (March) 1939.

[16] Peet, M. M., and Isberg, E. M.: The Surgical Treatment of Essential Hypertension, J. A. M. A. **130:** 467-473 (Feb. 23) 1946.

We consider that a satisfactory result on the blood pressure has been obtained in 71 per cent of our cases. The blood pressure has been favorably affected in another 7 per cent. A poor result has occurred in 15 per cent (table 4). These cases comprise those in which no blood pressure response was obtained and those in which the patient was physically ill from hypertensive, cardiovascular or renal disease. Regardless of data on blood pressure, we believe that this operation must lengthen life to be retained as a sound surgical procedure. At present we believe that it increases longevity besides relieving symptoms and lowering the blood pressure. The known duration of the disease has no effect on the results in regard to blood pressure if the patient is selected for surgical intervention. However, from our early experiences, the patients selected are not over 50 years of age except in a few cases.

Table 7.—*Cases Indicating that Ejaculatory Mechanism May Not Be Entirely Controlled by Either the First or Second Lumbar Ganglion but More Likely Distributed Throughout the Lumbar Ganglions*

	Ganglions Resected*		
Case	Left	Right	
2	L2	L2	No ejaculation; potency unchanged
5	L2	L2	Libido diminished; power of ejaculation diminished
15	L2	L3	Libido and potency unchanged; ejaculation normal
27	L2	L1	Libido and potency unchanged; ejaculation normal
31	L2	L2	Libido and potency unchanged; ejaculation normal
35	L2	L2	Impotency preoperatively; libido, potency and power of erection improved; ejaculation normal; baby boy
38	L2	L2	No ejaculation; no coition except in morning (poor blood pressure result)
44	L2	L2	Libido and potency diminished; ejaculation incomplete
56	L3	L3	Libido and potency diminished; ejaculation absent at first; normal later
59	L3	L2	Libido and potency unchanged; no ejaculation
63	L2	L2	Libido and potency unchanged; no ejaculation
65	L2	L2	Libido and potency unchanged; no ejaculation
72	L2	L2	Libido and potency unchanged; no ejaculation
84	L2	L2	Libido and potency unchanged; ejaculation 75 per cent of normal
85	L2	L1	Impotency preoperatively; libido and potency much improved; ejaculation normal
103	T12	L2	Libido and potency unchanged; no ejaculation

* Lumbar ganglions given indicate lowermost extent of resection.

CONTRAINDICATIONS TO SURGICAL INTERVENTION

The contraindications to surgical intervention are: cardiac failure; renal failure, and severe retinal arteriosclerosis of the silver wire type, with all tests indicating a fixed type of blood pressure. In addition, patients with early and mild cases of hypertension are not operated on. Considerable caution should be exercised before resorting to operative intervention in patients with angina pectoris, auricular fibrillation or gallop rhythm. Cerebrovascular accidents are not in themselves a contraindication to surgical procedures, as is indicated by our results.

INDICATIONS FOR SURGICAL INTERVENTION

Operative intervention is advised in progressive essential hypertension regardless of age (under 50), sex or the known duration of the disease if the ocular fundi (tables 6 and 7) are of grades 2, 3 or 4 and if clinical tests have indicated a good or fair result. With grade 4 ocular fundi, especially in young people, an operation is advised as early as possible if the cardiac and renal functions are adequate. The usual clinical tests are of little value. In some of these cases results were excellent, even though the clinical tests indicated poor ones. Except in a few cases, surgical intervention is not advised in patients with ocular fundi of grade 2 or 3 in whom the tests show no evidence of a favorable blood pressure response. It is in this group that emotion is stirred and the desire to do everything possible to help is aroused. On the other hand, most of the deaths and many of the poor results have occurred in *this same group.*

Table 8.—*Results According to Age of Patient*

	Good		Fair		Poor	
Age, Yrs.	Cases	%	Cases	%	Cases	%
10 to 19	2	100.0	0	0	0	0
20 to 29	7	46.7	3	20.0	5	33.3
30 to 39	19	48.7	10	25.7	10	25.7
40 to 49	10	38.4	9	34.6	7	26.9
50	1	50.0	0	0	1	50.0
	39		22		23	

INDICATIONS FOR REOPERATION

Patients whose blood pressure has not been materially changed by operative intervention except for a temporary postural hypertension are not benefited by the removal of more thoracic ganglions. A patient whose blood pressure has shown definite lowering for a period of one to two years, followed by a return to previous levels, and who has had a recurrence of subjective symptoms should be considered a candidate for reoperation. If tests demonstrate regeneration of the sympathetic fibers, reoperation is justifiable.[16a] It is our hope to prevent regeneration as far as possible by executing a fairly complete removal of the splanchnic system at the initial operation. Reoperation necessarily is definitely more difficult than the primary procedure. That resumption of high blood pressure may take place after a number of years is indicated by the 8 cases presented in table 8. It is in these patients that reoperation seems justifiable.

EFFECTS OF EXTENSIVE SYMPATHECTOMY ON THE SEXUAL POWERS

That the lumbar ganglions have a definite influence on the ejaculatory power in the male is well known and is indicated by the following results of surgical operation in this series. Forty-one per cent of the male patients had normal ejaculation after the operative procedure and 21 per cent had no ejaculation. In 18 per cent the power of ejaculation was diminished. Libido and potency were the same as before operative intervention in 65 per cent, diminished in 23 per cent and improved in 12 per cent. That the power of ejaculation is predominantly controlled by either the first or second lumbar ganglion is not substantiated by the operative results in 16 cases studied from that point of view (table 9).

Table 9.—*Results According to Known Duration of Disease*

	Good		Fair		Poor	
Age, Yrs.	Cases	%	Cases	%	Cases	%
2 and under	14	51.9	4	14.8	9	33.3
3 to 5	10	47.6	6	28.6	5	23.8
6 to 10	11	37.9	10	34.5	8	27.6
11 and over	*3*	*50.0*	*2*	*33.3*	1	16.6
	38		22		23	

[16a] *Dr. Kurt Richter, Johns Hopkins Hospital,* has studied many of our patients at varying intervals postoperatively from the standpoint of skin resistance.

It seems reasonable to assume that in a system so variable as to the structure of the ganglions and the number of rami, the ejaculatory power may at times be distributed equally in the lumbar ganglions, even though most frequently one must assume that the first or second lumbar ganglion is predominantly in control.[17] Our results do not prove which of these is the more dominant, but there is evidence that resection of both of them frequently interferes with the ejaculatory power. One of the patients who was impotent and childless had been married for ten years before the operation. He had never used any contraceptive devices. Resection included the first and second lumbar ganglions on both sides. Twenty-eight months after the surgical procedure he stated that the power of erection, libido and potency were excellent and ejaculation was normal. This patient now is the father of a baby boy.

Abnormal change were not noted in the females. Two women have completed pregnancy since the operation. In the first, the preoperative blood pressure was 220 mm. systolic and 150 mm. diastolic. Surgical intervention was performed in October 1942 with removal of the tenth thoracic to the second lumbar ganglions bilaterally. The prenatal blood pressure was constant at 120 mm. systolic and 80 mm. diastolic. A full term delivery occurred on April 9, 1945. In December 1945 the blood pressure was 120 mm. systolic and 80 mm. diastolic.

In the second case the preoperative blood pressure was 265 mm. systolic and 152 mm. diastolic. Operative intervention was performed in March 1944, with resection of the seventh thoracic through the second lumbar ganglion bilaterally. In May 1944 the blood pressure was 170 mm. systolic and 115 mm. diastolic. In the fourth month of pregnancy it was 190 mm. systolic and 110 mm. diastolic, after which it gradually rose to 240 mm. systolic and 140 mm. diastolic. After delivery, which occurred at eight months on July 2, 1945, it returned to 180 mm. systolic and 110 mm. diastolic.

UNILATERAL KIDNEY DISEASE

In this series of 100 cases of essential hypertension, 6 nephrectomies were performed in combination with extensive bilateral sympathectomy. Associated hypertension and unilateral kidney disease should be treated as a separate entity; that is, if the latter is sufficient to warrant removal of the kidney, this should be done. The kidney should not, however, be removed solely in the hope that this will result in a lower blood pressure. In fact, it is dangerous to remove functioning renal tissue from a patient who may eventually die from uremia. There are, however, cases on record in which the blood pressure has been lowered to normal by removal of a diseased kidney. In hypertensive patients who undergo a nephrectomy for unilateral kidney disease, we perform a thoracolumbar sympathectomy at the same time.. If the blood pressure remains normal for ten days to two weeks the patient is discharged. If it returns to its preoperative level, as is the rule in all unilateral operations for hypertension, the sympathectomy is completed on the other side. In our 6 cases of nephrectomy combined with bilateral extensive sympathectomy the response of the blood pressure was good in 4, fair in 1 and unsatisfactory in 1. Brief reports of these cases follow.

Case 13.—The patient had a nonfunctioning kidney. The ocular fundi were grade 4. The microscopic diagnosis was hydronephrosis with nephrosclerosis. The blood pressure result was good.

Case 18.—The patient had a tumor in the lower pole of the right kidney. The ocular fundi were grade 2. The microscopic diagnosis was renal cell carcinoma. The blood pressure result was unsatisfactory.

Case 19.—The patient had a nonfunctioning kidney. The ocular fundi were grade 2. The microscopic diagnosis was chronic pyelonephritis. The blood pressure result was fair.

Case 64.—A cyst of the right kidney was shown by intravenous pyelogram. The ocular fundi were grade 2. The microscopic diagnosis was chronic pyelonephritis. The blood pressure result was good.

Case 71.—Nephrolithiasis in a contracted kidney was shown by intravenous pyelogram. The ocular fundi were grade 2. The microscopic diagnosis was nephrolithiasis and healed pyelonephritis with arteriosclerosis. The blood pressure response was good.

Case 95.—Disease of the right kidney was shown by intravenous pyelogram. The ocular fundi were grade 2. The microscopic diagnosis was healed pyelonephritis. The blood pressure result was good.

HEMIPLEGIA

Our experience with hemiplegia has been limited, since only 3 patients in this series have had cerebrovascular accidents at any time during the course of their disease. In general hemiplegia is not a contraindication to surgical intervention; if the patient is a good risk in other respects, the operation should be performed. The reports of these cases are as follows.

Case 8.—The ocular fundi were grade 4. The patient suffered hemiplegia on the left side two days after the first stage of the operation. The second stage was performed at the usual time. At present there is a good blood pressure response, and the hemiplegia is almost completely cleared. On May 15, 1945 closure of ruptured peptic ulcer occurred. The patient plays golf and drives his automobile.

Case 22.—The ocular fundi were grade 2. The patient suffered a hemiplegia in February 1943. Extensive sympathectomies were performed in March 1943. At the end of one year the blood pressure result was considered fair. At the end of three years it was poor. The only complaints at present are fatigue and worry about the blood pressure and the possibility of another hemiplegia. The ocular fundi are grade 2, with decided segmental intermittent vasoconstriction. The patient has returned to the hospital for reevaluation of his case, with the possibility of further resection.

Case 26.—The ocular fundi were grade 3. Surgical intervention was performed in May 1943. A fair blood pressure result was obtained and has been maintained. On Aug. 16, 1944 a mild hemiparesis occurred on the right side. The patient returned to work in three weeks and has had no complaints except some numbness on the right side.

CORONARY THROMBOSIS

There were 3 cases of myocardial infarct. Such patients are exceedingly poor risks, and it is doubtful that their life expectancy can be prolonged by lowering the blood pressure.

Case 70.—A man aged 51 had known hypertension of six years' duration. He complained of headache, dizziness, nervousness and insomnia. He had a possible coronary thrombosis on Nov. 1, 1942. The ocular fundi were grade 3. The preoperative blood pressure was 250 mm. systolic and 146 mm. diastolic to 205 mm. systolic and 140 mm. diastolic; with the sodium amytal test it was 140 mm. systolic and 100 mm. diastolic. At operations performed September 6 and September 20 the sixth thoracic to the second lumbar ganglions were resected. The postoperative blood pressure was 190 mm. systolic and 100 mm. diastolic before death, which occurred suddenly two days after the second stage operation, on Sept. 22, 1944, after gasping, cyanosis and a falling pulse. No autopsy was performed. The clinical diagnosis was coronary thrombosis.

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[17] de Takats, G., and Helfrich, L. S.: Sterility of the Male After Sympathectomies, J. A. M. A. **117**: 20-21 (July 5) 1941.

Case 82.—The patient was a 45 year old man with known hypertension for nine years. Myocardial infarction had occurred eight years previously, and more recently there had been symptoms of angina pectoris. The ocular fundi were grade 2; there was auricular fibrillation.

The preoperative blood pressure was 200 mm. systolic and 150 mm. diastolic. With the sodium amytal test it was 150 mm. systolic and 90 mm. diastolic. The two stage operation was performed, with resection from the sixth thoracic to the second lumbar ganglion and from the sixth thoracic to the first lumbar ganglion, in January 1945. The patient subsequently had an anterior myocardial infarction. He gradually recovered and returned to work but remained in poor condition. In September 1945 he complained of dyspnea, edema of the ankles and attacks of precordial distress. He was advised to stop work and go to bed. In January 1946, after three months in bed, he had cardiac decompensation with anasarca despite intensive medical treatment.

Case 97.—The patient was a 33 year old man with known hypertension for four years. He complained of severe headache, nausea, vomiting and giddiness. The preoperative blood pressure was 180 mm. systolic and 120 mm. diastolic. With the sodium amytal test it was 110 mm. systolic and 75 mm. diastolic. The ocular fundi were grade 2. The patient was considered an ideal candidate for splanchnicectomy, which was performed in May, 1942: the tenth thoracic to the second lumbar ganglions were removed, and after the second stage the patient suffered a pulmonary embolus from the left thigh. He gradually recovered, and the blood pressure result was considered fair. He returned to his work as a banker. Within the last few months he has had at least two coronary attacks. At present he has no thoracic pain, angina or cardiac decompensation. The blood pressure is 125 mm. systolic and 90 mm. diastolic. The patient has recently applied for compensation for complete disability. The result is considered to be poor.

ANGINA PECTORIS

Eight patients had angina pectoris. In these cases, also, the likelihood of death or a poor result is definitely increased.

Case 4.—The patient was a 40 year old man with known hypertension of three years' duration. He complained of severe occipital headaches. The preoperative blood pressure was 185 mm. systolic and 115 mm. diastolic to 270 mm. systolic and 150 mm. diastolic. With the sodium amytal test it was 160 mm. systolic and 115 mm. diastolic to 200 mm. systolic and 125 mm. diastolic. The postoperative pressure was 150 mm. systolic and 90 mm. diastolic to 200 mm. systolic and 125 mm. diastolic.

This patient had a normal blood pressure in 1939. He was treated in the medical department in 1940, at which time the hypertension was first observed. The two stage operation was performed on Sept. 11 and 23, 1942, removing the tenth thoracic to the second lumbar ganglion, right and left. On his discharge from the hospital on October 15, the blood pressure was 150 mm. systolic and 90 mm. diastolic to 200 mm. systolic and 125 mm. diastolic. The patient was symptomatically improved and had no headaches. He returned to the hospital in January 1943 with complaints of nocturnal dyspnea and edema of the ankles for four weeks. There was anasarca. The ocular fundi were grade 4. The congestive failure did not respond to medical management. The nonprotein nitrogen was within normal range until April 28, 1943, when it was 58 mg. per hundred cubic centimeters. It gradually rose to 175 mg. on July 22, 1943. The blood pressure averaged 250 mm. systolic and 130 mm. diastolic for several months and then fell precipitously to 140 mm. systolic and 100 mm. diastolic two days before the patient's death, which occurred on Aug. 11, 1943 from uremia. Autopsy revealed cardiac and renal failure, cardiac hypertrophy and anasarca and nephrosclerosis.

Case 11.—The patient was a 46 year old white man with known hypertension of five years' duration. He complained of headache, angina pectoris and episodes of cerebral spasm. Ocular fundi were grade 2, with grade 3 to 4 arteriolar sclerosis of the retinal vessels. The preoperative blood pressure was 165 mm. systolic and 110 mm. diastolic to 240 mm. systolic and 120 mm. diastolic. With the sodium amytal test it was 110 mm. systolic and 60 mm. diastolic. The patient accepted the operative intervention, knowing that he had little chance for relief. The two stages were performed on Nov. 3 and 12, 1942. The postoperative blood pressure was 200 mm. systolic and 100 mm. diastolic. In May 1943 the administration of potassium thiocyanate was tried, without relief of the headaches and with no blood pressure response. The patient never fully recovered from the operation and died on December 29 of a heart attack. No postmortem examination was made.

Case 42.—The patient was a 47 year old woman with known hypertension of ten years' duration. She complained of headache, dizziness, nausea and vomiting. The ocular fundi were grade 4. The case was diagnosed at admission as one of possible brain tumor. The preoperative blood pressure was 280 mm. systolic and 200 mm. diastolic. With the sodium amytal test it was 140 mm. systolic and 100 mm. diastolic. The surgical operations were performed in November 1943. In June 1944 the fundi were normal, there was a rare complaint of mild headache and the patient was working eight hours a day. The postoperative blood pressure was 180 mm. systolic and 110 mm. diastolic to 168 mm. systolic and 100 mm. diastolic. On July 5, 1945, when the blood pressure was 140 mm. systolic and 85 mm. diastolic, a hysterectomy and bilateral salpingo-oophorectomy were performed. On August 2, there were no complaints and the blood pressure was 154 mm. systolic and 82 mm. diastolic. The patient was considered to have a good result but died suddenly of a cerebral hemorrhage in another city on Oct. 20, 1945.

Case 74.—The patient was a 41 year old man with known hypertension of three years' duration. He complained of headache, giddiness and angina. The preoperative blood pressure was 260 mm. systolic and 140 mm. diastolic. With the sodium amytal test it was 110 systolic and 84 diastolic. The ocular fundi were grade 2. The operative intervention was performed in September 1944. The angina disappeared in two to three months. The patient could not tolerate glyceryl trinitrate, even 1/500 grain (0.12 mg.) causing giddiness and weakness. Papaverine hydrochloride was used in its place, with satisfactory results. The blood pressure is now 145 mm. systolic and 108 mm. diastolic. The angina has completely disappeared, and there are no complaints. The patient is working and has recently passed a general examination for employment by the Western Electric Company.

Case 77.—The patient was a 46 year old woman with known hypertension of ten years' duration. She complained of angina pectoris and nervousness. The ocular fundi were grade 2. The preoperative blood pressure was 270 mm. systolic and 150 mm. diastolic. With the sodium amytal test it was 150 mm. systolic and 100 mm. diastolic. The operation was performed in April, 1945; from the fifth thoracic to the second lumbar ganglions were removed bilaterally. There were severe attacks of angina subsequent to the surgical intervention. These continued for six months. The patient took 1/400 grain (0.15 mg.) of glyceryl trinitrate, following which the angina gradually subsided. At present it is not nearly so severe or so frequent as it was before the operation. The patient is comfortable during warm weather. The blood pressure is 218 mm. systolic and 122 mm. diastolic.

Case 100.—The patient was a 50 year old woman with known hypertension of nine years' duration. She complained of headache, tenseness and angina pectoris. The preoperative blood pressure was 210 mm. systolic and 130 mm. diastolic. With the sodium amytal test it was 165 mm. systolic and 100 mm. diastolic. The ocular fundi were grade 2. At the operation performed in May, 1945, the fifth thoracic to the second lumbar ganglions, right and left, were removed. The angina has gradually become less in severity and frequency.

Case 45.—The patient was a 25 year old woman with known hypertension of two years' duration. She complained of severe headache, nervousness and tension. The ocular fundi were grade 4. The patient insisted on surgical intervention. The preoperative blood pressure was 240 mm. systolic and 175 mm. diastolic to 220 mm. systolic and 150 mm. diastolic. With the sodium amytal test it was 200 mm. systolic and 150 mm. diastolic. The first stage operation was performed on Nov. 14, 1943. On discharge from the hospital December 16, after this operation, the blood pressure was 190 mm. systolic and 140 mm. diastolic. On three occasions over a liter of fluid was removed from the pleural cavity. On March 15, 1944 the blood pressure was 244 mm. systolic and 160 mm. diastolic; the nonprotein nitrogen level was 52 mg. per hundred cubic centimeters. The patient died on April 6, 1944 of malignant hypertension with hypertensive cardiovascular renal disease.

Case 57.—The patient was a 36 year old man with known hypertension of eight years' duration. He complained of occipital headache, blurring vision and angina pectoris. The ocular fundi were grade 3. A gallop rhythm was present. The preoperative blood pressure was 220 mm. systolic and 130 mm. diastolic to 200 mm. systolic and 130 mm. diastolic. With the sodium amytal test it was 166 mm. systolic and 86 mm. diastolic. The two stages of the operation were performed on March 5 and April 4, 1944. No postoperative difficulties were encountered. The blood pressure on discharge was 155 mm. systolic and 100 mm. diastolic. The patient died suddenly on Dec. 21, 1944, probably from coronary thrombosis.

COMMENT

The final opinion as to the merits of thoracolumbar sympathectomy as a means of treatment of essential hypertension must necessarily remain open until the surgical and medical survival curves can be compared. Since the operative mortality is 0.5 per cent and since several previous reports, as well as those of our series, indicate that a substantial number of patients obtain a good result, as evidenced by an arrest of the disease which allows a considerably more comfortable existence, we can arrive at no other opinion than that the procedure is well worth while in a selected group of patients.

Table 10.—*Summary of Data on Blood Pressure in Three Cases*

Case	Preoperative Blood Pressure	Date of Operation Mo.	Date of Operation Yr.	Follow-Up Date Mo.	Follow-Up Date Yr.	Follow-Up Blood Pressure
8	210/140	11	42	6	43	146/109
				3	45	145/110
				11	45	135/94
				3	46	125/90
20	212/120	3	43	6	43	190/110
				8	43	158/105
				4	44	155/90
				8	45	140/90
				2	46	140/90
42*	280/120	11	43	6	44	168/109
				10	44	178/122
				7	45	140/85
				8	45	154/82

* Died Oct 20, 1945 of a cerebrovascular accident.

One must not fail to realize that hypertension is the leading cause of death and is four times as deadly as cancer. In many cases it causes as much discomfort to the patient as does cancer, in which one does not hesitate to make use of surgical means or roentgen therapy in an attempt to cure the disease or to lessen suffering. It is true that sympathectomy in the treatment of hypertension may eventually be replaced by well directed operation on the blood pressure centers intracranially or by the discovery of certain chemical or hormonal substances that will cure the disease. On the other hand, this may not occur in the present generation. Therefore, a surgical procedure that gives reasonable assurance of correcting or lessening the effects of the disease should be instituted until a more efficacious treatment has become available.

The criticism of this operation lies in the fact that the patient is hospitalized for a period of about four weeks. Four days of this is spent in study. Many patients have considerable postoperative neuralgia, which lasts for several days or several weeks after their return home. Because of the alterations in blood pressure produced by changes in position, the legs and abdomen may need firm pressure bandages or support so as to avoid syncope or palpitation for several weeks or months after the operative procedure until a thoroughly stable blood pressure has been established.

The selection of patients for surgical intervention cannot be decided entirely by dogmatic criteria. That age should be considered an important factor is based on common sense. Certainly, most persons who have reached the age of 50 have thickening of the walls of the arterial system, regardless of whether this fact can be demonstrated grossly. Much of course, depends on heredity. Many of the patients operated on early in our experience were over 55 years of age and showed extensive arterial changes. We concluded that in any patient 50 years of age or over there should be a degree of hesitancy in advising surgical intervention.

Emphasis must be placed on the longevity of the blood relatives. It is logical to assume that a family history of hypertension of short duration, causing early breakdown of the cerebrovascular and renal systems, is potentially much more serious than a history in which the blood relatives have had hypertension for many years but have lived a normal span of life, finally dying of cerebral hemorrhage or uremia.

It was stated previously herein that in early cases and those with grade 1 ocular fundi the patients do not require surgical intervention and can be satisfactorily handled by medical treatment. This opinion may change as time goes on and more information concerning the life expectancy in such patients on medical treatment alone becomes available. Certain patients in the group with grade 1 ocular fundi may actually need surgical intervention, especially when intracranial symptoms can be directly attributed to the hypertension. It is possible that more of these patients should be subjected to surgical intervention than we have heretofore thought necessary.

The cases classified as grade 4, with choking of the optic disks and retinal hemorrhages occurring in relatively young patients and with a fulminating or rapidly progressing hypertension, form a group in which operative intervention should be performed as soon as possible, because when this has been delayed until after elevation of the nonprotein nitrogen has taken place, the results have been poor.

The ultimate results of the operation cannot be predicted from the immediate postoperative blood pressure readings. There is always a dramatic lowering for three or four days after the first stage of the sympathectomy. The blood pressure is usually at the preoperative levels on the seventh postoperative day. The level is again dramatically lowered for several days after the second and final stage of operation and does remain so in many cases. In others, however, there is a rise on the seventh day or at the time the patient begins to become more active, and the blood pressure may reach its preoperative level except in the sitting or standing position when there is a decided postural hypotension. The lower blood pressure level may take place in a few days or weeks; that this lowering may be gradual and occur over a period of several months, is indicated by the data on the blood pressure in 3 cases summarized in table 10.

SUMMARY

One hundred consecutive patients were subjected to extensive thoracolumbar sympathectomy by the same surgeon and carefully followed for one and a half to four years after operation.

The results of operation were as follows: good, 47 per cent; fair, 24 per cent, and unsatisfactory, 22 per cent. The operative mortality was 0.5 per cent (case mortality, 1 per cent). Six per cent of the patients died subsequent to their dismissal from the hospital.

MEDICAL EVALUATION OF THE SURGICAL TREATMENT OF HYPERTENSION

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Common sense and clinical and scientific hypothesis as well hold that the unfavorable progress and end of patients with hypertension is related to the height of the blood pressure. Not the only test but an important test of any therapeutic procedure in continued arterial hypertension is the effect on the level of the blood pressure. Since it has been observed that most patients with essential hypertension have well defined spontaneous lowering of the blood pressure and that a considerable number have normal blood pressure levels transiently (23 per cent of early benign cases, 11 per cent of moderate cases, 8 per cent of advanced cases and even 8 per cent of malignant cases), the duration of the hypotensive effect and a fall to normal or near normal are important criteria for critical evaluation. As a medical observer I have been intimately associated with the surgical treatment of hypertension first for seven years and then after a hiatus of three years again for the past year, and certain observations in the course of this experience have been recorded (table 1).

I. *Interval Medical Evaluation of the Hypotensive Effect of Sympathectomy for Essential Hypertension.*—In September 1940 after five years of careful preoperative and postoperative observation of 74 patients with all grades of essential hypertension treated by supradiaphragmatic sympathectomy, it was found that 9, or 12 per cent, had normal or near normal blood pressures (150 mm. of mercury systolic and 110 mm. of mercury diastolic or less). The 74 patients were fairly equally divided among the four grades of hypertension. The favorable results occurred chiefly in patients with mild variable or moderate hypertension, grades 1 and 2.

Hypertension.—Grade 1: Variable hypertension, 150 to 200 mm. systolic and 100 to 120 diastolic, 23 per cent falling to normal levels (140 systolic and 90 diastolic or less) with rest or sedatives, occasionally under stress going above the limits noted; no changes or minimal changes in fundi as represented by narrowing of arterioles; minimal or no changes in heart or kidneys. This is early or mild hypertension.

Grade 2: Variable hypertension, 170 to 230 mm. systolic and 110 to 130 diastolic, usually at the lower levels, occasionally even lower, but falling to normal with rest or a sedative in 11 per cent, the fundi showing arteriovenous compression with widening of the light reflex, narrowing and caliber changes in the arterioles; the heart showing slight enlargement or prominence in the region of the left ventricle by roentgen examination; the urine showing no change or slight grades of albuminuria and minimal numbers of formed elements in the sediment; the renal function being normal or slightly impaired by concentration and intravenous phenolsulfonphthalein tests. This is moderate hypertension.

Grade 3: Variable (but usually upward) hypertension, almost always over 170 mm. systolic and 110 mm. diastolic but observed normal levels in 8 per cent; the fundi showing arteriovenous compression, caliber changes in arterioles, wide light reflex, often exudates or hemorrhages; the heart often enlarged commonly with symptoms and signs of actual or impending congestive failure or symptoms of anginal failure; the urine often showing albumin and casts; renal function often impaired, but actual failure (uremia) unusual; cerebral accidents sometimes occur. This is late benign hypertension, frequently of many years' standing.

Grade 4: Blood Pressure, especially the diastolic, usually decidedly high although exceptionally normal blood pressure levels may be observed; difficulties often of recent onset in a patient almost always under 50, often under 40 years of age, the cardinal sign being edema of the optic disks with or without exudate and hemorrhage; cardiac enlargement and congestive heart failure may be present; renal impairment and failure are common. This is malignant hypertension.

My surgical colleague at the time (Dr. R. H. Smithwick), as this experience developed, had suggested that a more extensive operation interrupting all sympathetic innervation of the splanchnic bed would reduce the possibility of regeneration and might equal the brilliant results obtained in these few patients and possibly extend the benefits to a significantly larger proportion. He gradually extended the operation first on one side, later on both sides to include the sympathetic chain from above the ninth dorsal to below the first or second lumbar ganglion.[1]

Table 1.—*Effect of Sympathectomy in Essential Hypertension*

Operation	Date of Survey	No. of Patients	Duration of Follow-Up	Percentage Fall to 150/110 or Less
Dorsal sympathectomy........	1940	74	5 yrs. ±	12%
Dorsolumbar sympathectomy	1940	29	Mos. to 2 yrs.	69%
Dorsolumbar sympathectomy	1941	40	Up to 3 yrs.	53%
Dorsolumbar sympathectomy	1943	101	62 for 1 yr. 22 for 1-2 yrs. 14 for 2-3 yrs. 3 for 3-4 yrs.	37.6%
Dorsolumbar sympathectomy	1946	72	Mos. to 3 yrs.	33%
Dorsolumbar sympathectomy	1946	68	3 or more yrs.	23.5%
Medical regimen incl. KSCN...	1943	100	Mos. to 4 yrs.	12%

In November 1940 29 patients had been treated by more extensive operations, 20 of them showing excellent results on the level of the blood pressure. For the first time patients with severer grades of hypertension were benefited. Seven of 10 patients graded 3 and 3 of 7 patients graded 4 appeared to have been helped much in respect to the blood pressure level, whereas none of the 34 patients equally divided between grades 3 and 4 had been so benefited by supradiaphragmatic sympathectomy.

The follow-up period on these patients with the more extensive operations at that time was short (a few months up to two years), but it then seemed clear that the more extensive the operation the more likely the excellent results on the level of the blood pressure: all sympathetic ganglions and nerves from above the ninth dorsal to below the first lumbar and preferably below the second lumbar segment should be removed

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[1] Smithwick, R. H.: A Technique for Splanchnic Resection for Hypertension, Surgery 7: 1 (Jan.) 1940.

on both sides. About a year later 49 patients had been treated by bilateral dorsolumbar sympathectomy (from the ninth dorsal to below the first or second lumbar ganglion) and were compared with patients who were closely similar in regard to sex, grade of disease and duration of known hypertension and who were on a medical regimen. Twenty-six, or 53 per cent, of these 49 patients had normal or near normal blood pressures.

Comparison, in respect to the blood pressure level, of the surgically-treated with concurrently medically-treated patients of closely similar age, sex, degree and duration of hypertension and time of follow-up was as follows:

Grade 1 hypertension: Of 12 patients surgically treated 10, or 83 per cent, were normal or near normal; of 26 patients medically treated 7, or 27 per cent, were normal or near normal.

Grade 2 hypertension: Of 7 patients surgically treated 5, or 70 per cent, were normal or near normal; of 7 patients medically treated 1 (14 per cent) was normal or near normal.

Grade 3 hypertension: Of 18 patients surgically treated 4, or 22 per cent, were normal or near normal, of 10 patients medically treated 1 (10 per cent) was normal or near normal.

TABLE 2.—*Comparison of Clinical Evidences of Organic Change*

		Sex		Fundi					Heart Size and Function				Renal Function			
	No	M	F.	0	1	2	3	4	No Change or Slight Enlargement	Moderate Enlargement	Decided Enlargement	Heart Failure	Normal	Impaired	Decided Impairment	
The dead—"certainly unsuccessful"	21	14	7	1	3	7	4	6	15	4	2	6	8	9	4	7 over 40 years of age; spontaneous fall to near normal 1/10; fall to normal with sedative test 1/3; very high diastolic pressure 2/5
Those with B. P. 150/110 or lower—"the certainly successful"	16	2	14	0	6	7	0	3	15	1	0	1	12	4	0	3 over 40 years of age; spontaneous fall to near normal 1/5; fall to normal with sedative test 1/2, very high diastolic pressure 1/5
Those who remain or have again become hypertensive—"the doubtful"*	31	10	21	1	8	9	7	2	25	5	1	3	21	10	0	12 over 40 years of age; spontaneous fall to near normal 1/3; fall to normal with sedative test 1/2; very high diastolic pressure 1/3

* Class undetermined, 4

Grade 4 hypertension: Of 12 patients surgically treated 5, or, if 2 with blood pressures slightly over 150 systolic and 110 diastolic are included, 7 (57 per cent) were near normal; all the patients with malignant hypertension who were medically followed died under observation or soon after or were lost and presumed dead. It appeared that grades 1, 2 and 4 hypertensive patients had the best chance of receiving benefit, that in any case in a parallel follow up of matched cases, dorsolumbar sympathectomy was *definitely superior to* medical treatment in controlling the blood pressure level.

In November 1943 the status of 101 patients was reviewed. All had been treated by dorsolumbar sympathectomy (including at least resection from the ninth dorsal through the first lumbar ganglion on both sides). Sixty-two had been followed for one year or less after operation, 22 for one to two years, 14 for two to three years and 3 patients up to four years. Thirty-eight, or nearly 40 per cent, had normal or near normal blood pressures. The duration of follow up was variable, and the data were the product of a number of different observers: nevertheless, it again appeared that a significant number of patients showed remarkable improvement in the blood pressure and the greater proportion of excellent results occurred in patients with grade 1, 2 and 4 hypertension.

After three years the result of surgical treatment of essential hypertension has again been evaluated medically with a review of 68 patients. All the patients had dorsolumbar sympathectomy for hypertension more than three years ago. Forty-seven of these patients are living; 16 of them with normal or near normal blood pressures and 8 with blood pressures entirely normal. Twenty-one of the 68 patients have died.

Thus during the period of observation in round figures 30 per cent have died,[2] 45 per cent have remained or have become hypertensive while 25 per cent have normal or near normal blood pressures, some of them (3 patients) five or more years after operation. In a carefully controlled group of 100 patients with hypertension on a general medical regimen plus the use of potassium thiocyanate, it had been found previously that, under the best conditions of medical treatment and follow-up, a sustained fall of the blood pressure to normal or near normal levels may be effected in 12 per cent.[3]

II. *The Clinical Characteristics of Sixty-Nine Patients Treated Three or More Years Ago by Dorsolumbar Sympathectomy.*—In the evaluation of results in the surgically-treated patients with hypertension, those in the dead may be considered as certainly unsuccessful and those in the living patients with normal or near normal blood pressures after at least three years as successful.

Sex and age: Of the 21 patients who have died 7 were women, 14 men; 7 were 40 years of age or older. Of the 16 patients in whom results are regarded to date as successful, 14 are women, 2 are men; 3 are 40 years of age or older.

Clinical evidence of organic change. A comparison of clinical evidences of organic change in these two groups (table 2) is as follows: Of the unsuccessfully treated, the heart was normal in 6, showed minimal enlargement in 9, moderate enlargement in 4 and decided enlargement in 2; actual failure was present in 6 patients. Of the 16 certain successes, the heart was normal in 8, showed minimal enlargement in 7 and moderate enlargement in 1 patient. One case was considered to show evidence of failure, and in another the presence of failure was questioned. Of the 21 failures, impairment of renal function was present in 13 and was well defined in 4 of these. Of the 16 successes, renal impairment was present in 4 and was questioned in 2 others. Of the 21 dead, the fundi were normal in 1, showed narrowing of the arterioles only in 3, arteriovenous compression and/or widening of the light reflex in 7; in addition to abnormal arterioles the fundi showed retinal exudate and hemorrhages in 4, and there was typical hypertensive neuroretinopathy with papilledema in 6. Of the 16 patients successfully treated by surgical means, 6 showed arteriolar spasm only, 7 showed arteriovenous compression and/or widening of the arteriolar light reflex, none showed retinal exudate or hemorrhage and 3 showed typical hypertensive neuroretinopathy with papilledema.

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[2] In a control group of 646 hypertensive patients, the study of which was interrupted by the war, the mortality of the 50 per cent followed to date or death at that time (222 patients) was 30 per cent

[3] Fanson, E; Kinsey, D, and Palmer, R S Potassium Sulfocyanate Therapy in Essential Hypertension, New England J Med. **229:** 540 (Sept 30) 1943

While this series is too small and the number of observations too limited to be definite statistically, a comparison of preoperative blood pressure levels and variations offers tentative guidance. In these two groups, the certain failures and the certain successes, the preoperative levels of the blood pressure in general were comparable. In a greater proportion of the successes the blood pressure approached normal levels spontaneously (5 as compared with 2 of the failures). Extremely high maximum levels of the diastolic pressure (150 or more) were somewhat more frequent (9 of 21) in the unsuccessfully treated as compared with the therapeutic successes (3 of 16). With the sedative test strictly normal blood pressures were recorded preoperatively in 7 of the 14 successfully treated patients who were so tested, in 4 of the 13 failures so tested. In the successes and the failures there appeared to be about the same proportion of the relatively high diastolic pattern with narrow pulse pressure (considered most favorable) and of the relatively lower diastolic pattern with wider pulse pressure (least favorable).

There are 31 patients who have remained or have become hypertensive in the three or more years (5 of them over five years) since dorsolumbar sympathectomy; hence any improvement may be regarded as doubtful or equivocal. Of these 21 are women and 10 are men; 12 are 40 years of age or older. Prior to operative intervention the heart was normal in size in 11, showed prominence in the region of the left ventricle in 14, moderate enlargement in 5 and decided enlargement in 1. Actual failure of the heart was present in 3. Renal function was impaired in 10 patients, questionably so in 3. The fundi were normal in 1 patient, showed narrowing of the arterioles only in 8, wide light reflex and/or arteriovenous compression in 9, exudate and hemorrhages in 7 and typical neuroretinitis with papilledema in 2. Classification of the fundi was undetermined in 4 instances.

In general the blood pressure levels were comparable to those referred to as certain successes and certain failures. In this doubtful group spontaneous fall of the blood pressure to normal or near normal levels occurred in about one third of the patients, proportionately the same as among the successfully treated. With the sedative test the blood pressure of nearly half of those tested (10 of 22) fell to within normal limits, as in the successful group. Maximum diastolic pressures were decidedly high (150 or more) in about a third (10 of 31), which was proportionately more than among the successes and less than among the certainly unsuccessful. The most favorable blood pressure pattern (relatively high diastolic with smaller pulse pressure) was found more commonly in this doubtful group than in either successes or failures, and the least favorable pattern was less common in this group than in either of the other two.

Improvement in the electrocardiogram subsequent to sympathectomy has been reported.[4] Of these 68 patients there were 29 who had adequate postoperative follow-up electrocardiograms. Changes were slight and of doubtful significance in 4 patients. In 8 there was evidence of improvement. There was no change in 5, and the electrocardiograms were worse in 12. The significantly improved electrocardiograms occurred in 5 patients whose blood pressures are normal or near normal and in 3 of those who are again hypertensive. Electrocardiograms were worse in 4 of those whose blood pressures are normal or near normal and in 6 of those who are again hypertensive. The size of the heart, as judged by 7 foot (231 cm.) roentgenologic study, may become less after surgical operation. Such postoperative study has been done in 7 of the patients whose blood pressures are normal or near normal three or more years after operation. In 3 of these patients the shadow of the heart is considered smaller, and in 4 there has been no change. Of 13 patients who remain or again have become hypertensive in whom roentgenologic follow-up of the size of the heart has been done the shadow of the heart is smaller in 3, larger in 2 and shows no change in 8.

The grade of hypertension benefited is indicated by the fact that 75 per cent of the certainly successful patients were those with grade 1 or 2 hypertension, but among the successes was 1 patient designated grade 3 because she was considered to have actual heart failure. The most important observation is that 3 patients with malignant hypertension are now known to have normal or near normal blood pressures, 1 for over three years, the other 2 for slightly less than and slightly over five years, respectively. None of these 3 had any evidence of renal impairment by qualitative tests; none had any evidence of actual heart failure; only 1 showed slight cardiac enlargement. There are 2 patients with malignant hypertension in the "doubtful" group because they are still hypertensive. They are alive and working, 1 over three years and the other nearly five years after operation; they undoubtedly have had their lives prolonged and have been afforded a considerable respite from their disease. One had no cardiac or renal impairment; the other had questionable renal impairment. All 5 patients with malignant hypertension were seen and operated on very early in the malignant phase. Of the 6 patients with malignant hypertension who have died, 3 had impaired renal function, 1 of them to a moderately severe extent, and the other 3 had both renal and cardiac failure.

III. *Summary of Three to Five Year Follow Up of Patients with Essential Hypertension Treated by Dorsolumbar Sympathectomy.*—From a review of these patients (21 dead, and therefore failures; 16 with normal or near normal pressures three or more years after dorsolumbar sympathectomy, and therefore successes; 31 with hypertension three or more years after operation, and therefore doubtful or equivocal) it would seem that there are no positive tests or categories by which success or failure may be predicted accurately in an individual patient. In general it probably is true that the younger the patient (preferably under age 40) and the less the evidence of organic change the better the chance of an excellent result. The chances of women appear to be better, probably because the disease in general is more benign in women. The pattern of the blood pressures in these patients seems to have made little difference except that extremely high diastolic pressures are associated with more pronounced organic changes.[5] A spontaneous fall of the blood pressure to near normal while at rest in bed evidently is favorable but may occur in those whose blood pressure ultimately will be uninfluenced by operative intervention. With the sedative test a fall to normal is found less frequently in those who may be expected to die of their disease but about as often in those who remain or again become hypertensive as in those impressively benefited in respect *to their blood pressure levels. Finally, there is a diminishing* return of maintained normal or near normal blood pressures the longer one follows these patients. At first two thirds had blood pressures normal or near normal; later the figure was 50 per cent, then 40 per cent and now 25 per cent in patients followed three years or longer. At the present time, of 72 additional patients being followed for varying periods less than three years after operation, 24 (exactly one third) have blood pressures of 150 systolic and 110 diastolic or less. However, the comparison of 49 patients treated by dorsolumbar sympathectomy with 43 closely matched patients on a medical regimen showed that surgical treatment was definitely more effective in lowering the blood pressure, even if only temporarily; this was especially notable in the mild grade 1, moderate grade 2 and in malignant, or grade 4, hypertension but not too impressive in late benign, or grade 3, hypertension. Also, the 25 per cent sustained lowering of the blood pressure to normal or near normal levels by dorsolumbar sympathectomy is at least twice as good as the results obtained by a medical regimen plus the use of potassium thiocyanate in 100 cases.

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[4] Bridges, W. C.; Johnson, A. L.; Smithwick, R. H., and White, P. D.: Electrocardiography in Hypertension (Study of Patients Subjected to Lumbodorsal Splanchnicectomy), J. A. M. A. 131:1476 (Aug. 31) 1946.

IV. *Physiologic Effects, Disabilities and Dangers of Dorsolumbar Sympathectomy.*—It remains to inquire into the physiologic effects, the disabilities and the dangers of dorsolumbar sympathectomy. These may be the deciding factors in prescribing or withholding this procedure in patients with hypertension.

Immediately after the operation, especially after both sides are done, there is a profound and sustained fall in blood pressure which usually requires elevation of the foot of the bed and the administration of parenteral fluids including blood and of neo-synephrine hydrochloride intravenously. Recovery from this initial severe hypotension takes place in two to five days, but the hypotension may persist longer. Thereafter, sitting upright or standing may cause prompt disappearance of the blood pressure in the arm, an exceedingly rapid pulse, breathlessness, decided blanching, often coldness of the upper extremities and unconsciousness; in short, orthostatic hypotension with vasomotor compensatory adjustments. A tight elastic abdominal binder and tight elastic bandages on the legs will ameliorate or prevent these changes, especially if there is accompanying muscular activity (walking). These signs become somewhat less pronounced in the course of a day with periodic assumption of the upright position, and progressively less in the course of one to two months but may be recognized in some cases as long as two to three years after operative intervention. Tachycardia, breathlessness and a lightheaded feeling often are noted months or years later, when the subject has climbed a flight of stairs and pauses. The dilated minute vessels, one may suppose, add to the reservoir available for pooling of the blood. This is similar to the faintness of athletes on standing after a foot race. In the earlier period after surgical intervention the patients while sitting in a chair, reading or feeding themselves (minimal muscular activity in the lower half of the body) frequently have a white, gray or sallow pallor and lack tone in the facial muscles and eyelids; at times they have a slight *clouding or retardation of mentation, tachycardia* and breathlessness and coldness of upper extremities. These symptoms and signs are immediately relieved by the *recumbent position. The dyspnea and tachycardia* immediately on standing may be reduced by walking. The picture is that of a normal person suffering from "too many G's," or an uncompensated or incompletely compensated effect of gravity on the blood.

There are wide individual variations, but tolerance of the upright posture is developed the longer this posture is maintained. To raise the head of the bed during the hours of sleep reduces the intolerance noted more especially on rising in the morning. Most patients, though not all, can do without leg bandages in a few weeks and without an abdominal binder in two or three months. As noted previously, in the majority of this series (75 per cent), the blood pressure returns to hypertensive levels when the patient is followed three years or more, but in many instances there is a relative postural hypotension of some degree, an exceptional finding preoperatively. The less definite and persistent the hypotensive effect, the shorter is the period of convalescence and rehabilitation. It is concluded that a major effect of dorsolumbar sympathectomy in the majority of patients is pooling of the blood mass by gravity in the lower portions of the body. It is submitted that the objective signs of reduced strain clinically, in the electrocardiogram and in roentgenograms of the heart, may be related in part to pooling of the blood in dependent minute vessels with a diminished venous return during the two thirds of the day when the subjects are in the upright position. That the effect of the surgical operation is not primarily on the kidney is suggested by one observation. In a previously nephrectomized patient dorsolumbar sympathectomy on the side of the remaining kidney did not produce the characteristic relative postural hypotension or significantly modify the hypertension, but a noticeable lowering of the blood pressure occurred when the operation was performed on the other side three months later.

However, mechanical pooling of the blood mass by gravity may not be the only effect of dorsolumbar sympathectomy. Probably there is also an extensive reduction of vasomotor tone because: (1) there is an undoubted persistent and significant general reduction of the blood pressure level in a fourth of the patients; (2) this is noted most clearly and most frequently in those patients whose disease is considered on clinical grounds to have the largest vasospastic component

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[5] In 211 cases of grade 1 hypertension the maximum diastolic pressure was never over 140 in 88 per cent. In 435 cases of grades 2, 3 and 4 the maximum diastolic pressures were more than 140 in well over 50 per cent. In general the same is true of extremely high systolic pressures. The maximum systolic pressures were over 220 in only 4 per cent of grade 1 but in nearly *two-thirds of cases* graded 2, 3 and 4. In short, as common sense dictates: the higher the pressure, the worse the case.

(grades 1, 2 and 4). Many of the patients show an improvement in the general level of the blood pressure, though not to normal or near normal levels (including all degrees of persistent improvement, perhaps 60 per cent). Infrequently does one see a patient who is apparently almost purely vasospastic. One such entered the hospital five years ago with a history of progressive loss of vision of five weeks' duration; he was found to have slight papilledema and a decidedly high blood pressure. On rest in bed his blood pressure, however, was at times normal. No intracranial lesion could be localized. He was sent out for observation in the outpatient department. His blood pressure again was persistently high: his papilledema persisted, and his vision grew worse. He again entered the hospital, and, in spite of the fact that a postural and cold test was strictly normal and there was no abnormal response to cold, he was sympathectomized. His blood pressure has been normal or near normal ever since. His vision is normal. Recently he has shown early partial auriculoventricular block in the electrocardiogram.

Those patients in this series who have been in frank congestive failure or who have had maximal renal impairment have died (6) or have continued in failure (3) with 1 exception. It has been found that heart failure and renal failure may advance in spite of an appreciable degree of relative postural hypotension and that coronary thrombosis, cerebral accidents, hypertensive crises and pronounced pressor responses (especially to mental stress) may occur subsequent to operative intervention. Nevertheless, there are certain patients with some loss of cardiac reserve who may show additional signs of failure while awaiting operation or between the two stages but who show remarkable clearing of all signs of failure (tachycardia, rales at the base of the lung, alternation and gallop rhythm) and no longer require digitalis after the second stage operation when the upright position is assumed during most of the day. Also it appears that there are some patients in frank heart failure prior to the operation, though they have not been encountered in this experience, who have been relieved completely of congestive heart failure by dorsolumbar sympathectomy for considerable periods of time.[6]

Complications of the surgical procedure are extrapleural fluid (relatively common), basal atelectasis (fairly common) and pneumothorax (infrequent). These conditions are usually dealt with easily. Postoperative pain in the back and neuritis are common, sometimes persistent, and require the use of salicylates or codeine or meperidine (Demerol) hydrochloride, hot fomentations and counterirritants. Backache or flank pain usually lasts a week or so to two months, not infrequently longer, and may be annoying for a year. For the operation, six to ten weeks' hospitalization is required, another six weeks to two months of convalescence and nine months to a year to feel perfectly well. The expense in discomfort, time and money (though not in risk to life) is comparable to having a coronary thrombosis. The relative postural hypotension with compensatory phenomena (tachycardia, breathlessness and possibly general vasoconstriction) may persist for months and may be disabling. One of the certain successes had the Raynaud's phenomenon of the feet relieved after operation but Raynaud's disease developed in the hands. Another patient, aged 28 years when operated on, who survived the operation five years with a much improved blood pressure before finally dying of a cerebral thrombosis, had had rather diffuse mottling of the skin of the extremities and slight Raynaud's phenomenon of the hands postoperatively. Within two months after surgical operation the Raynaud's disease of the hands was worse, and in three months early gangrene had appeared in one toe. The patient required bilateral upper dorsal sympathectomy and an additional lumbar sympathectomy for Raynaud's disease. It is not suggested that Raynaud's disease was caused by the operation but that general vasoconstriction compensatory to the relative postural hypotension definitely aggravated a preexisting tendency.

Other complications are indigestion and distention possibly due to vagal overactivity and aggravation or precipitation of gastritis or peptic ulcer with hemorrhage. However, the pathway of pain from the upper part of the intestinal tract is interrupted, so that perforation of or bleeding from a peptic ulcer may occur without a clearcut clinical picture. A number of these patients have had pyelonephritis. Several, 2 especially, have seemed to respond well but have been plagued by recurrent active pyelonephritis.

The effect on libido and potency in men is difficult to evaluate. Except as they are affected nonspecifically by hospitalization, discomfort and medication, dorsolumbar sympathectomy in itself probably does not affect libido and potency. Ejaculation, however, is stopped as a rule by removal of the first and second lumbar ganglions on both sides, but sterilization does not necessarily result. Precise data on this point by sperm counts are being sought.

The risk of the operation at the present time is presumably 2 per cent or less. Of the 21 deaths in this series, 3 may be considered operative deaths. In the beginning the procedure was offered to some patients in an extremely serious condition, especially to some with advanced renal impairment (4) who it is now known could not possibly have been benefited. In addition to the 3 operative deaths, 3 patients died of congestive heart failure, 4 of cerebral accidents, 2 of uremia and 9 of a cause unknown, presumably of their disease.

For whom should sympathectomy positively be prescribed? The one condition in which dorsolumbar sympathectomy not only is effective but also is the only hope of palliation is hypertension of pronounced degree especially with a decidedly high diastolic pressure and papilledema, namely grade 4, or malignant, hypertension, if renal or cardiac impairment is not severe and, as a rule, if frank heart failure is not present. To whom may sympathectomy be offered? Sympathectomy may be offered to those patients in whom the vasomotor element is most pronounced as evidenced by spontaneous variation, especially grade 1 hypertension, and to others with no more than slight renal impairment and without frank heart failure, grade 2. Operation may be offered especially if interval observations show that the actual levels of the blood pressure are growing worse, since in 226 patients with late grade 3 hypertension at least 19 per cent appeared to have advanced to this stage directly from mild grade 1 hypertension. The percentage may actually be higher, because it was impossible to know about the earlier stages in 23 per cent of the cases (in 24 per cent the hypertension appeared to have started at middle age with cerebral coronary or renal arteriolar disease, in 10 per cent it appeared to be related to precocious irreversible arterial and arteriolar sclerosis in young adults; 17 per cent of patients were graded 3 because of vascular accidents, the hypertension being of the senile wide pulse pressure sort and probably incidental). In general younger women seem to be especially favorable candidates for surgical intervention, but there are a few women at or just after the menopause in whom there develops a severe vasospastic state with hypertensive crises who may be much helped. Hypertension coming on in middle life in men, especially if brought to light by clinical evidence of arterial or arteriolar disease in the brain, the heart or the kidneys, does not seem as yet to be so certainly benefited by operative intervention. The progress of the disease may be delayed by the relative postural hypotension produced, but the diffuse arteriolar disease is not helped. Decision in regard to surgical treatment may result from balancing the prognosis against the expenditure in time and discomfort and the degree of disability produced.

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[6] White, P. D.: Personal communication to the author

The surgical colleagues of the present hypertension research committee[7] of the Massachusetts General Hospital are employing different technics in an effort to reduce hospitalization while obtaining maximum benefits. For instance, one stage bilateral dorsal sympathectomy, from the third to the twelfth dorsal ganglions inclusive, has resulted in satisfactory relative postural hypotension and decided immediate improvement in a severely ill patient with malignant hypertension. A one stage bilateral dorsolumbar sympathectomy from the ninth dorsal to the first lumbar ganglions inclusive has been done. Finally certain patients with grade 1 vasospastic hypertension may well be offered one stage dorsal sympathectomy, which previously was found effective in some, which involves a shorter hospitalization and possibly less attendant disability and which may bring as much symptomatic relief. Lumbar sympathectomy may be added when as and if deemed desirable. For instance, 3 women are now under observation who had dorsal sympathectomies for early vasospastic hypertension ten or more years ago (2 in their twenties, 1 aged 33). One of these has had a strictly normal blood pressure; 1 has only a slightly elevated diastolic pressure; the third is definitely hypertensive but not severely so. Another had a dorsal sympathectomy for grade 2 hypertension at age 42, nine years ago. She is moderately hypertensive but works regularly as a nurse. A fifth patient operated on ten years ago by dorsal sympathectomy for a grade 1 menopausal hypertension at age 55 now has a decidedly high blood pressure and intermittent claudication, for which she had additional lumbar sympathectomies two years ago; but since the first operation she has been free from headache, as have all the others.

SUMMARY

A major effect of dorsolumbar sympathectomy in essential hypertension results from the relative postural hypotension, pooling of the blood in dependent parts and presumed decrease in venous return.

The duration of this effect varies widely, lasting from months to years, and accounts for much, if not the major part, of both the favorable effect on the disease and the considerable disability associated with the operation.

Compensatory vasomotor effects are orthostatic tachycardia and breathlessness, faintness, coldness of the hands (sometimes with the appearance of Raynaud's phenomenon), and infrequently the serious exacerbation of preexisting Raynaud's phenomenon so that additional operative intervention is required. The last mentioned is interpreted as compensatory vasoconstriction which seemingly does not involve (or involves less) the cerebral circulation as judged by relief of headache and improvement in eye grounds.

The orthostatic compensatory vasomotor effects are reduced and progressively minimized by elastic bandages on the legs, by an elastic abdominal binder and by time (presumably the functional development of peripheral vasoconstrictor centers and/or regeneration of the extirpated vasoconstrictor pathways). There is an improved tolerance in the course of each day from rising until retiring. This daily improved tolerance is cumulative. In addition to the relative postural hypotension a general reduction in the blood pressure level and presumably in the total vasomotor tone frequently is obtained.

When the favorable effect of operative intervention is critically evaluated (persistent reduction of the blood pressure to 150 systolic and 110 diastolic or below in all positions), it is found that in the present series there has been a diminishing return of favorable results the longer the patients are followed, nearly 70 per cent early in this experience, declining to 25 per cent when patients are followed three to five years or more. But this effect has been obtained twice as frequently in this series by surgical means as by a careful medical regimen and was obtained in patients with malignant hypertension whose blood pressures were unaffected by medical management.

In this series the patients with the most pronounced vasospastic elements were likely to receive the greatest benefit (grade 1 early variable and grade 4 malignant). Some patients with moderate benign hypertension, grade 2, without frank cardiac failure and without serious renal impairment were benefited. The patients with typical late benign hypertension, grade 3, with clinical evidence of irreversible diffuse arteriolar disease in brain, heart or kidneys were not benefited conspicuously; often they were plagued by a long disability to no purpose.

From this experience sympathectomy is regarded as the treatment of choice, at this time, for malignant hypertension and may be offered to patients with early or moderate vasospastic hypertension who have no clinical evidence of advanced, irreversible diffuse arteriolar disease. The factors of age and sex and the variations of blood pressure are discussed. To grade the degree of hypertension and to estimate the prognosis, interval observations over a period of time are necessary in almost all patients except those with malignant hypertension.

Prescription of operation for the patient with hypertension involves evaluation of the hypertension and attendant organic changes, the social and economic status and the personality of the patient and the objective of treatment (symptomatic relief, reduction of the blood pressure or halting the progress of the disease). Final judgment may depend on balancing the present status and estimated future of the patient with induced discomfort and disability.

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[7] Drs. Robert R. Linton, Francis D. Moore, F. A. Simeone, W. H. Sweet, Claude Welch and James C. White.

GENERAL PRACTICE IN A LARGE HOSPITAL

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Since the establishment of the Section on General Practice in the American Medical Association in June 1946 many hospitals throughout the country have formed, or are in the process of forming, general practice sections. Mount Carmel Mercy Hospital, Detroit, has had such a section for eight years. It is felt that a description of the workings of this section, as well as an outline of the setup, might be of general interest.

When the regular active staff was organized, it was divided into four sections:

1. Medicine with its specialties.
2. Surgery with its specialties.
3. Obstetrics and gynecology.
4. General practice.

The chairman of each section, including general practice, conducts all meetings within his section. At the regular monthly section meetings there is a discussion of all deaths for the preceding month and of cases of unusual interest. Usually the chairman plans to bring out certain educational points or builds a scientific program around one or more of the cases.

In the general practice section the deaths are discussed in the open meeting, and the general practitioner whose case is under discussion is judged by other members of the section (also general practitioners). His errors, if any, may be pointed out to him. The chief of staff of the hospital may attend these meetings but does not participate unless asked to do so. In short, the general practice section does its own policing.

At all general practice section meetings the need of recognizing one's limitations is stressed, as is the need of postgraduate study. Men are asked about postgraduate work at frequent intervals, and men are asked to report, on their return, in the open meeting such work as they have done. Also they are reminded to complete their hospital records in a satisfactory manner and to keep their progress notes up to date. Consultation by members of the specialty staffs is urged in all major cases and in cases in which the outcome is in doubt.

The educational program is presented in the accompanying tabulation.

All members of the staff are required to have a 75 per cent attendance (except in case of prolonged illness) at all staff meetings, section meetings, clinical-pathologic conferences and educational program committee meetings. Attendance at the interns' meetings and journal club meetings is optional but well worth while, and many men attend voluntarily. Occasionally a member of the general practice group is asked to be a discusser at one of the interns' meetings or at a clinical-pathologic conference. Men who do not show an interest in the program may be reduced to a courtesy status or dropped by action of the executive committee.

The general practice section participates in the educational program committee conferences, taking an equal share with medicine, surgery and obstetrics and gynecology. Actually this means putting on ten meetings a year for the entire staff of the hospital. The chief of the division of general practice is responsible for this program. He makes plans for the whole year, securing speakers from outside the hospital staff (Wayne University or University of Michigan) for some of the meetings. For other meetings he may ask a member of one of the specialty staffs of the hospital to speak on a subject of interest to the general practice section. At one or sometimes two of the meetings the program may be put on by the general practice section itself. This has usually been in the form of a round table discussion. The chief of general practice conducts these meetings personally, introducing all the speakers.

The chairman and the secretary of the general practice section are elected at the September section meeting by popular vote of the members of the section. They hold office for one year. The chief of the division of general practice is an appointive office. The superintendent of the hospital makes the appointment on recommendation of the executive committee. The appointment is for one year but has at times been extended to two years. The chairman of the section is usually the man chosen for chief of the division, but not necessarily so. He may be any member of the general practice section.

The chief of the division of general practice is a member of the executive committee. He has an equal voice with the other department heads in the determination of hospital policies. He is the liaison officer between the general practitioner and the specialty groups. He makes recommendations to the executive committee on all men applying for staff appointments in the general practice section and is consulted in all matters of policy within the section. He makes recommendations for advancement of the members within the section according to the following outline:

Educational Program

	First Wednesday	Second Wednesday	Third Wednesday	Fourth Wednesday
8 to 9 a. m.	Interns' meeting	General staff meeting	Interns' meeting	Interns' meeting
9 to 10	Educational program committee conference	Clinical-pathologic conference	Educational program committee conference	Educational program committee conference
10 to 11	Surgical section meeting	Obstetrics and gynecology section meeting	Medical section meeting	General practice section meeting
11 to 12	Executive committee meeting	Medical journal club	Surgical journal club	Obstetrics and gynecology journal club

Attending: (A) Twenty years in practice. (B) Postgraduate work and interest shown in self improvement. (C) Professional ability and qualifications. (D) Attendance at meetings and interest shown in hospital work.

Associate attending: Fifteen years in practice plus foregoing.

Junior attending: Ten years in practice plus foregoing.

Assistant attending: Three or more years in practice plus foregoing.

Voluntary assistant: One year internship.

Members of the general practice section may hold dual staff appointments. They may receive appointments on the specialty staffs with a rating up to junior attending. Such an appointment usually comes through the chief of the division of general practice after consultation with the chief of the specialty division and is given in recognition of unusual ability and postgraduate work in a chosen field. It must, of course, have the approval of the executive committee. A man so appointed retains his membership in the general practice section. His activities in the specialty section are governed by the rules and regulations of that section.

Mount Carmel Mercy Hospital was opened on Jan. 16, 1939 as a 300 bed hospital. It now has 450 beds and 125 bassinets, with an average daily occupancy of 460. In the years 1939 to 1946 there were over 160,000 admissions. There have been over 25,000 obstetric deliveries in the hospital in eight years and over 57,000 surgical operations.

It is not possible to determine the exact role of the general practitioner in these statistics. The combined mortality rate of the general practitioners and the specialists compares favorably with that of hospitals of similar size throughout the country. Because of the fact that a large proportion of the general practitioner's surgery is minor or uncomplicated major surgery, his mortality rates are lower than that of any of the other divisions of the staff.

In obstetrics the general practitioner has been limited only by his ability, but no member of the general practice section attempts any major obstetric procedure without calling in a member of the obstetric staff. Often in these cases, if the particular general practitioner is qualified by training and experience to handle the procedure, the specialist merely stands by to advise or take over if the necessity arises. The general practitioner always bears in mind that the best interests of his patient are served when he stays within the limits of his ability.

No really seriously ill patient under the care of a general practitioner in this hospital is denied consultation by a senior member of one of the specialty staffs. Such consultation is furnished without charge if the patient is unable to pay.

The results of the educational program are apparent to the general practitioner himself. He feels that he is a better doctor than he was before he became a member of the staff. His education never ends, and he knows it. He must attend the scientific meetings and do outside postgraduate work to maintain his standing. But, best of all, he knows that he plays a part, however small, in the educational program and in the management of the affairs of his hospital.

Nowhere is there a finer spirit of understanding and cooperation between the general practitioner and the specialist. Many of the specialists have come to regard the general practitioner with new respect, and all the specialists have been amazed at some time or other to find the general practitioner abreast with the latest developments in the specialty fields. There isn't a specialist on the staff who, after eight years, regards the establishment of a general practice section a mistake.

Every hospital should be a teaching center, not only for residents and interns, but for staff members as well. There is no better way to reach the general practitioner for educational purposes than through the hospital in which he is permitted to care for his patients.

SUMMARY

The general practice section at Mount Carmel Mercy Hospital permits the general practitioner to work in a recognized hospital where his activities may be supervised if necessary, thereby acting in the best interests of the patient. It permits him to practice with pride and self respect. The general practice section stimulates interest in self improvement. It acts as a stepping stone for advancement to certain qualified men who have not had opportunities for long residencies.

All these things are made possible by the foresight of the men who drew up the original constitution and by-laws, the understanding cooperation of the Sisters of Mercy, the governing board of the hospital, the superintendent of the hospital and the specialists on the staff.

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INTRATHECAL PENICILLIN

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Penicillin has an irritative action on nerve tissue and may produce convulsions when applied in sufficient concentration to the cerebral cortex. Intrathecal penicillin has been used in single doses ranging from 5,000 to 100,000 units for the treatment of various inflammatory diseases of the meninges. As well as can be determined from a review of the literature, no larger single dose than 100,000 units has been used intrathecally, and no convulsions have been produced with such doses. The purpose of this article is to report a case of meningococcic meningitis in which the patient received (by error) a single massive dose of penicillin intrathecally and recovered after a series of generalized convulsions.

REPORT OF A CASE

History and Examination.—A white woman aged 27, married, four months pregnant, was admitted to Flushing Hospital in a comatose state. The past history was noncontributory except that she had had a slight "head cold."

On the day of admission, when her husband left for work in the morning she was apparently well. When he returned from work at 6 p. m. the patient complained of severe headache and of pain and stiffness in the neck. These symptoms continued, becoming progressively worse, and a few hours later she lapsed into semicoma and was admitted to the hospital in that state.

The essential physical observations on admission to the hospital were as follows: The temperature was 101 F. The patient was semicomatose, irrational and thrashing violently in the bed. The pharynx was red. Dried blood clots and mucopurulent material were present in both nostrils. The left ear drum was covered with fresh blood, but no perforation could be found. There was pronounced nuchal rigidity, and a bilateral Brudzinski sign was elicited. A positive great toe reflex was obtained on the right side.

Laboratory Data and Clinical Course.—Examination of the blood revealed 17,400 white blood cells with 90 per cent polymorphonuclears and 10 per cent lymphocytes. Urinalysis disclosed 1 plus albumin, and there was a slight trace of acetone. On spinal tap the fluid was cloudy, under increased pressure and contained 1,000 white blood cells per cubic centimeter, of which 98 per cent were polymorphonuclear cells. (The cell count probably represented a low value, because there were large pus clumps present in the fluid.) Smear of the spinal fluid revealed an occasional gram-negative intracellular diplococcus. Culture later revealed that the organism was a meningococcus.

The immediate treatment ordered was as follows: sodium sulfadiazine 4 Gm. intravenously, penicillin 40,000 units every three hours intramuscularly and 50,000 units penicillin in 10 cc. isotonic solution of sodium chloride intrathecally. The last medicament was prepared by the night supervisor and given at approximately midnight.

At 1 a. m. it was noted that the patient had twitching of the face and body and that the slightest noise in the ward or movement of the nurses caused a generalized twitching. At 5 a. m., five hours after the single massive dose of intrathecal penicillin, the patient had the first generalized clonic convulsion, which lasted thirty seconds. From 5 to 8 a. m. there were ten such convulsions. During this period a total of 6 grains (0.39 Gm.) of sodium phenobarbital and 4 grains (0.26 Gm.) of sodium amytal were given. After the third convulsion a large amount of mucus was suctioned from the throat. After the fifth convulsion the patient became incontinent of urine, and there was a slight amount of bloody vaginal show.

A word of explanation is indicated at this point: The day following admission, when the central supply office made their routine check of penicillin 450,000 units could not be accounted for. The night supervisor was contacted, and it was then discovered that she had prepared 500,000 units for the intrathecal injection and that that amount had been given. This was approximately fourteen hours after the intrathecal injection and six hours after the last convulsion.

A second spinal puncture was immediately ordered and showed a cloudy greenish fluid under increased pressure. Twenty-five cubic centimeters of fluid was withdrawn; the cell count was 2,100 with 98 per cent polymorphonuclear cells. Subsequent to this the patient began to show signs of improvement. Thirty-six hours after admission the temperature was 100 F., and thereafter it was normal.

After the series of convulsions the course was uneventful and recovery was rapid. The patient did not abort.

COMMENT

It was thought in the early stages of penicillin therapy applied to the nervous system that the convulsive manifestations might be due to impurities in the commercial penicillin. The work of Walker,[1] Johnson[2] and Kollros[3] seemed to show that the penicillin itself was the responsible factor. These investigators demonstrated that the intracortical injection of penicillin in man may give rise to electroencephalographic and clinical manifestations of seizures. It has been observed by Neymann[4] that the intraventricular and intracisternal injection of penicillin in man may induce a status epilepticus with a fatal outcome.

There appears to be little doubt that the dose of penicillin given intrathecally was the cause of the convulsions. Twitching and exaggerated reaction to noise and movements began one hour after the injection of intrathecal penicillin, and the first convulsion occurred four hours later. Furthermore, in our experience generalized clonic convulsions in meningococcic meningitis are exceedingly rare. Osler[5] has stated that except in early childhood convulsions are not common. Similar statements are made by Wilson[6] and Alpers.[7] It is perhaps significant that the convulsions ceased six hours before the second spinal tap removing the penicillin. One might speculate that the irritative phase of penicillin on the nervous system continues for a certain period and then ceases, or perhaps the dilution factor was sufficient after a time to lower the concentration of the antibiotic in the spinal fluid.

Reports of convulsions from the intrathecal use of penicillin are infrequent. The reason may be the amount used, since the recommended dose of 10,000 to 30,000 units intrathecally produces a concentration in the subarachnoid space around the cortex far below the convulsive threshold. However, it may be desirable to use larger single doses intrathecally in severe cases of meningococcic meningitis or, more especially, in the other types of pyogénic meningitis. We do not wish to give the impression that we are advocating single doses of 500,000 units of penicillin intrathecally, but much larger amounts than those considered safe at present can probably be given without convulsive seizures or other ill effects. Single doses of 100,000 units intrathecally have been used without convulsive tendencies.[8] The development of resistance to penicillin by pyogenic bacteria is known to be produced by the use of small (sublethal) doses. Therefore large initial doses given intrathecally may be advisable in some of the pyogenic meningitides. The rapid improvement and recovery of our patient suggested a beneficial therapeutic effect, even considering the fact that sulfadiazine also was administered.

While the recommended intrathecal dose of penicillin is from 10,000 to 30,000 units[9] for a single injection, recent reports seem to favor larger amounts, especially in the treatment of pneumococcic meningitis, in which the mortality is still high. Reitz[10] reported 8 cases of meningitis, 2 pneumococcic and 6 meningococcic, with no mortality. The 2 patients with pneumococcic meningitis and the critically ill patients with meningococcic meningitis received intrathecal penicillin, single doses of 100,000 units every twelve hours for three doses. One patient received two injections of 100,000 units each five hours apart and a third injection of the same amount the next day. No untoward reactions were noted. It is interesting to read the various opinions in the literature as to the dose for intrathecal use. The British investigators continue to use smaller amounts. Thus Jepson and Whitty,[11] in reporting 10 cases of pneumococcic meningitis with a mortality of 40 per cent from the meningitis, recommend "an immediate overwhelming intrathecal dose of penicillin" (10,000 to 20,000 units). Duthie and Cairns[12] stated that excessive dosage of 40,000 units and over at a single injection may produce fits or other severe cerebral reactions when injected into the ventricles or damage to the cauda equina or gumming of the subarachnoid space when injected by the lumbar route. Reports by investigators in this country do not substantiate these observations. We have used repeatedly 50,000 units for a single intrathecal injection in various types of meningitis without damage to the cauda equina or subarachnoid space. In the present case no residual damage to the cauda equina or other part of the nervous system was noted.

The question of pleocytosis produced by the use of intrathecal penicillin logically follows, and it also is a controversial subject. Rammelkamp and Keefer[13] reported headache, vomiting, increased intrathecal pressure and phagocytosis in the spinal fluid after the intrathecal injection of 10,000 units of penicillin in a normal subject. In probably the first case in which intrathecal penicillin was used Fleming[14] observed no clinical reaction, although there was evidence of some slight irritation by an increased emigration of polynuclear leukocytes. In a series of 12 cases of pneumococcic meningitis with 1 death, Waring and Smith[15] noted few ill effects. Adult patients complained in several instances of headache and nausea following intrathecal injection, but the patients did not show definite pleocytosis. In our case headache and nausea could not be determined because of the patient's condition, but there was no vomiting. It is reasonable to state that a definite pleocytosis was not produced by the intrathecal dose of 500,000 units, since the first cell count probably would have been considerably higher if the large clumps had not been present. Whether an irritative pleocytosis was produced but counterbalanced by a rapid decrease in the inflammatory reaction as a result of the large dose of penicillin cannot be determined.

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[1] Walker, A. E., and Johnson, H. C.: Convulsive Factor in Commercial Penicillin, Arch. Surg. **50:** 69-73 (Feb.) 1945.

[2] Johnson, H. C., and Walker, A. E.: Intraventricular Penicillin: A Note of Warning, J. A. M. A. **127:** 217-219 (Jan. 27) 1945.

[3] Walker, A. E.; Johnson, H. C., and Kollros, J. J.: Penicillin in Convulsions: The Convulsive Effects of Penicillin Applied to the Cerebral Cortex of Monkey and Man, Surg., Gynec. and Obst. **81:** 692-701 (Dec.) 1945.

[4] Neymann, C. A., in discussion on Johnson, H. C.; Walker, A. E., and Case, T. J.: The Effects of Penicillin on the Central Nervous System, Arch. Neurol. & Psychiat. **54:** 160 (Aug.) 1945.

[5] Osler, W.: The Principles and Practice of Medicine, edited by H. A. Christian, ed. 15, New York, D. Appleton-Century Company, Inc., 1944.

[6] Wilson, S. A. K.: Neurology, edited by A. N. Bruce, ed. 1, Baltimore, Williams & Wilkins Company, 1940, vol. 1, p. 15.

[7] Alpers, B. J.: Clinical Neurology, ed. 1, Philadelphia, F. A. Davis Company, 1945, p. 311.

[8] Walker, Johnson and Kollros, footnotes 1, 2 and 3. Neymann.[4]

[9] Herrell, W. E.: Penicillin, ed. 1, Philadelphia, W. B. Saunders Company, 1945, p. 75.

[10] Reitz, C. B.: Sulfa Drugs and Penicillin in Pyogenic Meningitis, Hahnemann Monthly **81:** 1-7 (Jan.) 1946.

[11] Jepson, R. P., and Whitty, C. W. M.: Pneumococcal Meningitis After Head Injury Treated with Intrathecal Penicillin, Lancet **1:** 228-232 (Feb. 16) 1946.

[12] Smith, H. V.; Duthie, E. S., and Cairns, H.: Chemotherapy of Pneumococcal Meningitis, Lancet **1:** 185-193 (Feb. 9) 1946.

[13] Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Toxicity of Penicillin Administered by Intrathecal Injection, Am. J. M. Sc. **205:** 342-350 (March) 1943.

[14] Fleming, A.: Streptococcal Meningitis Treated with Penicillin: Measurement of Bacteriostatic Power of Blood and Cerebrospinal Fluid, Lancet **2:** 434-438 (Oct. 9) 1943.

Since medical science is constantly striving for simpler methods in the treatment of all diseases, it is not unusual to desire the elimination of intrathecal therapy of meningitis; if this goal cannot be reached, a minimal number of intrathecal injections would be the next most desirable thing. Furthermore, repeated spinal punctures increase enormously the chance of introducing infection from without.[12] Although Rosenberg and Sylvester[16] reported that under some conditions, such as acute inflammatory lesions of the meninges, penicillin might diffuse into the cerebrospinal fluid following systemic administration alone, there is good clinical evidence that the amount of penicillin that reaches the spinal fluid in bacterial meningitis is probably insufficient to control the infection.[17] Cases of meningitis have been noted in which the patient did not improve until penicillin was given intrathecally, and other cases have been reported in which meningitis appeared during the course of the intramuscular or intravenous treatment of extrameningeal infection. In these cases, likewise, no improvement took place until intrathecal therapy was instituted.

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[15] Waring, A. J., Jr., and Smith, M. H. D.: Combined Penicillin and Sulfonamide Therapy in the Treatment of Pneumococcic Meningitis, J. A. M. A. **126:** 418-424 (Oct. 14) 1944.

[16] Rosenberg, D. H., and Sylvester, J. C.: The Excretion of Penicillin in the Spinal Fluid in Meningitis, Science **100:** 132-133 (Aug. 11) 1944.

[17] Anderson, D. G: The Treatment of Infections with Penicillin, New England J. Med **232:** 400-405 (April 5) 1945.

Tuberculosis Mortality in World War II.—Combined figures from the Office of the Surgeon General and the Veterans Administration, representing the tuberculosis mortality of the entire army group, including its discharged members, are now available. . . . This group, consisting of about 4 million men in 1942 and increasing to more than 11 million in 1945, had an average tuberculosis mortality of less than 4 per hundred thousand per year in 1942. The mortality increased to about 6 per hundred thousand per year in 1943 and to 10 in 1944 A slight rise was again evident in 1945, the last period for which figures are available, when the average mortality for members of the existing army and discharged men and women who had served in the Army from 1942 to 1945 increased to 12 per hundred thousand per year During this time the gross mortality rate for males of corresponding age in the United States fluctuated slightly but remained fairly constant at about 52 per hundred thousand population per year. The phenomenon observed is of great epidemiologic importance A group with a relatively low tuberculosis mortality rate at the start, but with a certain percentage of unrecognized cases in its midst, has shown a significant rise in its rate within a period of four years, at a time when the mortality rate of the population from which it was drawn has remained practically constant.—Long, Esmond R.: The Tuberculosis Experience of the U. S. Army in World War II, *Am. Rev. Tuberc.*, January 1947.

SYNTHETIC FOLIC ACID

The Effectiveness of a Conjugated Form in the Treatment of Tropical Sprue, Addisonian Pernicious Anemia and Nutritional Macrocytic Anemia

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Folic acid is the newest member of the vitamin B complex, and its therapeutic use in the treatment of pernicious anemia, nutritional macrocytic anemia and the macrocytic anemia of pellagra, pregnancy and sprue is bringing the fields of hematology and nutrition closer together. Folic acid occurs in nature in a free form and also as a part of various complexes. The following five substances have been isolated in crystalline form: (1) vitamin B^c; (2) Lactobacillus casei factor from liver; (3) L. casei factor from yeast; (4) another L. casei factor isolated from a fermentation residue, and (5) vitamin B_c conjugate.

Vitamin B_c, the L. casei factor from liver and the L. casei factor from yeast are identical with the synthetic product described by Angier and associates.[1] This compound is called pteroylglutamic acid and contains 1 molecule of glutamic acid. In contrast, the special L. casei factor isolated from the fermentation residue yields 3 molecules of glutamic acid. The vitamin B_c conjugate as reported by Pfiffner and his co-workers[2] yields 7 molecules of glutamic acid. If one may assume normal peptide linkages they can be written as shown in the accompanying illustration. These substances might well be designated respectively as pteroyldiglutamyl-glutamic acid (pteroyltriglutamic acid or fermentation L. casei factor) and pteroylhexaglutamyl-glutamic acid.

The studies on pteroylglutamic acid have been reviewed by Berry and Spies[3] and by Spies.[3a] Recently Spies and Stone have reported on the effect of pteroylhexaglutamyl-glutamic acid in treating addisonian pernicious anemia and nutritional macrocytic anemia in relapse.[4] Spies, working with a limited amount of the naturally occurring pteroyldiglutamyl-glutamic acid found it to be effective in treating addisonian pernicious anemia in relapse.[5] Suarez and his associates,[6]

University of Cincinnati Studies in Nutrition at the Hillman Hospital, Birmingham, Ala, and at the Calixto Garcia Hospital, Havana, Cuba In cooperation with the Department of Clinical Pathology of the University of Havana (Professors D. Ramos and J. Bisbe).

This study was aided by grants from the Martha Leland Sherwin Memorial Fund and from Lederle Laboratories, Inc.

Valuable technical assistance was given by Miss Jane Davis, Mrs Mary B. Koch, Mr. Tulio Martinez and Miss Flora Villate

The synthetic pteroyltriglutamic acid used in this study was received from Dr. Y. SubbaRow of Lederle Laboratories, Inc.

[1] Angier, R. B.; Boothe, J. H., Hutchings, B L; Mowat, J. H; Semb, J.; Stokstad, E L. R.; SubbaRow, Y.; Waller, C. W; Consulich, D B, Farenbach, M. J.; Hultquist, M. E, Kuh, E., Northey, E. H; Seeger, D. R, Sickels, J P, and Smith, J. M: The Structure and Synthesis of the Liver, L. Casei Factor, Science **103:** 667 (May 31) 1946

[2] Pfiffner, J. J.; Calkins, D. G, Bloom, E. S, and O'Dell, B. L: On the Peptide Nature of Vitamin Bc Conjugated from Yeast, J. Am. Chem Soc **68:** 1392, 1946.

[3] Berry, J. L, and Spies, T. D: The Present Status of Folic Acid, Blood **1:** 271 (July) 1946.

[3a] Spies, T. D Experiences with Folic Acid, Chicago, The Year Book Publishers, Inc, *1947.*

[4] Spies, T. D, and Stone, R. E: Some Recent Experiences with Vitamins and Vitamin Deficiencies, South M J. **40:** 46 (Jan) 1947.

[5] Spies, T. D: The Activity of Another L Casei Factor in Macrocytic Anemia, South M. J. **39:** 634 (Aug) 1946

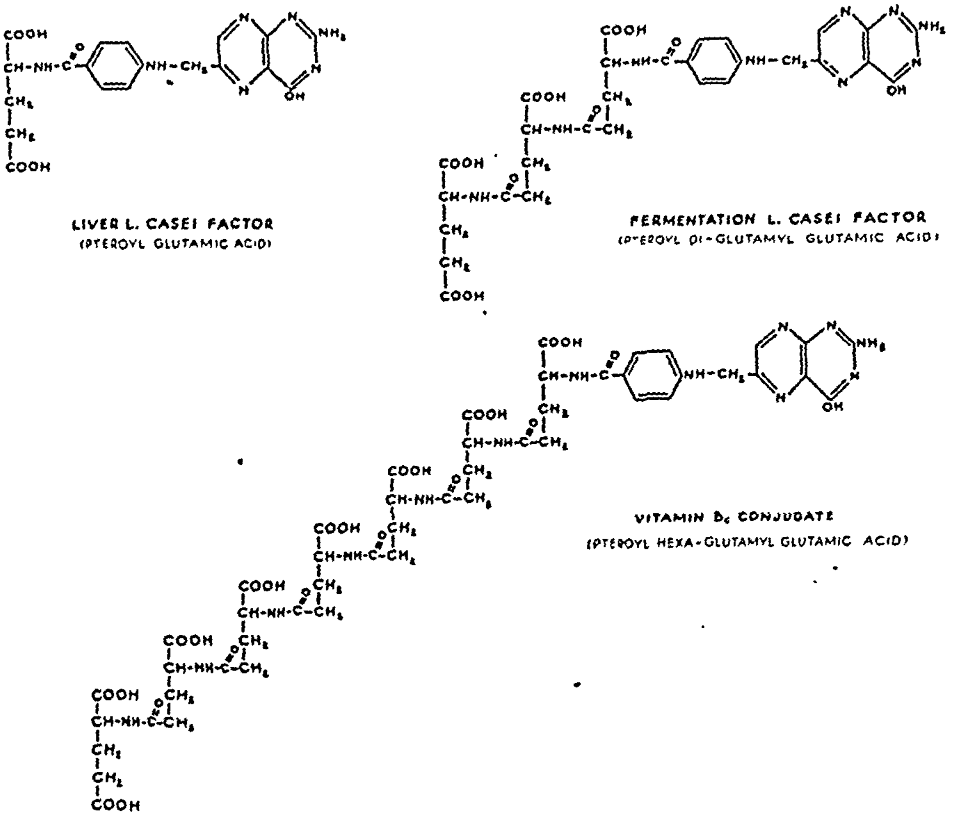
[6] Suarez, R. M.; Welch, A. D; Heinle, R. W., and Suarez, R M, Jr.: Effectiveness of Conjugated *Forms of Folic Acid* in the Treatment of Tropical Sprue, J Lab & Clin. Med. **31:** 1294 (Dec) 1946

likewise working with a limited amount of the naturally occurring material, found it to be effective in treating a patient with tropical sprue.

The present report is concerned with a study on synthetic pteroyldiglutamyl-glutamic acid in the treatment of tropical sprue, addisonian pernicious anemia and nutritional macrocytic anemia in relapse. Methods of study were similar to those previously described.[7] The response to treatment is illustrated in the following case history.

REPORT OF A CASE

History and Examination.—M. G., a 55 year old Cuban man, was admitted to the Calixto Garcia Hospital on Nov. 21, 1946 complaining of extreme weakness and diarrhea. The onset of his illness was insidious. He said that he had been in poor health for a long time but could not state definitely for how long. Early in 1945 he began to lose weight and became progressively weaker. When he was admitted to the hospital in June 1945 his red blood cell count was 600,000. He was treated with extract of liver and given several transfusions of blood during the three months he was in the hospital. His blood values returned to normal, his appetite returned and he gained in weight. For six months after he was discharged from the hospital he felt perfectly well, although he received no treatment during this time. In February 1946 he suddenly began to have diarrhea consisting of from eight to ten semiliquid yellow stools a day. The bowel movements were preceded by cramping and pain in his intestines. Since he had no desire for food, and since food seemed to aggravate the diarrhea, he restricted his diet to liquid or soft foods such as milk, soup, cornmeal, rice and coffee. Occasionally he ate eggs and vegetables in small amounts. He became so weak he was unable to do any kind of work and was forced to stay in bed most of the time. His tongue became so sore that he frequently was unable to take any food but milk. He had cramping pains in his legs and a sensation of having sand in his eyes. Occasionally the diarrhea subsided for a few days and he felt better, but he continued to lose weight. By the time he came to the hospital eight months after the onset of the diarrhea, he had lost 30 pounds (13.6 Kg.).


LIVER L. CASEI FACTOR
(PTEROYL GLUTAMIC ACID)
FERMENTATION L. CASEI FACTOR
(PTEROYL DI-GLUTAMYL GLUTAMIC ACID)
VITAMIN B$_c$ CONJUGATE
(PTEROYL HEXA-GLUTAMYL GLUTAMIC ACID)

Assuming normal peptide linkage in the conjugated forms of folic acid, these two formulas could be written as shown.

The physical examination on admission showed an emaciated man who did not seem to be in acute distress but appeared to be extremely weak and apathetic. His skin was inelastic and had a lemon yellow tinge. The tongue was slick, and the papillae along the margin and at the tip were enlarged and hyperemic. His abdomen was distended with gas. The neurologic examination revealed nothing contributory.

Laboratory Data on Admission.—Examination of the blood revealed: red blood cell count 1.88 million; white blood cell count 3,700; hemoglobin 8.0 Gm. (52 per cent), and color index 1.4. Bone marrow studies showed maturation arrest at the megaloblastic level. Repeated gastric analyses showed hypochlorhydria with free hydrochloric acid after histamine stimulation. Stool analyses revealed acid steatorrhea. Oral glucose tolerance tests disclosed a flat curve.

On the basis of these laboratory and clinical findings, a diagnosis of tropical sprue was made.

Treatment and Course.—Two days prior to admission, the diarrhea subsided and the patient was having only two or three bowel movements daily. It was decided to keep him in the hospital for study under controlled conditions prior to the initiation of specific therapy. During this time his diet contained no meat, meat products, poultry, fish, eggs, milk, green vegetables or fresh fruits. It consisted only of bread, cornmeal, rice, potatoes, root vegetables and coffee. Determinations of the red blood cell count, white blood cell count, hemoglobin and reticulocyte levels were made daily. After fifty-nine days the red blood cell count was 1.32 million; white blood cell count 3,600; hemoglobin 6.6 Gm. (43 per cent), and reticulocytes 1.0 per cent. During this period of time the diarrhea of the patient did not increase in severity; he ate a diet containing approximately 1,500 calories a day, and his weight remained essentially unchanged.

Beginning on his sixtieth hospital day he was given 10 mg. of synthetic pteroyldiglutamyl-glutamic acid daily intramuscularly for eight days. On the fifth day of therapy the reticulocytes began to rise and reached a peak of 14.8 per cent ten days after the initiation of therapy. Five days later his red blood cell count was 2.43 million and the hemoglobin level was 9.0 Gm. (58 per cent). Clinical improvement paralleled the hemopoietic response. His appetite increased when his reticulocytes began to rise, and he began eating approximately 3,000 calories daily. His strength and feeling of well-being increased, and he began to gain in weight.

A similar hemopoietic and clinical response followed the administration of synthetic pteroyldiglutamyl-glutamic acid to 1 patient with addisonian pernicious anemia and to 1 with nutritional macrocytic anemia, who were treated in the Jefferson Hospital, Birmingham, Ala.

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7. Spies, T. D.; Milanes, F.; Menendez, A.; Koch, M. B., and Minnich, V.: Observations on the Treatment of Tropical Sprue with Folic Acid, J. Lab. & Clin. Med. 31:227 (Feb.) 1946.

SUMMARY AND CONCLUSIONS

This communication reports the first patients with sprue, addisonian pernicious anemia and nutritional macrocytic anemia to whom synthetic pteroyldiglutamyl-glutamic acid, which is a conjugated form of folic acid, has been administered and found to be effective in producing a hematologic and clinical response. It must be kept in mind that there are many substances that may act similarly. This substance differs chemically from the L. casei factor (folic acid) in that it has 2 more molecules of glutamic acid and is not excreted so promptly in the urine of persons with macrocytic anemia as is the L. casei factor. Pteroyldiglutamyl-glutamic acid and the L. casei factor, if given in sufficient amounts, are capable of producing a hemopoietic remission. Although we gained the distinct impression that, milligram for milligram, the response to synthetic L. casei factor is greater than that to the conjugated form, this observation is particularly significant in view of the fact that so much of the folic acid in nature occurs in the conjugated form and that Suarez,[6] Bethell[8] and Spies,[4] with their associates, have shown that many patients with macrocytic anemia are unable to convert the vitamin B_c (a conjugated form) to free folic acid. All investigators in the field have been concerned with a satisfactory explanation for the fact that a large amount of folic acid or related compounds is required to produce a satisfactory hemopoietic response, whereas relatively little of the active substance of a potent extract of liver is required.

Clinical Notes, Suggestions and New Instruments

PANCREOLITHIASIS AND CHRONIC PANCREATITIS

Preliminary Report of a Case of Apparently Successful Treatment by *Transthoracic Sympathectomy and Vagectomy*

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This preliminary report is made in order that the method of treatment herein described may be called to the attention of those interested in the alleviation of the symptoms of chronic pancreatitis and pancreolithiasis. Up to the present all therapeutic methods employed, either medicinal or surgical, have been unsuccessful from the point of view of the relief of pain, which constitutes the essential disabling factor in this clinical syndrome. Various surgical procedures have been carried out for relief of this excruciating pain, and all have been essentially unsuccessful. These procedures consisted of partial or complete pancreatectomy, ligation of the pancreatic ducts and various operations on the biliary tract.

In the patient whose treatment forms the basis of this report, an unsuccessful result was obtained from a partial pancreatectomy, plus ligation of the duct of Wirsung, performed in 1939. After bilateral transthoracic vagectomy and sympathectomy performed in April 1946, the patient has been completely free of pain, has gained 60 pounds (27 Kg.) and has now returned to his former business, apparently asymptomatic. A complete report with illustrations and laboratory data will be published later. A brief résumé of the clinical history is as follows:

P. D., a white man aged 35, was first admitted to the Johns Hopkins Hospital Sept. 16, 1939, with the complaint of severe pain in the epigastrium which came on after meals, particularly in the afternoon and evening. This pain was accentuated by taking food. Because of the increased severity of the pain the patient sought relief by drinking whiskey, which seemed to alleviate his discomfort. Up to this time he had been an active intelligent business man, but he became addicted to alcohol, his daily consumption being between 2 and 3 quarts (1.9 and 2.8 liters) of whiskey, which interfered with his life socially and in a business way.

He was admitted to a sanatorium for the treatment of alcoholism, and during the routine examination it was found that he had severe diabetes mellitus and was strikingly emaciated because of the fact that ingestion of food caused him to have severe pains; he was thought to have in addition a psychopathic personality. Laboratory examination revealed that the level of sugar in the blood was constantly elevated above 200 mg. per hundred cubic centimeters, and that there was 4 plus sugar in his urine. Also, the roentgenograms of his abdomen revealed the presence of calculi in the head and tail of his pancreas. While in the sanatorium the patient had several attacks of delirium tremens. Except for being treated for his diabetes he was discharged relatively unimproved, whereupon he was transferred to the Johns Hopkins Hospital on the medical service of Dr. John T. Howard and later of Dr. Louis Hamman. The clinical and laboratory observations were essentially the same as those revealed in his previous examination in the local sanatorium to which he was primarily admitted.

An exploratory celiotomy was performed by W. F. R. Sept. 25, 1939, at which time the pancreas was found to be the site of a severe chronic inflammatory lesion associated with diffuse localized areas of calcification. The organ as a whole was extremely hard and decreased in size; it seemed to be definitely atrophic. Incision was made in it along the probable course of the duct of Wirsung, and the substance of the gland was found to be everywhere hard and gritty, due to scar tissue with many small areas of calcification. The pancreatic duct was finally, after much difficulty, isolated and found to be dilated proximal to a stone about 3 mm. in diameter, which was removed from the duct. The duct was ligated, and a portion of the body of the pancreas was removed. The patient had an uneventful convalescence and recovered from the operative intervention, but no amelioration of his signs or symptoms followed. The patient had seven successive admissions to the Johns Hopkins Hospital from 1939 to April 1946, when he was admitted on the service of Dr. Hamman. At this time the emaciation of the patient was extreme and his diabetes was far worse; he had drunk increasing amounts of whiskey, had smoked two to three packs of cigarets a day and had over a period of years become a pronounced morphine addict. At one time his daily consumption of morphine and Pantopon (the total alkaloids of opium as soluble hydrochlorides) amounted to 20 grains (1.3 Gm.) in twenty-four hours. Previous to the final operation the patient had several attacks of delirium tremens. In addition to previous laboratory findings his stools were now voluminous and fatty, suggesting decided pancreatic deficiency.

Transthoracic vagectomy and sympathectomy were performed on April 8, 1946, at which time the sympathetic trunk from the fifth thoracic to the second lumbar ganglion was removed transthoracically, including the greater, lesser and least splanchnic nerves and the celiac ganglion on the left side. The right and left vagus nerves were also resected above the diaphragm for a distance of 3 cm. Subsequent to this surgical procedure there was pronounced improvement in the clinical condition. The pain seemed to be less. On April 24 transthoracic sympathectomy on the right side was performed, the sympathetic trunk, again from the fifth thoracic to the second lumbar ganglion, including the greater and lesser splanchnic nerves and the celiac ganglion, were removed.

The patient had an uneventful convalescence, improved remarkably during his hospital stay and was discharged May 5 to return to his home to complete his convalescence.

A letter from Dr. R. H. Crawford of Rutherfordton, N. C., dated Feb. 26, 1947, stated: "I saw patient at the hospital yesterday, he is tremendously improved, is entirely free of pain —he has not taken any narcotics for the past six months." A complete report of Dr. Crawford's record will be incorporated in a more detailed description of the case in a later report.

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8. Bethell, F. H.; Swendseid, M. E.; Bird, O. D.; Meyers, M. C.; Andrews, G. A., and Brown, R. A.: Observations on the Utilization of Folic Acid (Vitamin Bc) and Vitamin Bc Conjugate by Persons with Pernicious Anemia and Macrocytic Anemia Following Gastrectomy, Univ. Hosp. Bull., Ann Arbor **12**: 42 (May) 1946.

Suffice it to say that the patient has gained 60 pounds (27 Kg), his personality has returned to normal, he is taking nothing alcoholic to drink and he has had no narcotics of any sort for six months. Photographs of him taken in 1940 and in 1947 show the most extraordinary physical improvement. These will be incorporated in a forthcoming article.

It is necessary for him at present to take 40 units of protamine zinc insulin and 10 units of regular insulin each day, and as a result of this his urine has remained free of sugar. On Feb. 25, 1947 the level of sugar in his blood was 250 mg. per hundred cubic centimeters. He takes two tablets of triple strength pancreatin after meals.

CONCLUSION

This patient would seem to present incontrovertible evidence that pain, the main disabling symptom of chronic pancreatitis and/or pancreolithiasis, can be alleviated by severance of the autonomic fibers supplying the pancreas. The rationale of the operation was: first, all or any afferent fibers from the pancreas would be cut if complete sympathectomy and vagectomy were performed; second, interruption of both the sympathetic and parasympathetic paths would be necessary because of their many and frequent anastomoses and was the only procedure which would insure interruption of such afferent paths; third, although the physiologic action of the autonomic systems of the pancreas in the human being is not completely known it may be assumed that the secretory function, as far as the external secretions are concerned, would probably be reduced as a result of the severance of the parasympathetic and sympathetic nerves leading to the pancreas. The origin of pain would seem to be due to the secretion of pancreatic juices into the ducts blocked by the cicatrization and calcification of the small tributaries of the larger ducts of Wirsung, these secretions thereby producing distention of the obstructed channels or ducts. Secretion of the denervated pancreas probably is decidedly reduced after severance of the autonomic nerve.

Before definite conclusions can be drawn, of course, more patients must be so treated. In proportion to the magnitude of the operation transthoracic sympathectomy and vagectomy is a relatively simple procedure as compared to pancreatectomy or any of the modifications thereof. It would seem that this patient has been restored to his normal activities, while it is true that he is dependent on insulin, and probably will be for an indefinite period, it is also recognized that the self-imposed starvation, alcoholism and addiction to drugs initiated to combat the excruciating pain of his disease were responsible for his total physical incapacity.

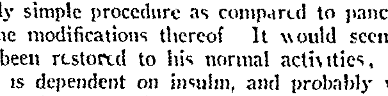
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary*

NITROFURAZONE.—5-nitro-2-furaldehyde semicarbazone—$C_6H_6O_4N_4$—M. W. 198.15. A synthetic antibacterial substance derived from furfural, possessing the following structural formula:



Actions and Uses—Nitrofurazone is a substituted furan compound possessing bacteriostatic and bactericidal properties; it is inhibitory in solutions with concentrations of 1:200,000 to 1:300,000 and bactericidal at 1:50,000 to 1:75,000. It is not soluble in much less than 5,000 parts of water. It is effective in vitro and in vivo against a variety of gram negative and gram positive bacteria; it has least bacteriostatic activity against Bacillus pyocyaneus and little bactericidal effect on Diplococcus pneumoniae.

Nitrofurazone is useful for topical application in the prophylaxis and treatment of superficial mixed infections common to contaminated wounds, burns, ulceration and certain diseases of the skin. It may be useful as an adjunct to surgery in the preparation of areas for skin grafting and in the treatment of osteomyelitis. Daily application for periods of one month or longer may produce a local reaction in a small percentage of cases. Sensitivity or intolerance to its local use has been occasionally observed and may be cause for its discontinuance. Because of this, continuous applications for periods as long as five days may be capable of producing sensitization. Photosensitization from sunlight has not been encountered. Variant bacterial strains showing induced resistance to sulfathiazole, penicillin or streptomycin are as susceptible to nitrofurazone as their parent strains. Induced resistance to the aforementioned agents does not entail resistance to nitrofurazone.

Systemic toxicity due to absorption of the compound is considered unlikely. Clinical studies indicate that the ingestion of 1 to 3 Gm. daily for long periods is fairly well tolerated by the majority of human subjects, but until more conclusive evidence of its mode of action and chemotherapeutic value becomes available its internal use cannot be recommended.

Dosage.—Nitrofurazone is used topically in an ointment-like base containing a concentration of 1:500 (0.2 per cent). It is applied locally either directly or to dressings that cover the infected area. The base is water soluble but liquefies at body temperature and may thus require special coverings to maintain effective contact with certain areas to which it may be applied. Dressings may be reinforced with cellophane or similar material, and petrolatum gauze may be used for a barrier to limit the absorption into the dressing. On exposure to light, the bright yellow nitrofurazone turns dark brown. This is not associated with any ill effects and may be avoided by covering with light dressings.

Tests and Standards—

Nitrofurazone occurs as an odorless, lemon yellow colored crystalline powder, which turns brown black and decomposes at from 236 to 240 C. It is nearly tasteless but develops a bitter after taste. It is slightly soluble in alcohol (1:590), in propylene glycol (1:350) and in polyethylene glycol mixtures, very slightly soluble in water (1:4,200), practically insoluble in ether. The crystals tend to darken on prolonged exposure to light.

When dissolved in water, nitrofurazone exhibits light absorption maxima in the ultraviolet region at 2,600 angstroms and at 3,750 angstroms, with a minimum at about 3,060 angstroms (1 mg. per hundred cubic centimeters).

Place about 10 mg. of nitrofurazone in a test tube, add 5 cc. of water and 5 cc. of 10 per cent sodium hydroxide solution: the nitrofurazone dissolves and the solution is colored dark orange red.

Place about 50 mg. of nitrofurazone in a 50 cc. flask, add 1 Gm. of granular zinc, 10 cc. of alcohol and 20 cc. of dilute sulfuric acid. Heat on the steam bath: the nitrofurazone dissolves slowly and the solution becomes practically colorless.

Transfer about 1 Gm. of nitrofurazone to a stoppered cylinder and add 100 cc. of water. Shake the cylinder and contents for fifteen minutes and allow the solid to settle: the pH of the supernatant solution is in the range 6.0 to 6.5.

Dry about 0.5 Gm. of nitrofurazone, accurately weighed, at 100 C. for one hour: the loss in weight does not exceed 0.1 per cent.

Char about 0.5 Gm. of nitrofurazone, accurately weighed, cool, moisten with sulfuric acid and finally ignite: the residue does not exceed 0.05 per cent.

The nitrogen content of nitrofurazone, as determined by the Dumas micro method, is not less than 28.1 per cent nor more than 28.6 per cent.

Weigh accurately about 10 mg. of nitrofurazone, transfer it to a 1 liter volumetric flask and dissolve the solid in about 50 cc. of aldehyde-free alcohol. Fill to the mark with water, mix and determine the optical density, E, of this solution and also that of several dilutions such as ¾, ⅔ and ½ respectively of the original concentration, at 3,750 angstroms. Use a comparison solution made by mixing 5 cc. of the aldehyde free alcohol with 95 cc. of water. Calculate the $E\frac{1\%}{1\ \text{cm}}$ for nitrofurazone from the data obtained: the E values observed are a linear function of the concentration and the $E\frac{1\%}{1\ \text{cm}}$ values, calculated for each concentration, yield an average value of 795 (± 2%).

Eaton Laboratories, Inc., Norwich, N. Y.

Furacin Soluble Dressing 1:500: 113 Gm. and 454 Gm. jars. Each hundred grams contains Furacin 0.2 Gm., Carbowax (1,530) 30 Gm., Carbowax (4,000) 15 Gm. and polyethylene glycol (300) 54.8 Gm.

U. S. patent 2,319,481 (expires 1962). U. S. trademark 403,279.

CHINIOFON (See New and Nonofficial Remedies, 1946, p. 262).

The following dosage form has been accepted:

Abbott Laboratories, North Chicago, Ill.

Enterab Chiniofon Tablets: 0.25 Gm. Each tablet is enteric coated with a resin prepared from stearic acid, phthalic anhydride and glycerin.

U. S. trademark 353,674.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - : Eight dollars per annum in advance

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SATURDAY, MAY 3, 1947

THE CENTENNIAL SESSION

Featured in this issue of The Journal is the program of the Centennial Session of the American Medical Association. Already there are indications that the attendance will rival that of any other meeting ever held in the history of the organization. The significance of the occasion has been marked by the issuance of a stamp by the Post Office of the United States commemorating the hundred years. These stamps will become available on June 9 at the time of the annual session. Another feature of the centennial is the publication of the "History of the American Medical Association," a book of some twelve hundred pages, with many illustrations. There is now definite assurance that this book will be available at the session.

Gen. Omar N. Bradley

Some of the unusual features of the program have been referred to previously in issues of The Journal. On Saturday, June 7, the Board of Trustees of the American Medical Association is tendering a dinner to honor the affiliated professions, industries and leaders in American life. The chairman of the Board of Trustees will preside. Addresses will be given by Gen. Omar Bradley, director of the Veterans Administration; Mr. Basil O'Connor, chairman of the American Red Cross and president of the National Foundation for Infantile Paralysis, Inc., and Mr. H. W. Prentis Jr., president of the Armstrong Cork Company, Lancaster, Pa., and past president of the National Association of Manufacturers. Arrangements are under way for broadcasting these three addresses on a national network.

On Sunday, June 8, at 11:30 in the morning a special religious service will be held in the Convention Hall in Atlantic City. There will be an organ recital followed by addresses given by Dr. Ralph Cooper Hutchison, Rabbi Joshua Liebman and Monsignor Fulton J. Sheen. From 11 to 11:30 a. m. the three speakers will broadcast over N. B. C.

On June 9 will come the official opening of the Technical and Scientific exhibits. This year attempts have been made to register by mail as many as possible of the physicians who plan to attend the session so as to avoid the congestion at the registration desk. Those who have been previously registered will need merely to present a card with a number that has been given to them; they will then be provided with the necessary programs, badges, guest cards and other informational material.

Basil O'Connor

On Monday afternoon, June 9, the first of the General Scientific Meetings will be held, as described in the program printed elsewhere in this issue. Our distinguished foreign guests who will participate in the program of Monday afternoon and Tuesday morning and afternoon include Professor George W. Pickering of London, Professor Herbert John Seddon of Oxford and Sir Howard Florey of Oxford.

For the Opening General Meeting on Tuesday night, which will be held in the Convention Hall, music will be provided by the Philadelphia Festival Orchestra conducted by Alexander Hilsberg. The address will be delivered by Dr. Edward L. Bortz, who has succeeded to the position of President-Elect of the American Medical Association, following the resignation of Dr. Olin West. The Distinguished Service Medal of the Association will be awarded. The retiring President, Dr. Harrison H. Shoulders, will receive the President's Medal, and the distinguished foreign guests will be introduced.

The scientific programs of the sections begin on Wednesday morning, June 11. In each of the sections a special paper will deal with a hundred years of progress in that medical or surgical specialty. Some hundreds of papers and a considerable number of symposiums are included, with a distinguished foreign guest on the program of each one of the scientific sections. Three special meetings will be held under the auspices of the Section on Miscellaneous Topics: the Session on History of Medicine, Session on Physical Medicine and Session on Allergy,

H. W. Prentis Jr.

Special attention is called here to the sessions of the Section on Preventive and Industrial Medicine and Public Health. Because of the increasing interest in the field of industrial health, the officers of this section have been at special pains to develop an unusual, timely and interesting program.

Attention is called also to a joint session of the Section on Internal Medicine and the Section on Experimental Medicine and Therapeutics on Friday, June 12, which will be devoted to the subject "What's New in Medicine." Other symposiums will cover such subjects as Cancer Research, Virus Diseases, Therapeutic Abortion, Liver Disease and Ulcerative Colitis.

Dr. Ralph C. Hutchison

Wednesday night has been assigned to meetings of alumni associations, fraternities and similar groups.

On Thursday night, June 12, a reception will be tendered to the retiring President, the President and the President-Elect of the Association and of the Woman's Auxiliary, and also to the distinguished foreign guests. This reception will be held in the Ballroom of the Convention Hall, where two well known orchestras will provide the music for this occasion.

The Technical Exhibit and the Scientific Exhibit are by far the largest that have ever been arranged for an annual session of the American Medical Association. Every one of the leading industries related to the practice of medicine has arranged an exhibit, and special attention will be given in these exhibits to reflecting scientific progress in the field concerned. Special exhibits in the Scientific Exhibit will concern fractures, cardiovascular diseases and physical medicine.

Rabbi Joshua Loth Liebman

Throughout the week the Woman's Auxiliary will be holding the regular sessions of its representative body. The Woman's Auxiliary of the Association now includes more than 30,000 members.

The entertainment scheduled for this annual session guarantees to all who attend a week not only of intellectual and spiritual enrichment but also of relaxation. As has been customary in other recent meetings of the Association, there is featured on this occasion an exhibit of art including painting, etching and sculpturing by physicians under the auspices of the American Physicians' Art Association. Prizes are to be given for those who present concepts most clearly exemplifying the services of the American physician in war.

Msgr. Fulton J. Sheen

The convention city is noted for its Boardwalk and its location as an oceanside resort. The American Medical Golfing Association is planning a tournament which will no doubt utilize the available excellent golf courses in or near Atlantic City. Several of the great industries are planning cocktail parties, dinners and suppers which will feature this Centennial celebration.

Already the reservations of rooms in the Boardwalk hotels and those closely adjacent are taxing the capacity of the convention city. Excellent rooms are available in other hotels and in neighboring cities and villages, so that any one who wishes to participate need not fear the overcrowding. A request for reservation should be sent immediately to the chairman of the Subcommittee on Hotels, Dr. Robert A. Bradley (16 Central Pier, Atlantic City, N. J.) indicating the type of room that is desired.

THE TEACHING OF NUTRITION—II

From its earliest beginnings as a specialty pediatrics never has been concerned exclusively with treatment of the sick. The concept of preventive pediatrics and maintenance of health has been assigned an important part in pediatric practice. Nutrition has always been a prime factor in attaining the objectives of this specialty. Always the pediatrician has been expected to give scientific advice concerning the feeding of infants. Our modern knowledge of nutrition demands much more than just the feeding of infants.

The future of the human race depends on rearing healthy children. Growth, development and health are dependent on adequate nutrition. The physician must be well equipped to guide nutrition of the child. Rules of thumb cannot serve adequately; specialized knowledge is essential. The physician must know about normal nutrition for the maintenance of health. He must know about nutrition in disease so that recovery may be hastened.

While the basic facts of nutrition usually are given in courses other than pediatrics, nutrition must be taught as such in pediatric training. As in physiology, anatomy and chemistry, so also in nutrition the concrete and special application to the patient is often more impressive to the student than the abstract learning gained from the preclinical courses.

Although the teaching of nutrition has always been an integral part of pediatric teaching, such teaching was largely empirical until the last two decades. Now the teaching of nutrition is based firmly on knowledge. The great mass of information on nutrition obtained through the study of animals has been supplemented and augmented by studies of well and sick infants and children. These studies have been integrated with chemical and anatomic studies of growth and development. For example, knowledge of the rate of growth of the skeleton at various ages of infancy and childhood is of real assistance in determining the calcium requirement at any given age.

Nutrition in pediatrics includes much more than giving the required amounts of appropriate foods in health. It requires understanding of metabolic changes in disease and compensating for these changes. The treatment of severe diarrhea, for example, requires knowledge of the salt and water metabolism of the body, of the factors required for replacement of the losses and of the practical application of the principles involved. Only recently has it become known that it is as important to supply lost potassium as it is to replace sodium and chloride if a baby is to recover from diarrhea. Also parenteral alimentation becomes necessary in diarrhea when the condition is severe and prolonged. In this situation detailed knowledge of maintenance requirements is necessary not only for water and salts but also for protein, energy and vitamins. Knowledge of proper use of protein hydrolysates is relatively new and in fact still incomplete.

Nutrition in pediatrics as in all other fields is constantly advancing. The instructor must keep up with these advances so that his teaching may be modern. Advances in nutrition are too many and too rapid to permit a teacher to maintain a static state of knowledge and be successful.

In the teaching of pediatrics some didactic instruction is necessary, but didactic training must be fully supplemented by opportunity for practical application. Instruction in infant nutrition, for example, has little meaning to the student until he is confronted with the responsibility of feeding a baby. The student will have the fullest training opportunity when he becomes an intern, but he should have as much opportunity as possible while still a student.

Demonstrations often are more effective in teaching than the giving of abstract information. While demonstrations in nutrition are more difficult than in some other fields, opportunity exists for many that are useful. When the infant or child is used as the subject for discussion, interest is maintained more easily and the discussion makes a greater impression.

Along with the teaching of nutrition in pediatrics, an understanding of the psychology of feeding has an important place. Many a child is undernourished because of chronic anorexia induced by mismanagement at meal time and emotional stresses associated with food and feeding. The teaching of nutrition in pediatrics must include the related psychologic aspects and the effect of emotional factors on eating. For the undergraduate medical student such teaching may of necessity be largely by didactic discussion. For the intern and resident staff, knowledge of these related factors is to be gained through responsibility for the care of patients and the easy availability of experts in the fields of dietetics and psychology or psychiatry. Presence of a dietitian and psychologist on regular ward rounds is helpful in this respect. The nutrition of the child should be discussed in relation to his disease, to his rehabilitation and to his home environment.

Current Comment

THE DISTINGUISHED SERVICE MEDAL

The Distinguished Service Medal, one of the highest awards within the gift of the American Medical Association, will be presented for the tenth time at the General Meeting of the Centennial Celebration at Atlantic City, Tuesday evening, June 10. The method of selecting the recipient of the Distinguished Service Medal is specifically defined in the By-Laws. Any Fellow of the Association may submit nominations, which should be sent, together with a record of the nominee's medical career and the reasons why he should be considered for the award, to the Chairman of the Committee on Distinguished Service Awards, Dr. William Weston, 1428 Lady Street, Columbia, S. C. The committee considers all nominations received, and from the total number of names received it submits five to the Board of Trustees. From those five the Board of Trustees selects three, which its chairman presents to the House of Delegates immediately after it has assembled for its first meeting. The House makes the final selection by ballot. Those who have received the Distinguished Service Medal of the A. M. A. have been physicians of distinction associated with the progress of medical science and with scientific discoveries of great importance. The first presentation was made to Dr. Rudolph Matas of New Orleans in 1938. Subsequent awards were made to Dr. James B. Herrick of Chicago in 1939, to Dr. Chevalier Jackson of Philadelphia in 1940, to Dr. James Ewing of New York in 1941, to Dr. Ludvig Hektoen of Chicago in 1942, to Dr. Elliott P. Joslin of Boston in 1943, to Dr. George Dock of Pasadena, Calif., in 1944, to Dr. George R. Minot of Boston in 1945 and to Dr. Anton J. Carlson of Chicago in 1946. Obviously, an extensive list of distinguished physicians nominated for the award will enable all concerned to determine a recipient whose selection will reflect honor not only on himself but also on the American Medical Association. Nominations should be received by Dr. Weston not later than May 15.

BILLS INTRODUCED TO RAISE ARMY PHYSICIANS' PAY

Bills were introduced in the Senate and House April 22 and April 23 respectively to increase the pay of medical officers of the Army. The differential between the income of civilian doctors and that of medical officers in the service probably has much to do with the fact that fewer medical officers are in the regular Army today than before the recent war began. The Army is having difficulty in attracting sufficient medical officers to fill even the present quota allowed by Congress. Should Congress provide increased pay for medical officers and should plans of the War Department go through to allow medical officers to spend more of their time in professional work the military service would become more attractive to well qualified young doctors. It is obviously proper that men who have given special attention and time to prepare themselves for advanced medical work should have this increased recognition.

THE CENTENNIAL CELEBRATION

AMERICAN MEDICAL ASSOCIATION, NINETY-SIXTH ANNUAL SESSION

ATLANTIC CITY, N. J., JUNE 9-13, 1947

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The ninety-sixth annual session of the American Medical Association will be held in Atlantic City, June 9-13, 1947.

The House of Delegates will convene at 10 a. m. Monday, June 9. In the House the representation of the various constituent associations for 1947, 1948 and 1949 is as follows:

Alabama	2	Nevada	1
Arizona	1	New Hampshire	1
Arkansas	2	New Jersey	5
California	9	New Mexico	1
Colorado	2	New York	20
Connecticut	3	North Carolina	3
Delaware	1	North Dakota	1
District of Columbia	2	Ohio	7
Florida	2	Oklahoma	2
Georgia	3	Oregon	2
Idaho	1	Pennsylvania	10
Illinois	9	Rhode Island	1
Indiana	4	South Carolina	1
Iowa	3	South Dakota	1
Kansas	2	Tennessee	2
Kentucky	2	Texas	5
Louisiana	2	Utah	1
Maine	1	Vermont	1
Maryland	2	Virginia	2
Massachusetts	6	Washington	2
Michigan	5	West Virginia	2
Minnesota	4	Wisconsin	3
Mississippi	1	Wyoming	1
Missouri	4	Alaska	1
Montana	1	Hawaii	1
Nebraska	2	Isthmian Canal Zone	1
		Puerto Rico	1

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the General Scientific Meetings to be held Monday, June 9, starting at 2 p. m. and continuing throughout the morning and afternoon of Tuesday, June 10. The General Meeting at which the President will be installed will be held on Tuesday, June 10, starting at 8 p. m. The sections will meet Wednesday, Thursday and Friday, June 11, 12 and 13, as follows:

CONVENING AT 9 A. M. THE SECTIONS ON	CONVENING AT 2 P. M. THE SECTIONS ON
Internal Medicine.	Pediatrics.
Obstetrics and Gynecology.	Surgery, General and Abdominal.
Laryngology, Otology and Rhinology.	Ophthalmology.
Pathology and Physiology.	Experimental Medicine and Therapeutics.
Orthopedic Surgery.	Nervous and Mental Diseases.
Urology.	Dermatology and Syphilology.
Preventive and Industrial Medicine and Public Health.	Gastro-Enterology and Proctology.
Anesthesiology.	Radiology.
General Practice of Medicine.	Miscellaneous Topics: Session on History of Medicine. Session on Physical Medicine. Session on Allergy.

The Registration Bureau, which will be located on the Arena Floor, Atlantic City Convention Hall, will be open from 8:30 a. m. until 5:30 p. m. Monday, Tuesday, Wednesday and Thursday, June 9, 10, 11 and 12, and from 8:30 a. m. to 12 noon Friday, June 13.

HARRISON H. SHOULDERS, President.
ROY W. FOUTS, Speaker, House of Delegates.
GEORGE F. LULL, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of The American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA

Lloyd Noland, Fairfield.
A. A. Walker, Birmingham.

ARKANSAS

L. J. Kosminsky, Texarkana.
D. A. Rhinehart, Little Rock.

CALIFORNIA

Robertson Ward, San Francisco.
Samuel J. McClendon, San Diego.
Lowell S. Goin, Los Angeles.
John W. Green, Vallejo.

COLORADO

W. T. H. Baker, Pueblo.
William H. Halley, Denver.

CONNECTICUT

Joseph H. Howard, Bridgeport.
Creighton Barker, New Haven.
Thomas P. Murdock, Meriden.

DELAWARE

James Beebe, Lewes.

DISTRICT OF COLUMBIA

C. B. Conklin, Washington.
Herbert P. Ramsey, Washington.

FLORIDA

Edward Jelks, Jacksonville.
H. L. Pearson Jr., Miami.

IDAHO

Edward N. Roberts, Pocatello.

ILLINOIS

Rollo K. Packard, Chicago.
G. Henry Mundt, Chicago.
Charles H. Phifer, Chicago.
Edwin S. Hamilton, Kankakee.
Willis I. Lewis, Herrin.

INDIANA

Don F. Cameron, Fort Wayne.
F. S. Crockett, La Fayette.
H. G. Hamer, Indianapolis.
Alfred S. Giordano, South Bend.

IOWA

Thomas F. Thornton, Waterloo.
George Braunlich, Davenport.
G. V. Caughlan, Council Bluffs.

KANSAS

Forrest L. Loveland, Topeka.
Philip W. Morgan, Emporia.

KENTUCKY

J. B. Lukins, Louisville.
Clark Bailey, Harlan.

LOUISIANA

James Q. Graves, Monroe.
V. H. Fuchs, New Orleans.

MAINE

Thomas A. Foster, Portland.

MARYLAND

Alfred T. Gundry, Baltimore.
Thomas S. Cullen, Baltimore.

MASSACHUSETTS

Charles E. Mongan, Somerville.
Dwight O'Hara, Boston.
Walter G. Phippen, Salem.
David D. Scannell, Boston.
Charles J. Kickham, Brookline.
Leland S. McKittrick, Boston.

MICHIGAN

Leo G. Christian, Lansing.
Frank E. Reeder, Flint.
W. D. Barrett, Detroit.
T. K. Gruber, Eloise.
Claude R. Keyport, Grayling.

MINNESOTA

Francis J. Savage, St. Paul.
E. W. Hansen, Minneapolis.
W. A. Coventry, Duluth.
A. W. Adson, Rochester.

MISSISSIPPI

J. P. Wall, Jackson.

MISSOURI

Arthur R. McComas, Sturgeon.
Warren L. Allee, Eldon.
Robert E. Schlueter, St. Louis.
James R. McVay, Kansas City.

MONTANA

R. F. Peterson, Butte.

NEVADA

M. J. Thorpe, Reno.

NEW HAMPSHIRE

Deering G. Smith, Nashua.

NEW JERSEY

Lucius F. Donohoe, Bayonne.
William F. Costello, Dover.
J. Wallace Hurff, Newark.
Hilton S. Read, Atlantic City.
Thomas K. Lewis, Camden.

NEW YORK
Thomas A. McGoldrick, Brooklyn.
John J. Masterson, Brooklyn.
Stephen R. Monteith, Nyack.
J. Stanley Kenney, New York.
George W. Kosmak, New York.
Thomas M. D'Angelo, Jackson Heights.
Harry Aranow, New York.
Louis A. VanKleeck, Manhasset.
Scott Lord Smith, Poughkeepsie.
Walter W. Mott, White Plains.
Walter P. Anderton, New York.
Herbert H. Bauckus, Buffalo.
Albert F. R. Andresen, Brooklyn.
Thomas M. Brennan, Brooklyn.
James R. Reuling Jr., Bayside.
Floyd S. Winslow, Rochester.
Ralph T. B. Todd, Tarrytown.
Oliver W. H. Mitchell, Syracuse.
Edward P. Flood, New York.
Albert A. Gartner, Buffalo.

NORTH CAROLINA
Roscoe D. McMillan, Red Springs.
C. F. Strosnider, Goldsboro.
Hamilton W. McKay, Charlotte.

NORTH DAKOTA
A. P. Nachtwey, Dickinson.

OHIO
Edgar P. McNamee, Cleveland.
George A. Woodhouse, Pleasant Hill.
Carl A. Lincke, Carrollton.

OREGON
Edward H. McLean, Oregon City.
Raymond M. McKeown, Coos Bay, Marshfield.

PENNSYLVANIA
William L. Estes Jr., Bethlehem.
Thomas R. Gagion, Pittston.
Joseph Scattergood Jr., West Chester.
James Z. Appel, Lancaster.
Elmer Hess, Erie.
William Bates, Philadelphia.
Francis F. Borzell, Philadelphia.
Walter F. Donaldson, Pittsburgh.
E. Roger Samuel, Mount Carmel.
Charles L. Shafer, Kingston.

RHODE ISLAND
Guy W. Wells, Providence.

SOUTH DAKOTA
H. Russell Brown, Watertown.

TENNESSEE
E. T. Newell, Chattanooga.
H. B. Everett, Memphis.

TEXAS
Holman Taylor, Fort Worth.
F. J. L. Blasingame, Wharton.

UTAH
James P. Kerby, Salt Lake City.

VERMONT
Theodore H. Harwood, Burlington.

VIRGINIA
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Walter E. Vest, Huntington.

WISCONSIN
William D. Stovall, Madison.
Stephen E. Gavin, Fond du Lac.
James C. Sargent, Milwaukee.

WYOMING
George P. Johnston, Cheyenne.

ALASKA
Arthur N. Wilson, Ketchikan.

HAWAII
Forrest J. Pinkerton, Honolulu.

ISTHMIAN CANAL ZONE
Harry Eno, Colon.

PUERTO RICO
Manuel de la Pila, Ponce.

DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES

INTERNAL MEDICINE
Charles T. Stone, Galveston, Texas.

SURGERY, GENERAL AND ABDOMINAL
Grover C. Penberthy, Detroit.

OBSTETRICS AND GYNECOLOGY
Jean Paul Pratt, Detroit.

OPHTHALMOLOGY
Arthur J. Bedell, Albany, N. Y.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY
Burt R. Shurly, Detroit.

PEDIATRICS
William Weston, Columbia, S. C.

EXPERIMENTAL MEDICINE AND THERAPEUTICS
Edgar V. Allen, Rochester, Minn.

PATHOLOGY AND PHYSIOLOGY
L. W. Larson, Bismarck, N. D.

NERVOUS AND MENTAL DISEASES
Hans H. F. Reese, Madison, Wis.

DERMATOLOGY AND SYPHILOLOGY
Cornelius F. Lehmann, San Antonio, Texas.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH
Stanley H. Osborn, Hartford, Conn.

UROLOGY
Roy B. Henline, New York.

ORTHOPEDIC SURGERY
J. Archer O'Reilly, St. Louis.

GASTRO-ENTEROLOGY AND PROCTOLOGY
Louis A. Buie, Rochester, Minn.

RADIOLOGY
B. R. Kirklin, Rochester, Minn.

ANESTHESIOLOGY
H. S. Ruth, Haverford, Pa.

GENERAL PRACTICE OF MEDICINE
Howard E. Griffin, Graham, Texas.

UNITED STATES ARMY
Frank L. Cole.

UNITED STATES NAVY
Morton D. Willcutts.

UNITED STATES PUBLIC HEALTH SERVICE
James A. Crabtree.

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DR. GEORGE F. LULL

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ATLANTIC CITY — 1947

For the twelfth time in the last hundred years the American Medical Association is having its annual meeting in Atlantic City. The extraordinary advantages of Atlantic City made it the logical choice for the Centennial Session. These include the finest combination of facilities from the professional, business and entertainment points of view anywhere available.

The convention city is situated on an island closely adjacent to the New Jersey coast. Among the natural advantages are bathing, deep sea fishing, sailing and motor boating. Deep sea fishing has made Atlantic City a mecca for sportsmen. Speed boats and other craft wait on the waters of the Inlet to take passengers for a cruise on the ocean or along the calm waters that separate Atlantic City from the mainland Seaplanes are available to carry passengers for short scenic trips or on hurried flights to distant cities

The Great Piers

The amusement piers in Atlantic City are among the most famous in the world. They provide a great variety of amusements, vaudeville, motion pictures, minstrels, dancing, water sports and other attractions.

The Famous Boardwalk

Along the wide and spacious Boardwalk, built well above the sandy beach, millions of visitors parade each year to enjoy the dawn, the sunlight and the dusk of happy days or to find their favorite entertainment, hotel, supper club or café

The Hotels

Some of the finest hotels in the world are located along the boardwalk. These skyscrapers are ready to cater to every wish of the guest, while an array of smart shops display interesting gifts and merchandise from all corners of the globe

The Convention Hall

The building in which the American Medical Association will hold its meetings covers an area of seven acres fronted on the Boardwalk between Georgia and Mississippi avenues. The building has seating accommodations for nearly 75,000 persons, the main auditorium alone seating 41,000. The Convention Hall is so large that the famous Madison Square Garden in New York could be placed in one corner of the main hall. A thirteen story building 500 feet long and 200 feet wide could be erected within the main auditorium, leaving a space 100 feet on all four sides. The lighting of Convention Hall is a triumph of color and illumination. A pipe organ with 1,255 stops, one of the largest in the world, is in the main hall. The wiring used in this organ would twice girdle the earth.

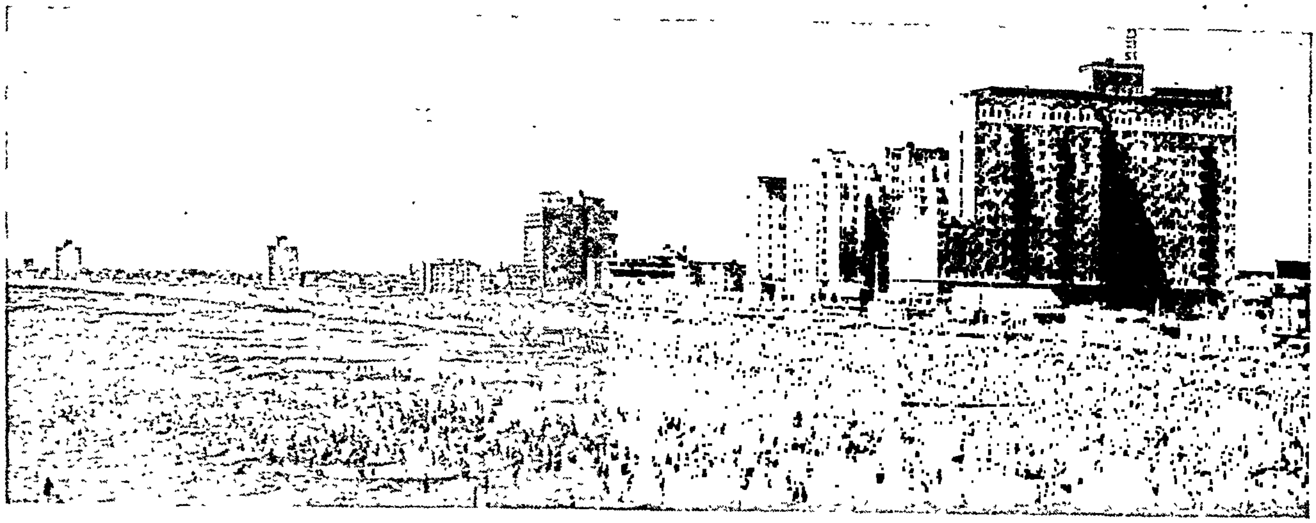
Ventilation and Heating

The Convention Hall is ventilated by means of thirty-one motor driven fans with the capacity of 1,600 tons of air per hour; there is a much larger number of air vents capable of discharging 2,900 tons of air per hour. The temperature throughout the building is maintained by direct radiation and is automatically controlled At the end of the auditorium is a well equipped stage capable of seating 5,000 persons. The lobby leading to Convention Hall has a vaulted passage 125 feet long and 50 feet wide, and from the lobby spacious corridors lead to the upper and lower levels of the auditorium. Along the boardwalk in front of Convention Hall and on the Pacific Avenue side are beautiful stores. From the arcade one may go direct to the interior of the Convention Hall.

Transportation

Atlantic City has adequate and perhaps unequaled transportation facilities which make it possible for millions of persons to

HOTEL TRAYMORE, WHERE THE HOUSE OF DELEGATES WILL MEET.



PANORAMA OF THE BOARDWALK IN ATLANTIC CITY, SHOWING BOARDWALK HOTELS. THE CONVE

go in and out of the city by motor, train, bus and airplane. It is but a short drive to Philadelphia over two famous "Pikes." Five highway bridges cross the Delaware River from Philadelphia toward Atlantic City, and five important ferry routes span the river from Philadelphia south. The Atlantic City airport, said to have been the first municipal airport in the world, is only a few hours from even our Far Western cities.

Rolling Chairs

For those wearing convention badges who desire to tour the Boardwalk in a rolling chair, special rates will be granted. There will be a nominal charge for one, two or three passengers, between certain hotels and the Convention Hall.

Golf

Five splendid golf courses are only a few minutes ride from the center of Atlantic City, and on one of these, the Atlantic City Golf Club, the American Medical Golf Association will hold its thirty-first annual tournament, June 9. Following this eighteen hole competition about one hundred prizes will be awarded. There are also municipally owned tennis courts at the Inlet and the airport, and horseback riding throughout the year. The wide eight mile stretch of beach is an inviting and beautiful bridal path.

Garages

A great convenience to those who drive to the annual session of the American Medical Association is a garage in Convention Hall directly under the arena and the assembly hall. About 500 cars can be accommodated. A special rate will be made for the period of this convention.

Noiseless and Smokeless

One of the unusual qualities that makes Atlantic City attractive to numerous visitors each year is the atmosphere of calm and of seaside serenity that prevails on the Boardwalk and in the hotels, theaters and restaurants. This most desirable quality is achieved largely through the absence of automobiles on the Boardwalk and the absence of smoke and soot because there are no large industries.

REGISTRATION

The Bureau of Registration will be located on the arena floor of the Atlantic City Convention Hall. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to The Journal and paid their Fellowship dues for the current year. Fellowship dues and subscription to The Journal are included in the one annual payment of $8, which is the regular subscription price of The Journal. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window. Any who have not received cards for 1947 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10.

Advance Registration

Those Fellows who have filled in advance registration cards and sent them to the office of the American Medical Association should present the registration identification card received from the office of the Association to the attendant at any window of the Registration Bureau. The attendant will then hand the registrant a Fellow's badge, an official program and a button for each of his guests.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Atlantic City so that registration can be more easily and more promptly effected.

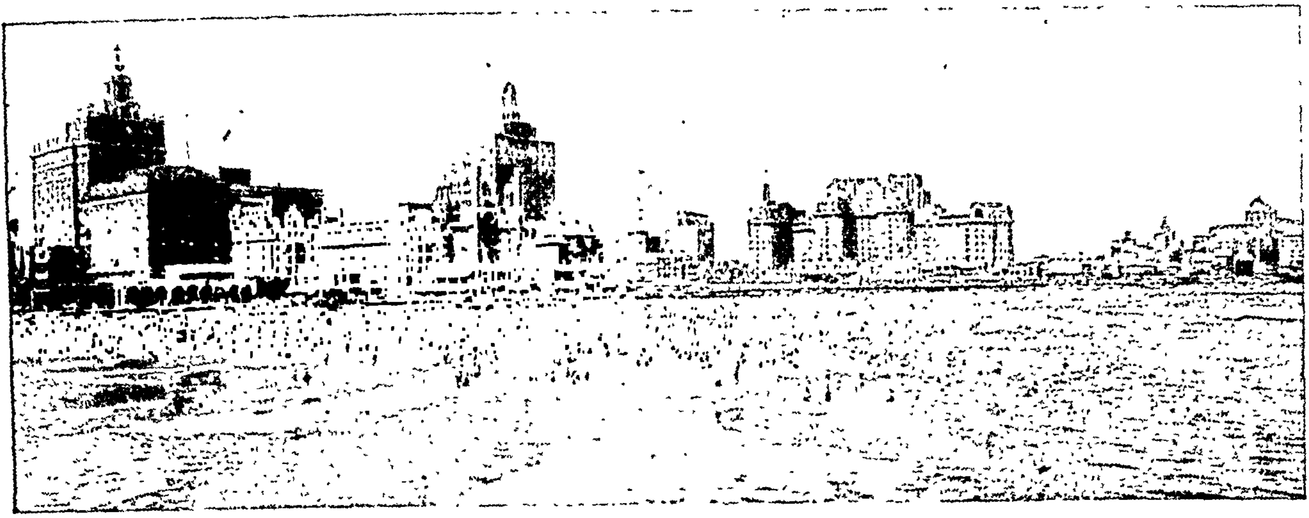
Application forms may be had on request.

Those subscribers to The Journal who have not received pocket cards for 1947 should write to the American Medical Association in order to obtain application blanks and information as to further requirements.

Register Early

Fellows living in Atlantic City, as well as all other Fellows who are in Atlantic City on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.



NTION AUDITORIUM IS LOCATED AT A CONVENIENT DISTANCE FROM MOST OF THE LARGE HOTELS.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the registration card. Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10, so that their Fellowship may be entered not later than May 10. Any applications that are received later than May 10 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Atlantic City session.

It will be possible for members of the organization to qualify as Fellows at Atlantic City. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Atlantic City bring with them their state membership cards for the year 1947. The state membership card should be presented along with the filled in registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Hotel Traymore

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the Rose Room of the Hotel Traymore. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Rose Room of the Hotel Traymore. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 9, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

TRANSPORTATION

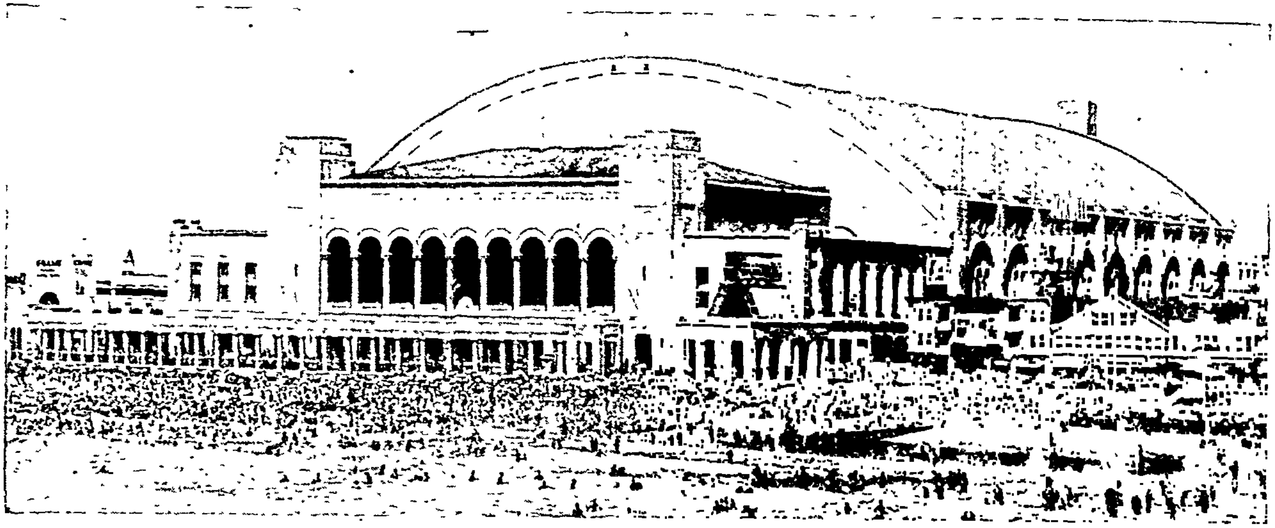
It is suggested that those Fellows who contemplate traveling to Atlantic City to attend the annual session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares. Transportation agencies—railroads and airlines—have been notified to contact all Fellows who have registered in advance.

Northwest Airlines, Inc.

Northwest Airlines will give all possible help and assistance to members of the medical profession in planning itineraries and requesting reservations for transportation to the centennial celebration. Doctors desirous of being on the same flight with friends boarding at intermediate points along Northwest's coast to coast route should so advise the reservations office at the time the initial reservation is made.

ATLANTIC CITY HOTELS

A limited number of rooms are still available at certain hotels in Atlantic City. It is suggested that if hotel reservations have not yet been secured by Fellows who expect to attend the Atlantic City session, such Fellows write directly to DR. ROBERT A. BRADLEY, SUBCOMMITTEE ON HOTELS, 16 CENTRAL PIER, ATLANTIC CITY, N. J.



THE CONVENTION HALL, WHERE THE ANNUAL SESSION WILL BE HELD.

MEETING PLACES

House of Delegates: Rose Room, Hotel Traymore, Boardwalk at Illinois Avenue.

General Scientific Meetings: Ballroom, Second Floor, Convention Hall.

General Meeting: Ballroom, Second Floor, Convention Hall.

General Headquarters, Registration Bureau, Scientific Exhibit, Technical Exhibits, Information Bureau and Branch Postoffice: Convention Hall.

SECTIONS OF SCIENTIFIC ASSEMBLY

Internal Medicine: Ballroom, Second Floor, Convention Hall.

Surgery, General and Abdominal: Westminster Hall, Chelsea Hotel.

Obstetrics and Gynecology: Westminster Hall, Chelsea Hotel.

Ophthalmology: Embassy Salon, Ambassador Hotel.

Laryngology, Otology and Rhinology: Embassy Salon, Ambassador Hotel.

Pediatrics: Ballroom, Second Floor, Convention Hall.

Experimental Medicine and Therapeutics: Wedgewood Room, Chelsea Hotel.

Pathology and Physiology: Wedgewood Room, Chelsea Hotel.

Nervous and Mental Diseases: St. Dennis Room, Dennis Hotel.

Dermatology and Syphilology: Wedgewood Room, Marlborough-Blenheim Hotel.

Preventive and Industrial Medicine and Public Health: Trellis Room, Ritz-Carlton Hotel.

Urology: Wedgewood Room, Marlborough-Blenheim Hotel.

Orthopedic Surgery: St. Dennis Room, Dennis Hotel.

Gastro-Enterology and Proctology: Trellis Room, Ritz-Carlton Hotel.

Radiology: Room 20, Convention Hall.

Anesthesiology: Room 20, Convention Hall.

General Practice of Medicine: Cambridge Hall, Claridge Hotel.

Miscellaneous Topics: Session on History of Medicine, Session on Physical Medicine and Session on Allergy: Cambridge Hall, Claridge Hotel.

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Ily R. Beir
Bernard Crane

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LUNCHEON MEETING IN HOTEL TRAYMORE OF THE LOCAL COMMITTEE ON ARRANGEMENTS FOR THE CENTENNIAL MEETING. THOSE PRESENT INCLUDE DR. DAVID B. ALLMAN, GENERAL CHAIRMAN, ATLANTIC CITY COMMITTEE; MRS. DAVID B. ALLMAN, GENERAL CHAIRMAN FOR THE WOMAN'S AUXILIARY; DR. CLARENCE L. ANDREWS, DR. ROBERT A. BRADLEY, DR. HAROLD S. DAVIDSON, DR. JEAN A. GRUHLER, DR. EDWARD GUION, DR. SAMUEL HALPERN, DR. H. L. HARLEY, DR. CHARLES HYMAN, DR. WILLIAM W. HERSOHN, DR. HERMAN KLINE, DR. FRANK W. KONZELMANN, DR. I. E. LEONARD SR., DR. ANTHONY G. MERENDINO, DR. E. H. NICKMAN, DR. SAMUEL L. SALASIN, DR. D. WARD SCANLAN, DR. C. H. deT. SHIVERS, DR. HARRY SUBIN, DR. BAXTER H. TIMBERLAKE, DR. EDWARD F. UZZELL, DR. L. M. WALKER, DR. CLARENCE B. WHIMS, DR. LAWRENCE A. WILSON, DR. MORRIS FISHBEIN, CHICAGO, GUEST SPEAKER, MRS. FISHBEIN, MR. A. H. SKEAN OF THE CONVENTION BUREAU AND MRS. SKEAN.

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C. C. Charlton, Chairman

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Vincent J. diNicolantonio
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William W. Hersohn, Chairman

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Thomas J. Petinga
Harry Subin
Samuel L. Winn

ENTERTAINMENT

Conference of County Society Officers

There will be a conference of county medical society officers on Sunday, June 8, at 2:30 p. m., in the American Room of the Hotel Traymore. It will be conducted in round table fashion with Dr. A. M. Mitchell of Terre Haute, Ind., as moderator. Fellows are invited to attend this conference.

Dinner for Delegates

A dinner is being arranged by the Board of Trustees of the American Medical Association for Monday, June 9, for members of the House of Delegates and officers of the Association in the American Room of the Hotel Traymore. Complete information concerning the dinner will be available at the first meeting of the House of Delegates on Monday morning, June 9.

Luncheon for Delegates

A luncheon for the members of the House of Delegates and the officers of the American Medical Association is being planned for Tuesday noon, June 10, between the morning and afternoon meetings of the House of Delegates at the Hotel Traymore.

Installation of President

The General Meeting at which the President will be installed will be held on Tuesday evening, June 10, in the Ballroom of Convention Hall. The program will begin at 8 o'clock with a musical presentation by the Philadelphia Festival Orchestra followed by the regular program as published elsewhere in this section.

Breakfast for Vice Presidents

There will be a breakfast for all past Vice Presidents of the American Medical Association on Tuesday morning, June 10, at 8 o'clock at the Shelburne Hotel.

President's Reception and Ball

The President of the Association will be honored with a reception and ball to be held Thursday evening, June 12, at 9 o'clock in the Ballroom of Convention Hall.

Luncheons and Dinners

Alpha Omega Alpha, Dinner, Thursday, June 12, Hotel Traymore, 6:30 p. m. Dr. Reginald Fitz will introduce the foreign guests.

Alumnae Association of Woman's Medical College of Pennsylvania, Dinner, Wednesday, June 11, at 7 o'clock, in Ozone Room, Hotel Dennis.

Association of Alumni, College of Physicians and Surgeons of Columbia University, Banquet, Thursday, June 12, at 6 p. m. at Hotel Claridge. Dress informal. Eleven Dollars a person. Send check to Chairman of Dinner Committee, Dr. Robert B. Durham, 110 South North Carolina Avenue, Atlantic City, N. J.

Christian Medical Society, Banquet, Wednesday, June 11, at 6:30 p. m. at the Hotel Senator. Four dollars a person. Please send reservations to Dr. Chester L. Schneider, 6516 North Ninth Street, Philadelphia 26.

Harvard Medical Alumni Association, Dinner, Wednesday, June 11, at 7 o'clock at Hotel Claridge. Tickets on sale at booth in Convention Hall.

Medical Alumni Association of Temple University, Luncheon, Wednesday, June 11, at 12:30 at Marlborough-Blenheim Hotel.

Past Chairmen of Section on Internal Medicine of American Medical Association, Luncheon, Wednesday, June 11.

Phi Rho Sigma, Luncheon, Wednesday, June 11 at 12 noon, at the Marlborough-Blenheim Hotel.

Philip Morris & Co., Supper Show, Submarine Grill, Hotel Traymore, Tuesday, June 10, at 10 p. m.

National Gastroenterological Association, Banquet, Thursday, June 5, Hotel Chelsea, at which the winner of the National Gastroenterological Association's 1947 Cash Prize Award Contest for the best unpublished contribution on gastroenterologic or an allied subject will receive the prize of $100 and a certificate of merit. The guest speaker will be Dr. Homer T. Smith, whose subject is "Plato and Clementine."

New York Eye and Ear Infirmary, Alumni Dinner, Wednesday, June 11, at 6:30 in Chevy Chase Room, Marlborough-Blenheim Hotel.

Tufts Medical Alumni Association, Dinner, Wednesday, June 11, at 6:30 at Ritz-Carlton Hotel.

STAMP COMMEMORATING A. M. A. CENTENNIAL

Postmaster General Robert E. Hannegan has approved the issuance of a commemorative postage stamp honoring the doctors of America, the Post Office Department announced on April 8. The special stamp will be of the three cent variety and will be placed on sale June 9 on the occasion of the hundredth anniversary of the founding of the American Medical Association. "In so honoring the American doctor," Mr. Hannegan said, "we are paying tribute to the men and women of medicine who devote their lives to the cause of humanity. Alleviation of pain and suffering and the betterment of mankind are their creed. The contribution which they have made to our national life is one of which all America can be proud and grateful." Details as to the place of sale and description of the stamp will be announced later.

WOMAN'S AUXILIARY

The Woman's Auxiliary to the American Medical Association will hold its twenty-fourth annual meeting in Atlantic City, June 9 to 12.

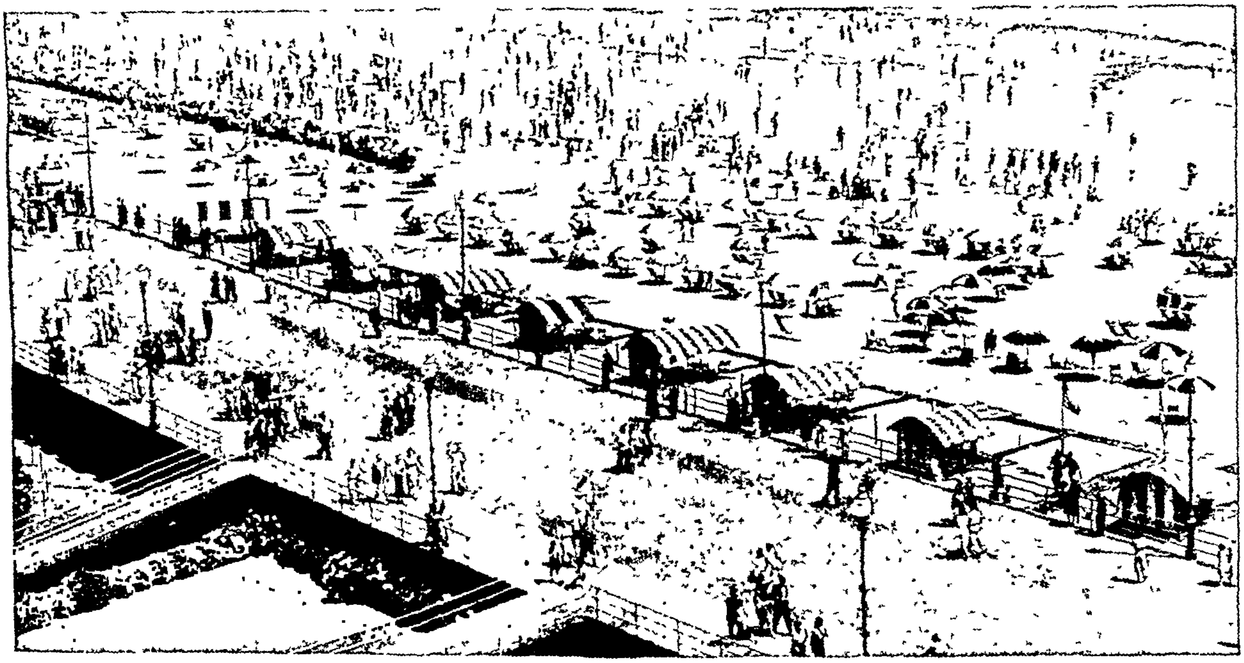
A cordial invitation is extended to the wives and guests of members of the American Medical Association attending the convention to be present at the general sessions and take part in the social functions of the Woman's Auxiliary. Headquarters will be at Haddon Hall, where all meetings and social events will be held unless otherwise specified in the program.

Please register early and secure your badge. Tickets will be available at the headquarters at Haddon Hall only and should be purchased as soon after arrival as possible.

Members of the Hospitality Committee will be at the various hotels to assist in any possible manner

Registration Hours

Sunday	12 m. to 4 p m
Monday	9:30 a.m. to 4 p m.
Tuesday	9:30 a.m. to 4 p m
Wednesday	9:30 a.m to 4 p m.
Thursday	9:30 a.m. to 4 p m.



JUST BEACH AND OCEAN AND THE BOARDWALK AND THE SUNLIGHT. THESE MAKE ATLANTIC CITY.

Preconvention Meetings

Sunday, June 8, 1947

12 m to 4 p m The members of the Hospitality Committee will welcome members and guests of the Woman's Auxiliary.

4 p m. to 6 p m. Tea honoring Mrs. Jesse D. Hamer, National President, and Mrs. Eustace A. Allen, President-Elect, will be given for the members of the National Board of Directors, state presidents and presidents-elect and guests, by invitation only.

Garden Room, Lounge Floor, Haddon Hall.

Hostesses: The Woman's Auxiliary to the Medical Society of New Jersey.

COMMITTEE MEETINGS

1 p. m. Nominating Committee, Room D. Called by the president, Mrs Jesse D. Hamer.

8 p. m. Finance Committee, Room C. Mrs. Scott C. Applewhite, chairman.

Monday, June 9

10 a m Revisions Committee Meeting, Room D. Mrs. Roscoe E. Mosiman, chairman

12 m. Luncheon and meeting of the Board of Directors, Bakewell Room. Mrs. Jesse D. Hamer presiding.

12 m. Busses will leave for Atlantic City Race Track Luncheon may be procured at the club house or food bars (club house tickets $3 60; grandstand tickets $1 80).

8:30 p m. Fashion Show, Ballroom, Convention Hall.

PROGRAM

Tuesday, June 10

9 a.m.

Formal opening of the twenty-fourth annual meeting of the Woman's Auxiliary to the American Medical Association Vernon Room, Lounge Floor.

Presiding.......... .Mrs. Jesse D. Hamer, President
Invocation.. . .. . .Rev. [illegible] F. Garnet
Rector, St. Andrews Lutheran Church
Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association............ .. Mrs David W. Thomas
Greetings.... .. .Hon. Joseph Altman, Mayor, Atlantic City
Dr. Lawrence A. Wilson, President,
Atlantic County Medical Society

Address of Welcome............Mrs. Frederick G. Wandall
President, Woman's Auxiliary to the Medical Society of New Jersey
Response.......................Mrs. W D. Kirkpatrick
President, Woman's Auxiliary to the Washington State Medical Society
Presentation of Convention Chairman..Mrs. David B Allman

INTRODUCTIONS

Presentation of President-Elect.......Mrs. Eustace A. Allen
Roll Call..Mrs. William J. Butler, Constitutional Secretary
Minutes of the 23d Annual Meeting..Mrs. William J. Butler
Convention Rules of Order.............Mrs. George Turner
Credentials and Registration.........Mrs. William E. Dodd
Address of the President...............Mrs. Jesse D Hamer

REPORTS OF OFFICERS

President-Elect.....................Mrs. Eustace A. Allen
First Vice President.. .. ..Mrs. David B. Allman
Second Vice President................Mrs. Leo J. Schaefer
Third Vice President...........Mrs. E. Arthur Underwood
Fourth Vice President...............Mrs. John P. Helmick

Treasurer......................Mrs. Harold F. Wahlquist
Auditor........................Mrs. Harold F. Wahlquist
Constitutional Secretary...........Mrs. William J. Butler

12:30 p. m. Luncheon in honor of the past presidents of the Woman's Auxiliary to the American Medical Association, Rutland Room, First Floor. Tickets, $4.

2 p.m.

AFTERNOON SESSION

Report of the Board of Directors.......Mrs. Jesse D. Hamer
Reports of Chairmen of Standing Committees:
- Editorial.......................Mrs. James P. Simonds
- Finance.....................Mrs. Scott C. Applewhite
- Hygeia.........................Mrs. Arthur I. Edison
- Legislation......................Mrs. Luther H. Kice
- Organization.....................Mrs. David B. Allman
- Postwar Planning.............Mrs. Rollo K. Packard
- Program.......................Mrs. Henry Garnjobst
- Public Relations....................Mrs. S. Dale Spotts
- Revisions.....................Mrs. Roscoe E. Mosiman

Report of the Historian........Mrs. Elmer L. Henderson

12:15 p. m.

Annual luncheon in honor of Mrs. Jesse D. Hamer, president, and Mrs. Eustace A. Allen, president-elect, Rutland Room, first floor. Tickets, $4.

Guests of honor: Dr. H. H. Shoulders, President, Dr. Edward L. Bortz, President-Elect, Dr. J. J. Moore, Treasurer, Dr. George F. Lull, Secretary and General Manager, Dr. Morris Fishbein, Editor of The Journal and Hygeia, and the members of the Advisory Council of the Woman's Auxiliary to the American Medical Association.

1:30 p. m.

Joint meeting of the Advisory Council of the American Medical Association and the Board of Directors of the Woman's Auxiliary.

3:00 p. m.

AFTERNOON SESSION

Unfinished Business.

New Business.

Report of the Nominating Committee by the Chairman.

Election of Officers.

THE AUDITORIUM (RIGHT) WITH RITZ CARLTON AND AMBASSADOR HOTELS AND THE PRESIDENT HOTEL TO THE LEFT.

Report of the Central Office........Miss Margaret Wolfe
Report of the Nominating Committee (first reading).
Election of the 1947 Nominating Committee.

4 p. m.

Round Table Discussion:
- Hygeia........................Mrs Arthur I. Edison
- Legislation........................Mrs. Luther H. Kice
- Program.......................Mrs. Henry Garnjobst
- Public Relations..................Mrs. S. Dale Spotts

8 p. m.

General Meeting of the American Medical Association, Ballroom, Convention Hall. Members of the Woman's Auxiliary and guests are welcome.

Wednesday, June 11

9 a. m.

General Session of the Woman's Auxiliary to the American Medical Association, Vernon Room, Lounge Floor.
- Presiding........................Mrs. Jesse D. Hamer
- Minutes.....................Mrs. William J. Butler
- Announcements.................Mrs. David B. Allman
- Credentials and Registration......Mrs. William E. Dodd
- In Memoriam.......................Mrs. Ralph Eusden
- Resolutions.....................Mrs. Frank N. Haggard
- Reports of state presidents.
- Installation of Officers and Presentation of President's Pin.........................Mrs. Rollo K. Packard
- Inaugural Address.............Mrs. Eustace A. Allen
- Convention Courtesy Resolutions...........Mrs. Lodovico Mancusi-Ungaro
- Minutes.
- Adjournment.

Thursday, June 12

9:30 a. m.

Meeting of the Board of Directors, Solarium (Lounge Floor)

Presiding......................Mrs. Eustace A. Allen

1:00 p. m.

Busses will leave for Renault's Champagne Winery, Egg Harbor City.

6:30 p. m.

Annual dinner of the Woman's Auxiliary for members, husbands and guests. Formal.

Vernon Room, Lounge Floor................Tickets $6.00

9:00 p. m.

Reception and ball in honor of the President of the American Medical Association. Ballroom, Convention Hall.

Friday, June 13

Exhibits at Convention Hall.

PHYSICIANS' ART EXHIBIT

The American Physicians' Art Association and Literary Guild will hold an extensive and interesting exhibit in the Atlantic City Convention Hall during the session. The three distinct departments in this show are (1) the regular yearly art exhibit, in which over one hundred cups will be awarded, (2) the $34,000 bond contest offered by Mead Johnson & Company for pictures and sculpture done by physicians depicting Courage and Devotion Beyond the Line of Duty, (3) nonmedical writings by physicians, prose and poetry, for which the winners in twelve different fields of writing will be awarded beautiful plaques.

This year doctor members are sending in pieces not only from the whole of the United States, Canada, Hawaii and the Philippines but also from leading cities of Central and South America.

Judges for the two art exhibits are being selected from leading professional artists of Philadelphia and New York. There will be nearly two thousand pieces submitted.

For further information consult F. H. Redewill, M.D., Secretary of the American Physicians' Art Association and American Physicians' Literary Guild, 526 Flood Building, San Francisco 2.

GOLF TOURNAMENT

The American Medical Golfing Association will hold its thirty-first tournament on Monday, June 9. For those playing thirty-six holes, Linwood Country Club has been reserved; the A. M. G. A. Fellows who play only one round will be accommodated at the Atlantic City Country Club, where the dinner will be held and prizes awarded.

Trophies and Prizes

Trophies will be awarded for the Association Championship, the Will Walter Trophy; the Association Handicap Championship, the Detroit Trophy; Championship Flight, First Gross, the St. Louis Trophy; Championship Flight, First Net, the President's Trophy, donated by James W. Morgan, San Francisco; Eighteen Hole Championship, the Golden State Trophy; Eighteen Hole Handicap Championship, the Ben Thomas Trophy and the Atlantic City Trophy; Maturity Event, the Minneapolis Trophy; and the Old Guard Championship, the Wendell Phillips Trophy.

In addition to these, approximately seventy-five other prizes will be in competition.

Two Courses in Excellent Condition

Both the Atlantic City Country Club and the Linwood Country Club courses are ideal for experts and a treat for players with higher handicaps. Fellows may tee off between 7:30 a. m. and 2:30 p. m. Luncheon will be served at both clubs The golfers' banquet will be held in the Atlantic City Country Club house at 7 p. m. The awarding of the many trophies and prizes will follow. Entertainment will be spontaneous—by Fellows.

Atlantic City Committee on Arrangements

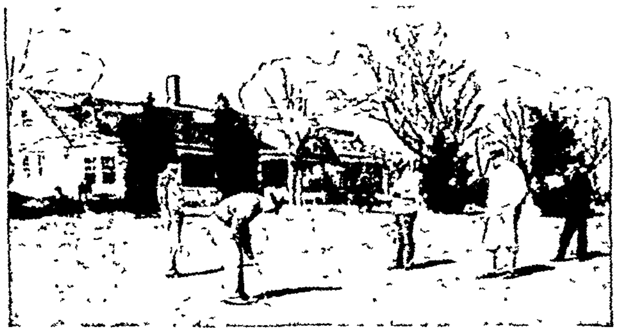
The Atlantic City Committee on Arrangements is under the chairmanship of Jean A. Gruhler, 101 South Indiana Avenue, Atlantic City. He will be assisted by L. Elmore Hess, James H. Mason, B. H. Timberlake and C. B. Whims.

Application for Membership

The A. M. A. Centennial Tournament will be a highly celebratory event. Old and new Fellows will have the opportunity to enjoy a wonderful day of golf, to win a nice prize and to join in the famous goodfellowship of the American Medical Golfing Association.

All male Fellows of the American Medical Association are cordially invited to become Fellows of the American Medical Golfing Association. Write Secretary Bill Burns, 2020 Olds Tower, Lansing 8, Mich., for application blank.

Participants in the tournament are required to present their home club handicap, signed by the club secretary, or to accept a handicap set by the A. M. G. A. Handicap Committee. No handicap over 30 is allowed. A Fellow absent from the annual banquet following the tournament forfeits his rights to a trophy or prize.



ATLANTIC CITY GOLF CLUB, WHERE THE ANNUAL TOURNAMENT WILL BE HELD.

American Medical Golfing Association Officers

James W. Morgan, San Francisco, is President, J. A. Bargen, Rochester, Minn., and Frank Sheehy, San Francisco, are vice presidents of the A. M. G. A. President Morgan anticipates that over 250 Fellows of the A. M. G. A. will play in the enjoyable A. M. G. A. Tournament in Atlantic City on Monday, June 9.

MEETINGS OF OTHER ORGANIZATIONS

Aero Medical Association

The eighteenth annual meeting of the Aero Medical Association will be held in Atlantic City at the Ritz-Carlton Hotel from June 4 to June 6. There will be registration and scientific sessions on the three days, the annual business session being held on Friday, June 6. The winners of the Theodore C. Lyster Award and Raymond F. Longacre Award will be announced at the annual banquet on Thursday, June 5.

American College of Chest Physicians

The American College of Chest Physicians will hold its thirteenth annual meeting at the Ambassador Hotel, June 5 to 8. Scientific sessions will be held on each day, a program on Information Please in Diseases of the Chest being planned for 8 p. m. on Friday, June 6. Oral examinations for fellowship will be conducted at 9 a. m. and written examinations at 2 p. m. on Thursday, June 5. The dinner, International Night, will be at 6:30 Thursday, June 5.

American College of Radiology

The regular annual meeting of the American College of Radiology will be held at Haddon Hall, June 8, starting at 3 p. m., at which time there will be received the reports of the officers, of standing commissions and of standing committees followed by new business, the report of the nominating committee and the election of officers.

American Society of Electroencephalography

The first annual meeting of the American Society of Electroencephalography will be held at the Marlborough-Blenheim Hotel June 13 to 15. All interested are invited to attend.

National Gastroenterological Association

The twelfth annual convention and scientific sessions of the National Gastroenterological Association will be held June 4 to 6. The program will consist of eighteen separate papers on various phases of gastroenterology and allied subjects. The program and other details may be obtained from the National Gastroenterological Association, 1819 Broadway, New York 23. At the luncheon round table conference on Thursday, June 5, Dr. Hyman I. Goldstein of Camden, N. J., will speak on the history of gastroenterology and the development of this specialty in America.

American Society for the Study of Sterility

The third annual convention of the American Society for the Study of Sterility will convene at the Hotel Strand on June 7 and 8, and the general theme of the meetings will be that of attempting to disseminate to the physician treating marital infertility an overall picture of the latest advances in reproduction. The program will consist of original papers, round table discussions, scientific exhibits and personal demonstration. Registration is open to members of the medical and allied professions. For additional information, write Dr. John O. Haman, 490 Post Street, San Francisco 2.

American Neisserian Medical Society

The ninth annual session of the American Neisserian Medical Society will convene June 8 at the Marlborough-Blenheim Hotel. The scope of the society has been increased to include the medical and public health aspects of all the venereal diseases. All physicians interested are cordially invited to attend.

Dates of Meetings of Other Organizations in Atlantic City Prior to Annual Session of American Medical Association

American College of Allergists, Hotel Senator, June 6-8.
American Geriatrics Society, Hotel Brighton, June 5-7.
American Heart Association, Hotel President, June 6-7.
American Medical Women's Association, June 7-8.
American Proctologic Society, June 7.
American Radium Society, June 8.
American Society for the Study of the Blood, Claridge Hotel, June 8 (organization meeting).
American Society of Clinical Pathologists, June 4-8.
American Therapeutic Society, Chalfonte Hotel, June 6-7.
Association for the Study of Internal Secretions, June 6-7.

DISTINGUISHED FOREIGN GUESTS

The following distinguished foreign guests will be present and participate in the work of the Scientific Assembly at the Centennial Celebration:

Sir William Heneage Ogilvie, surgeon to Guy's Hospital and Royal Masonic Hospital, London, England; examiner in surgery to Cambridge and Oxford universities and the examining board of the Royal Colleges; vice president of the Royal College of Surgeons of England, 1945-1947; editor of the *Practitioner;* author of the Treatment of Fractures in General Practice and various other works. Dr. Ogilvie in the second world war was consulting surgeon to the East African Campaign, the Middle East Force and the Eastern Command.

Sir William H. Ogilvie

Dr. R. M. B. MacKenna, physician in charge of the dermatologic department of St. Bartholomew's Hospital, London; physician at St. John's Hospital for Diseases of the Skin; editor of the recent book "Modern Trends in Dermatology"; author of Aids to Dermatology and of the third and fourth editions of R. W. MacKenna's manual "Diseases of the Skin"; on the editorial board of the *Quarterly Review of Dermatology and Syphilology;* fellow of the Royal Society of Medicine; adviser in dermatology to the War Office; honorary dermatologist, Royal Liverpool United Hospital; honorary assistant dermatologist, Liverpool Radium Institute; command specialist in dermatology, Northern Command, 1940-1941. During the recent war was consultant in dermatology to the British army.

Dr. R. M. B. MacKenna

Dr. Corneille Heymans, professor of pharmacology, University of Ghent, Belgium; Nobel Prize Winner in Medicine in 1938 for his studies on physiology and pharmacology of respiration and circulation; member of the Council of Foods National de la Recherche Scientifique de Belgique; formerly lectured at New York University, Harvard Medical School, Western Reserve University School of Medicine and at the Greensfelder Memorial Foundation, Chicago. Author of Le sinus carotidien and many other works.

Dr. John McMichael, professor of medicine, University of London, and director, department of medicine, British Postgraduate Medical School; published numerous papers on splenic anemia and related subjects; formerly lecturer in physiology, University of Edinburgh; conducted clinical research on cardiac output in health and disease; as Johnston Lawrence Research fellow of the Royal Society has conducted research on hemorrhage and shock; cooperated with the Harvard Red Cross Unit at Salisbury in investigating hepatitis following the inoculation of convalescent mumps serum.

Dr. Corneille Heymans

Dr. George Ewart Martin, surgeon of the ear, nose and throat department, Royal Infirmary, Edinburgh, Scotland; lecturer in diseases of the larynx, ear and nose, Edinburgh University; member of the President's Council of the Royal College of Surgeons, Edinburgh, and of the Council of the British Otolaryngological Association; immediate past president of the laryngologic section, Royal Society of Medicine, London; during the war was adviser in otolaryngology to the Scotland Department of Health; joint author of Turner's Diseases of the Nose, Throat and Ear.

Dr. Robert Debré, professor of the Children's Clinic at the Faculty of Paris, France, and chief physician, Hospital for Diseases of Children; member of the Medical Academy and of the Royal Society of Medicine in London; corresponding Member of the British Pediatric Association; president of the French Association of Pediatry; consultant to the State Department of Health; member of the assembly of the Pasteur Institute; a co-worker of Calmette, Roux, Maurice Nicolle and Leon Bernard and a pupil of Marfan; served in both world wars and now is Commander of the Legion of Honor.

Dr. John McMichael

Dr. Göran Liljestrand, since 1918 secretary of the Nobel Committee for Physiology and Medicine and professor of pharmacology, Kolinska Institutet, Stockholm, Sweden, and assistant professor in physiology; studied in London, Belgium, Denmark and Germany; immediate past president of the Swedish Medical Association; member of the Swedish Academy of Science and of various scientific societies in other countries; lectured in Boston.

Dr. George White Pickering, professor of medicine and director of the Medical Clinic, St. Mary's Hospital, London, England; formerly assistant to Sir Thomas Lewis and lecturer in cardiovascular pathology at the University College Hospital; member of the Medical Research Council; conducted research with Lewis on Raynaud's disease and independently on hypertension and vasomotor tone; now working on peptic ulcer and hypertension. Member of the Committee on Wound Shock of the Medical Research Council. Since 1945 editor of "Clinical Science."

Dr. George E. Martin

Sir Howard Walter Florey, professor of pathology, University of Oxford, England; honorary consultant in pathology to the British army in 1943; visiting professor to Australia and New Zealand in 1944; Nobel Prize Winner in Physiology and Medicine in 1945 for his work on penicillin; awarded the Lister Medal, the Cameron Prize of the University of Edinburgh and the Berzelius Medal of the Swedish Medical Society and numerous other honors by scientific societies and various universities.

Dr. Robert Debré

Sir Stewart Duke-Elder, brigadier, R. A. M. C.; surgeon oculist to the King; consulting ophthalmic surgeon to the British army; ophthalmic surgeon, St. George's Hospital, London; lecturer in ophthalmology, St. George's Hospital Medical School, University of London; William Mackenzie Memorial Medalist (Glasgow) 1929; Howe lecturer in ophthalmology, Harvard Medical School, Boston, in 1930; examiner in ophthalmology for the Royal College of Physicians and Surgeons 1932-1935; author of a textbook of ophthalmology.

Dr. Herbert John Seddon, professor of orthopedic surgery, University of Oxford, England; clinical director, Wingfield Morris Orthopedic Hospital, Oxford; instructor in surgery at the hospital of the University of Michigan, Ann Arbor, Mich., in 1930; honorary secretary, British Orthopedic Association; awarded the Robert Jones medal and Association prize, 1933; Hunterian professor, Royal College of Surgeons, 1935; member, Central Council for the Care of Cripples.

Dr. Göran Liljestrand

Dr. Gonzalo Esguerra Gomez, for many years manager of the Marly Clinic, Bogota, Colombia, and on the Faculty of Medicine of the University of Colombia; formerly director, radiologic laboratory, San Juan de Dios Hospital, Bogota; professor of radiology, National School of Dentistry; formerly president of the Sociedad de Medicina Tropica and delegate to the fifth International Radiology Congress in Chicago, 1937; member of the Academia Nacional de Medicina; author of numerous works in the field of radiology.

Dr. Thierry Alajouanine, Paris, France, now professor of the history of medicine at the University of Paris; will succeed to the chair of neurology at the university on July 1, when Professor Guillain retires; interned in the service of Dr. Souques at the university; became assistant professor under Professor Guillain; attending neurologist to the Bicêtre, a large hospital for chronically ill men. Author of many books and fundamental articles on various phases of clinical neurology; will address the Section on Nervous and Mental Diseases.

Dr. George W. Pickering

Dr. E. Asworth Underwood, London, England, director, Wellcome Historical Medical Museum; formerly resident surgeon and resident physician, Western Infirmary, Glasgow; author of "Manual of Tuberculosis," second edition, 1937, and numerous articles.

Dr. Jose Valls, Buenos Aires, Argentina, professor of orthopedic surgery, University of Buenos Aires, and president of the Argentine Medical Association, will address the Section on Orthopedic Surgery on "The Aspiration Biopsy in the Diagnosis of the Lesions of the Vertebral Bodies."

Sir Howard W. Florey

Dr. Francisco deP. Miranda, director of the National Institute of Nutrition, Mexico City, Mexico; head of the Hospital del Niño; a guest of the American Medical Association on previous occasions; will address the Section on General Practice of Medicine.

Dr. Andrew Rennie Hunter of the Manchester Royal Infirmary, Manchester, England; senior resident and anesthetist, Royal Infirmary, Falkirk; formerly senior house officer, Gleneagles Hospital, Department of Health, Scotland; will address the Section on Anesthesiology.

Dr. Ernst James Heyman, professor of obstetrics and gynecology at the Caroline Institute in Stockholm, Sweden; present physician for the division of gynecology at the Radium Institute in Stockholm; head physician at the Radium Institute since 1937. Editor of the annual report issued by the League of Nations on the results of radiotherapy in uterine cancer.

Sir Stewart Duke-Elder

Dr. Donald Y. Solandt, Toronto, Canada; professor of physiologic hygiene, University of Toronto, and professor of physiology in charge of the section of biophysics; formerly associate professor of physiology; for many years conducted research in physiology and biophysical research also at the University of Pennsylvania and at the University of London; member of various committees of the National Research Council of Canada; served on active duty, also at sea, as surgeon commander, Royal Canadian Navy Reserve, during World War II.

Dr. Donald Y. Solandt

Dr. Hector Ducci, Santiago, Chile, assistant professor of medicine, University of Chile Medical School; in charge of the section of hepatology of Dr. Herman Messandi's medical service at Hospital Salvador, Santiago; general secretary of the Medical Society of Santiago; formerly assistant in bacteriology and assistant in medicine; formerly Rockefeller fellow at the University of Minnesota Hospitals, Department of Internal Medicine; will address the Section on Internal Medicine.

Dr. Frank S. Patch, Montreal, Canada; formerly president of the Canadian Medical Association and of the Royal College of Physicians and Surgeons of Canada; on the consulting staff of Montreal General Hospital; for many years professor of urology and chairman of the departments of surgery and urology, Magill University, Montreal; formerly managing editor, *Canadian Medical Association Journal;* president of the Montreal Medico-Chirurgical Society; colonel, Canadian Army Medical Corps, in World War I; author of numerous articles in the field of urology.

Dr. Hector Ducci

Dr. Sven Forssman, professor and head of the department of industrial hygiene, National Institute of Public Health, Stockholm, Sweden; editor of the *Scandinavian Journal of Hygiene;* secretary of the Swedish Medical Society; vice chairman, Swedish Association of Industrial Physicians.

REPRESENTATIVES OF FOREIGN MEDICAL ASSOCIATIONS

The following representatives of foreign governments or medical associations will attend the Centennial Celebration:

Dr. George Constam of the Federation des Médecins Suisses, Zurich, Switzerland, will be the official representative of that organization to the Centennial Session.

Dr. Szeming Sze

Dr. Harry Guy Dain, London, England, chairman of the council of the British Medical Association; member of the Royal College of Surgeons; formerly resident surgeon officer and resident medical officer of Children's Hospital, Birmingham; assistant surgeon, General Hospital, Birmingham

Dr. John A. Pridham, London, England, chairman, International Relations Committee of the British Medical Association; member of the Royal College of Surgeons; honorary secretary, Dorset Local Medical and Panel Committee; author of "Problem of the Care of the Neurotic Patient."

Dr. Szeming Sze, formerly secretary-general of the Chinese Medical Association, and editor of the *Chinese Medical Journal;* assistant superintendent, Chungshan Hospital, Shanghai; senior technical expert, National Health Administration; adviser, Commission on Medical Education of China; vice president, Interim Commission of World Health Organization; director, National Anti-Tuberculosis Association and of the Health League of China; at present medical director, Chinese Supply Commission, Washington, D. C.

Dr. T. C. Routley

Dr. Thomas Clarence Routley, General Secretary, Canadian Medical Association; former secretary of the Ontario Medical Association for many years; Fellow of the *Royal College of Physicians and* Surgeons of Canada; Commander of the Order of the British Empire; member of the Toronto Academy of medicine and of the Alpha Omega Alpha Horonary Medical Fraternity; for four years served as general secretary of the Canadian Medical Procurement and Assignment Board.

Dr. Chafic Trefi, a graduate in medicine of the University of Paris; formerly surgeon in Iraq hospitals and in Syrian public health hospitals; represented the Syrian government in the special meeting of the United Nations in 1946 when the charter of the World Health Organization was drawn up; at present in the United States for training in surgical technic, and serving as assistant in the surgical service, Presbyterian Hospital of Columbia University, New York.

Dr. Chafic Trefi

Dr. Charles Hill, secretary of the British Medical Association; formerly extension lecturer in biology, University of London, England; clinical assistant, Children's Department, London Hospital; author of "What Is Osteopathy?" (jointly) and recent legislation in medical practice.

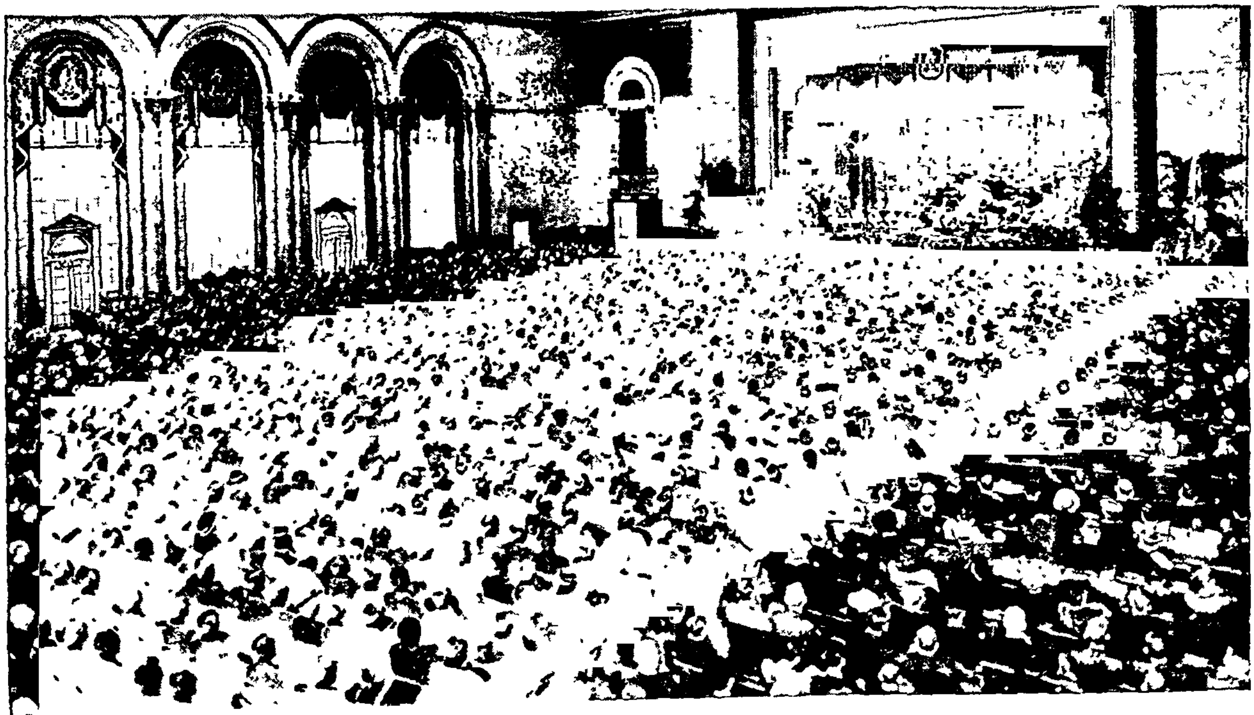
Dr. Hugh Anthony Clegg, editor of the *British Medical Journal,* formerly house physician at St. Bartholomew's Hospital, London, and at Brompton Hospital for diseases of the chest; medical registrar, Charing Cross Hospital; assistant medical officer, London County Council; author of "What Is Osteopathy?" (jointly), Wartime Health and Democracy, Nineteenth Century, Life and Letters and other works.

Dr. Charles Huritz, representing the Medical Association of South Africa.

Dr. A. Torab Mehra, representing the government of Iran.

Dr. Salvador Zubiran, president of the National Academy of Medicine of Mexico, and Drs. Manuel Guevara Oropesa, Donato G. Alarcon, Jose Rabago, Miguel Jimenez y Sanchez and Francisco de P. Miranda, representing the National Academy of Mexico. Dr. Miranda is also an invited guest of the Section on General Practice

Dr. Francisco de P. Miranda



INTERIOR OF THE AUDITORIUM, SCENE OF THE OPENING MEETING AND THE RECEPTION TO THE PRESIDENT.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

RELIGIOUS SERVICES

Sunday, June 8—11 a. m.

BALLROOM, CONVENTION HALL

Rev. Ralph Cooper Hutchison.
Rabbi Joshua L. Liebman.
Monsignor Fulton J. Sheen.

GENERAL SCIENTIFIC MEETINGS

Ballroom, Convention Hall

Monday, June 9—2 p. m.

Clyde L. Cummer, Cleveland, Presiding

The Antihistamine Drugs. George L. Waldbott, Detroit.
The Emergency Treatment of Vascular Occlusions. Edgar V. Allen, Rochester, Minn.
Significant Trends in Cancer Research. Stanley P. Reimann, Philadelphia.
Address of Invited Foreign Guest: Hypertensive Encephalopathy. George W. Pickering, London, England.
Intermission.

3:30 p. m.

Henry R. Viets, Boston, Presiding

Panel Discussion on The Modern Management of Heart Disease. Paul D. White, Boston, Moderator
Diuretics. Arthur C. de Graff, New York.
Digitalis. Harry Gold, New York.
Quinidine. Louis N. Katz, Chicago.
George W. Pickering, London, England.
Question and Answer Period.

5 p. m.

General Summary. Paul D. White, Boston.

Tuesday, June 10—9 a. m.

Clyde L. Cummer, Cleveland, Presiding

The Obstructive Prostate. Frank Hinman, San Francisco.
Psychosomatics: The Liaison Between Internal Medicine and Psychiatry. Edward A. Strecker, Philadelphia.
Poliomyelitis. Hart E. Van Riper, New York.
Address of Invited Foreign Guest: Nerve Grafting in the Limbs. Herbert John Seddon, Oxford, England.
Intermission.

10:30 a. m.

Charles H. Phifer, Chicago, Presiding

Panel Discussion on Emergency Surgery

R. Arnold Griswold, Louisville, Ky., Moderator

Head Injuries. Barnes Woodhall, Durham, N. C.
Chest Injuries. Brian B. Blades, Washington, D. C.
Abdominal Injuries. Pat R. Imes, Louisville, Ky.
Extremities. Mather Cleveland, New York.
Herbert John Seddon, Oxford, England.
Question and Answer Period.

12 m.

General Summary. R. Arnold Griswold, Louisville, Ky.
Intermission

2 p. m.

L. W. Larson, Bismarck, N. D., Presiding

Skin Problems of the Elderly. Oliver S. Ormsby, Chicago.
Cancer of the Uterus. Emil Novak, Baltimore.
Radioactive Products in Medicine. Stafford Warren, Los Angeles.
New Antibiotic Agents. Howard Florey, Oxford, England.
Intermission.

3:30 p. m.

Clyde L. Cummer, Cleveland, Presiding

Panel Discussion on Antibiotic Therapy

Wesley W. Spink, Minneapolis, Moderator

Streptomycin. Chester S. Keefer, Boston.
Chemotherapy in Surgery. John S. Lockwood, New York.
Development of Bacterial Resistance to Antibiotics. Charles Phillip Miller, Chicago.
Howard Florey, Oxford, England.
Question and Answer Period.

5 p. m.

General Summary. Wesley W. Spink, Minneapolis.

THE GENERAL MEETING

Ballroom, Convention Hall

Tuesday, June 10—8:00 p. m.

Music by the Philadelphia Festival Orchestra, conducted by Alexander Hilsberg, which will present a program, as follows:

Alexander Hilsberg

Sibelius	Finlandia
Mendelssohn	Midsummer Night's Dream Scherzo Nocturne
Paganini	Moto Perpetuo
McDonald	Legend of the Arkansas Traveler
Intermission	
Glinka	Overture: Russlan and Ludmilla
Ippolitow-Ivanov	In the Village, From Caucasian Sketches
Tschaikovsky	Romeo and Juliet

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the General Meeting, list of entertainments and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON INTERNAL MEDICINE

MEETS IN BALLROOM, CONVENTION HALL

OFFICERS OF SECTION

Chairman—Joseph T. Wearn, Cleveland.

Vice Chairman—Roy H. Turner, New Orleans.

Secretary—Cecil J. Watson, Minneapolis.

Executive Committee—Burrell O. Raulston, Los Angeles; William D. Stroud, Philadelphia; Joseph T. Wearn, Cleveland.

Wednesday, June 11—9 a. m.

The Clinical Syndrome of Cardiac Pain Intermediate Between Angina Pectoris and Acute Myocardial Infarction, i. e. "Coronary Failure" (Lantern Demonstration).

A. Stone Freedburg, Herrman L. Blumgart, Paul M. Zoll and Monroe J. Schlesinger, Boston.

Discussion to be opened by Arthur M. Master, New York; W. D. Stroud, Philadelphia, and Robert L. Levy, New York.

The Cardiovascular System as the Effector Organ in Psychosomatic Phenomena.

George E. Burch and Clarence Thorpe Ray, New Orleans.

Discussion to be opened by George A. Wolf Jr., New York, and Mandel E. Cohen, Boston.

The Frank Billings Lecture: Frank Billings, Physician, Teacher and Citizen. Ernest E. Irons, Chicago.

Recent Investigations on the Etiology and Treatment of Hypertension (Lantern Demonstration).

Richard H. Lyons, Syracuse, N. Y.

Discussion to be opened by K. G. Kohlstaedt, Indianapolis.

An Appraisal of the Modern and Surgical Methods of Treating Peptic Ulcer (Lantern Demonstration).

Russell S. Boles, Philadelphia.

Discussion to be opened by Walter L. Palmer, Chicago, and Frank H. Lahey. Boston.

Thursday, June 12—9 a.m.

Election of Officers

The Diagnosis and Treatment of Bulbar Poliomyelitis (Lantern Demonstration). A. B. Baker, Minneapolis.

Discussion to be opened by John R. Paul, New Haven, Conn., and Hart E. van Riper, New York.

Streptomycin in the Treatment of Tuberculosis in Human Beings (Lantern Demonstration).

Walsh McDermott, Carl Muschenheim and Susan J. Hadley, New York.

Discussion to be opened by J. Burns Amberson, New York, and John B. Barnwell, Washington, D. C.

Chairman's Address: A Challenge of Functional Disease.

Joseph T. Wearn, Cleveland.

The Use of Urethane in the Treatment of Leukemia (Lantern Demonstration).

John S. Hirschboeck, M. C. F. Lindert, Thomas L. Calvy and Jules Chase, Milwaukee.

Discussion to be opened by Claude E. Forkner, New York, and Leon O. Jacobson, Chicago.

The Mechanism and Management of the Hemorrhagic Tendency of Congestive Splenomegaly (Lantern Demonstration).

Leandro M. Tocantins, Philadelphia.

Discussion to be opened by William Dameshek, Boston, and Cecil O. Patterson, Dallas, Texas.

Concentrated Vitamin D for Rheumatism: Toxic Reactions Simulating Hyperparathyroidism (Lantern Demonstration). C. H. Slocumb, Rochester, Minn.

Discussion to be opened by Richard H. Freyberg, New York, and Smith Freeman, Chicago.

Friday, June 13—9 a. m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

Address of Invited Foreign Guest, Section on Internal Medicine: The Contribution of the Laboratory to the Differential Diagnosis of Jaundice.

Hector Ducci Claro, Santiago, Chile.

Centennial Address of Section on Internal Medicine: History of Internal Medicine in the United States (Lantern Demonstration). Reginald Fitz, Boston.

PANEL DISCUSSION ON RECENT ADVANCES IN TREATMENT

Morris Fishbein, Moderator

Virus Diseases. Thomas M. Rivers, New York.

Gastrointestinal Diseases (Lantern Demonstration).

Henry L. Bockus, Philadelphia.

Cardiovascular Diseases. Arlie R. Barnes, Rochester, Minn.

Cancer. Cornelius P. Rhoads, New York.

Blood Diseases. Russell L. Haden, Cleveland.

Infectious Diseases (Lantern Demonstration).

Chester S. Keefer, Boston.

Pulmonary Disease. James J. Waring, Denver.

Endocrinology (Lantern Demonstration).

Willard O. Thompson, Chicago.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN WESTMINSTER HALL, CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—Alton Ochsner, New Orleans.

Vice Chairman—John B. Flick, Philadelphia.

Secretary—Michael E. DeBakey, New Orleans.

Executive Committee—Frederick A. Coller, Ann Arbor, Mich.; Daniel C. Elkin, Atlanta, Ga.; Alton Ochsner, New Orleans.

Wednesday, June 11—2 p. m.

Address of Invited Foreign Guest: Gastric Surgery After One Hundred Years. Heneage Ogilvie, London, England.

Chairman's Address: Carcinoma of the Lung (Lantern Demonstration). Alton Ochsner, New Orleans.

Transthoracic Resection of the Esophagus and Cardiac End of the Stomach for Carcinoma: An Analysis of the Postoperative Complications, Causes of Death and Late Results of Operation (Lantern Demonstration).

Richard H. Sweet, Boston.

Discussion to be opened by B. Noland Carter, Cincinnati; Dallas B. Phemister, Chicago, and John H. Garlock, New York.

The Problem of Gastric Cancer (Lantern Demonstration).

Owen H. Wangensteen, Minneapolis

Discussion to be opened by George T. Pack, New York, and Waltman Walters, Rochester, Minn.

Radical Resection of the Head and Total Pancreatectomy for Benign and Malignant Lesions of the Pancreas (Lantern Demonstration). John M. Waugh, Rochester, Minn.

Discussion to be opened by Allen O. Whipple, New York, and Richard B. Cattell, Boston.

Surgical Management of Carcinoma of the Colon and Large Bowel (Lantern Demonstration).

Fred W. Rankin and Coleman C. Johnston, Lexington, Ky.

Discussion to be opened by Thomas E. Jones, Cleveland, and Leland S. McKittrick, Boston.

Thursday, June 12—2 p. m.

Election of Officers

Centennial Address: A Century of American Surgery.
Evarts A. Graham, St. Louis.

Protein Nitrogen Retention Following Injury.
Sidney C. Madden, Atlanta, Ga.
Discussion to be opened by William Parson, New Orleans.

The Problem of Amino Acid Utilization in the Surgical Patient (Lantern Demonstration). Paul R. Cannon, Chicago.
Discussion to be opened by Robert Elman, St. Louis.

Management of Protein Deficiency in Surgical Patients: Use of Whole Blood Transfusion (Lantern Demonstration).
Champ Lyons, New Orleans.
Discussion to be opened by Everett I. Evans, Richmond, Va., and Hyman S. Mayerson, New Orleans.

Management of Protein Deficiency in Surgical Patients: Use of Intravenous and Intrajejunal Injections (Lantern Demonstration). John D. Stewart, Buffalo.
Discussion to be opened by Arthur W. Allen, Boston, and I. S. Ravdin, Philadelphia.

Nutritional Problems of Substandard Risk Patients.
Richard L. Varco, Minneapolis.
Discussion to be opened by Donald D. Kozoll, Chicago.

Friday, June 13—2 p. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

SYMPOSIUM ON PEPTIC ULCER

Statistical Study of Over 1,000 Cases of Peptic Ulcer (Lantern Demonstration). Maurice Feldman, Baltimore.

Onset of Peptic Ulcer in the Aged (Lantern Demonstration).
Henry A. Rafsky, Michael Weingarten and Charles I. Krieger, New York.

Nocturnal Gastric Secretion in Normal Individuals and in Peptic Ulcer (Lantern Demonstration). Ervin Levin, Chicago.

Therapeutic Agents:

Effect of Enterogastrone in Patients with Gastric and Duodenal Ulcer (Lantern Demonstration).
H. M. Pollard and William H. Bachrach, Ann Arbor, Mich.

Aluminum Hydroxide Mixture with Mucin in the Treatment of Peptic Ulcer (Lantern Demonstration).
Leo L. Hardt, Chicago.

Synthetic Resin: A New Antacid for Treatment in Peptic Ulcer (Lantern Demonstration).
Manfred Kraemer and Leo H. Siegel, Newark, N. J.

Discussion on papers of Dr. Feldman, Drs. Rafsky, Weingarten and Krieger, Dr. Levin, Drs. Pollard and Bachrach, Dr. Hardt and Drs. Kraemer and Siegel to be opened by Drs. A. C. Ivy and Lester R. Dragstedt, Chicago; Sara M. Jordan, Boston; Ralph Colp, New York; Walter L. Palmer, Chicago, and Asher Winkelstein, New York.

Favorable and Unfavorable Results of Vagus Nerve Resections in the Treatment of Peptic Ulcer: An Anatomic, Physiologic and Clinical Study (Lantern and Motion Picture Demonstration).
Waltman Walters, Rochester, Minn.
Discussion to be opened by Lester R. Dragstedt, Chicago; Ralph Colp, New York, and Keith S. Grimson, Durham, N. C.

Results of Surgical Treatment for Gastric Ulcer (Lantern Demonstration).
Samuel F. Marshall, Boston, and Mark L. Welch, Dallas, Texas.
Discussion to be opened by Harvey B. Stone, Baltimore, and J. William Hinton, New York.

Complications of Peptic Ulcer (Lantern Demonstration).
Harold L. Thompson, Los Angeles.
Discussion to be opened by Arthur W. Allen, Boston.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN WESTMINSTER HALL, CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—Alice F. Maxwell, San Francisco.
Vice Chairman—Robert J. Crossen, St. Louis.
Secretary—William F. Mengert, Dallas, Texas.
Executive Committee—Louis E. Phaneuf, Boston; Philip F. Williams, Philadelphia; Alice F. Maxwell, San Francisco.

Wednesday, June 11—9 a. m.

Centennial Address. E. A. Schumann, Philadelphia.

Cervical Cytology in the Diagnosis of Early Cancer.
J. Ernest Ayre, Montreal, Canada.
Discussion to be opened by Charles E. Galloway, Evanston, Ill.

Ectopic Pregnancy (Lantern Demonstration).
W. D. Beacham, New Orleans.

PANEL DISCUSSION ON GYNECOLOGIC BLEEDING

A. H. Curtis, Chicago, Chairman.

Physiologic Basis (Lantern Demonstration).
S. R. M. Reynolds, Baltimore.

Adolescent Bleeding (Lantern Demonstration).
C. F. Fluhmann, San Francisco.

Functional Bleeding. A. H. Curtis, Chicago.

Menopausal Bleeding. J. P. Pratt, Detroit.

Thursday, June 12—9 a. m.

Election of Officers

Chairman's Address: A Medical Inventory.
Alice F. Maxwell, San Francisco.

Effect of Pregnancy on Experimental Renal Hypertension (Lantern Demonstration). Arthur Grollman, Dallas, Texas.

Artificial Vaginas (Motion Picture Demonstration).
V. S. Counseller, Rochester, Minn.
Discussion to be opened by F. H. Falls, Chicago.

PANEL DISCUSSION ON THERAPEUTIC ABORTION

S. A. Cosgrove, Jersey City, N. J., Chairman.

Internist. H. M. Korns, Dubuque, Iowa.

Surgeon. S. C. Harvey, New Haven, Conn.

Neuropsychiatrist. F. G. Ebaugh, Denver.

Obstetrician (Lantern Demonstration).
S. A. Cosgrove, Jersey City, N. J.

Friday, June 13—9 a. m.

Address of Invited Foreign Guest.
J. Heyman, Stockholm, Sweden.

Cesarean Section at General Hospital of Mexico City (Lantern Demonstration). Jose Rabago, Mexico City, Mexico.

Cesarean Hysterectomy (Lantern Demonstration).
William J. Dieckmann, Chicago.
Discussion on papers of Drs. Rabago and Dieckmann to be opened by Nicholson J. Eastman, Baltimore.

PANEL DISCUSSION ON PROBLEMS OF DELIVERY

Philip F. Williams, Philadelphia, Chairman.

Hemorrhage. C. A. Gordon, Brooklyn.

Abnormal Presentation (Lantern Demonstration).
H. Hudnall Ware Jr., Richmond, Va.

SECTION ON OPHTHALMOLOGY

MEETS IN EMBASSY SALON, AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—Derrick Vail, Chicago.

Vice Chairman—Warren D. Horner, San Francisco.

Secretary—Robert J. Masters, Indianapolis.

Executive Committee—Conrad Berens, New York; Frederick C. Cordes, San Francisco; Derrick Vail, Chicago.

Wednesday, June 11—2 p. m.

Chairman's Address. Derrick Vail, Chicago.

Address of Invited Foreign Guest. Stewart Duke-Elder, London, England.

Centennial Address. Frederick H. Verhoeff, Boston.

Keratitis Associated with Lymphogranuloma Venereum (Lantern Demonstration).
Harold G. Scheie, Philadelphia; Alan S. Crandall, Salt Lake City, and Werner Henle, Philadelphia.
Discussion to be opened by John P. Macnie, New York, and Garrett L. Sullivan, Boston.

A Five Year Follow-Up of 300 Glaucomatous Eyes (Lantern Demonstration).
Peter C. Kronfeld, Chicago, and Isabelle McGarry, Evanston, Ill.
Discussion to be opened by Algernon B. Reese, New York, and M. Elliott Randolph, Baltimore.

Thursday, June 12—2 p. m.

Executive Session

Election of Officers

The Significance of the Ligament of Lockwood in Relation to Surgery of the Inferior Oblique Muscle (Lantern Demonstration). Walter H. Fink, Minneapolis.
Discussion to be opened by Maynard C. Wheeler, New York.

Streptomycin in Ocular Infections (Lantern Demonstration).
John G. Bellows and Chester J. Farmer, Chicago.
Discussion to be opened by Parker Heath, Detroit, and Irving H. Leopold, Philadelphia.

Unilateral Syphilitic Optic Atrophy (Lantern Demonstration).
Walter L. Bruetsch, Indianapolis.
Discussion to be opened by Cecil S. O'Brien, Iowa City, and Joseph V. Klauder, Philadelphia.

Sodium Sulfacetimide 30 per Cent in Ophthalmology.
Leo L. Mayer, St. Louis.
Discussion to be opened by Phillips Thygeson, San Jose, Calif., and Eugene W. Anthony, Fulton, N. Y.

Demonstration of New Instruments

Friday, June 13—2 p. m.

Congenital Impatency of the Nasolacrimal Duct (Lantern Demonstration).
Edwin L. Kendig Jr. and DuPont Guerry III, Richmond, Va.
Discussion to be opened by J. V. Cassady, South Bend, Ind., and John H. Dunnington, New York.

Intraocular Foreign Bodies: Wartime Experiences Applied to a Peacetime Problem. George M. Haik, New Orleans.
Discussion to be opened by John S. McGavic, Bryn Mawr, Pa., and Frank W. Newell, Chicago.

Military Ophthalmology in the European Theater (Lantern Demonstration). Don Marshall, Kalamazoo, Mich.
Discussion to be opened by F. Phinizy Calhoun Jr., Atlanta, Ga., and Trygve Gunderson, Boston.

Eyelid Reconstruction in the Blinded (Lantern Demonstration).
S. M. *Dupertuis*, Pittsburgh.
Discussion to be opened by Norman L. Cutler, Wilmington, Del., and Frank McDowell, St. Louis.

Surgical Treatment of Congenital Cataract (Lantern Demonstration).
William C. Owens, Baltimore, and William F. Hughes Jr., Indianapolis.
Discussion to be opened by Frederick C. Cordes, San Francisco, and Edward C. Ellett, Memphis, Tenn.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN EMBASSY SALON, AMBASSADOR HOTEL

OFFICERS OF SECTION

Chairman—J. Mackenzie Brown, Los Angeles.

Vice Chairman—Carl H. McCaskey, Indianapolis.

Secretary—Fletcher D. Woodward, Charlottesville, Va.

Executive Committee—Claude C. Cody, Houston, Texas; Louis H. Clerf, Philadelphia; J. Mackenzie Brown, Los Angeles.

Wednesday, June 11—9 a. m.

Progress in Bronchology. Louis H. Clerf, Philadelphia.
Discussion to be opened by H. B. Orton, Newark, N. J., and H. J. Moersch, Rochester, Minn.

Progress in Esophagology (Lantern Demonstration).
Paul H. Holinger, Chicago.
Discussion to be opened by Fletcher D. Woodward, Charlottesville, Va., and Jerome R. Head, Chicago.

Traumatic Injuries of the Larynx, Especially Gunshot Wounds and Their Repair. Mercer G. Lynch, New Orleans.
Discussion to be opened by Joseph Buchignani, Memphis, Tenn., and J. Wade Youngblood, Dallas, Texas.

Some Technical Procedures in the Treatment of the Cleft Lip and Palate (Lantern Demonstration).
Fred Z. Havens, Rochester, Minn.
Discussion to be opened by Harold S. Vaughan, New York, and Robert H. Ivy, Philadelphia.

Malignant Growths of the Sinuses (Lantern Demonstration).
LeRoy A. Schall, Boston.
Discussion to be opened by Henry B. Orton, Newark, N. J., and C. Stewart Nash, Rochester, N. Y.

Thursday, June 12—9 a. m.

Executive Session

Election of Officers

Chairman's Address: The Future of Otolaryngology.
J. Mackenzie Brown, Los Angeles.

Address of Invited Foreign Guest.
G. Ewart Martin, Edinburgh, Scotland.

Centennial Address: A Brief History of Otolaryngology in the United States, 1847-1947.
Ralph A. Fenton, Portland, Ore.

Neck Surgery in Otolaryngology (Lantern Demonstration).
Carl H. McCaskey, Indianapolis.
Discussion to be opened by August L. Beck, New Rochelle, N. Y., and Joseph D. Kelly, New York.

Lymphatics of the Head and Neck (Lantern and Motion Picture Demonstration). Oscar V. Batson, Philadelphia.
Discussion to be opened by B. P. Widmann, Philadelphia, and Hayes E. Martin, New York.

Friday, June 13—9 a. m.

Surgery of the Seventh Nerve. Thomas G. Tickle, New York.
Discussion to be opened by Frank D. Lathrop, Boston, and Joseph A. Sullivan, Toronto, Canada.

Diseases of the Salivary Glands (Lantern Demonstration).
A. C. Furstenburg, Ann Arbor, Mich.
Discussion to be opened by Dean M. Lierle, Iowa City. and LeRoy A. Schall, Boston.

The Lempert Fenestra Nov-Ovalis Operation for the Restoration of Practical and Serviceable Unaided Hearing (Lantern Demonstration). Julius Lempert, New York.

Discussion to be opened by Marvin F. Jones, New York, and Philip E. Meltzer, Boston.

PANEL DISCUSSION ON DEAFNESS

Francis L. Lederer, Chicago, Moderator.
Edward H. Truex, Hartford, Conn.
Raymond Carhart, Evanston, Ill.
Eva Thompson, Philadelphia.
Herbert Koepp-Baker, Chicago (Lantern Demonstration).
Charles E. Kinney, Cleveland.

Each participant will answer three vital questions to show *what* one can do to rehabilitate the patient with a hearing impairment, and *how* one can do it.

SECTION ON PEDIATRICS

MEETS IN BALLROOM, CONVENTION HALL

OFFICERS OF SECTION

Chairman—Gilbert J. Levy, Memphis, Tenn.

Vice Chairman—Charles A. Weymuller, Brooklyn.

Secretary—Margaret Mary Nicholson, Washington, D. C.

Executive Committee—Hugh L. Dwyer, Kansas City, Mo.; John Aikman, Rochester, N. Y.; Gilbert J. Levy, Memphis, Tenn.

Wednesday, June 11—2 p. m.

An Analysis of Newborn Mortality and Morbidity, with Controls in New York, Philadelphia and Memphis, with Continuous Caudal Analgesia (Lantern Demonstration).
Robert A. Hingson, Frank E. Whitacre and H. Charles Franklin, Memphis, Tenn.
Discussion to be opened by James G. Hughes, Memphis, Tenn., and George J. Andros, Chicago.

Medical Management of Whooping Cough in Infants (Lantern Demonstration).
Jerome L. Kohn and Alfred E. Fischer, New York.
Discussion to be opened by Ruth G. Aleman, New Orleans, and L. Nellis Silverthorne, Toronto, Canada.

Cerebral Complications in Pertussis (Lantern Demonstration).
Abraham M. Litvak and Harry Gibel, Brooklyn.
Discussion to be opened by Benjamin Kramer and Philip Rosenblatt, Brooklyn.

Encephalitis as a Causative Factor in Behavior Disorders in Children (Lantern Demonstration).
J. Victor Greenebaum and Louis A. Lurie, Cincinnati.
Discussion to be opened by Charles Bradley, East Providence, R. I., and Oscar Reiss, Los Angeles.

Electroencephalographic Studies in Acute Poliomyelitis (Lantern Demonstration).
Alton Goldbloom, Montreal, Canada.
Discussion to be opened by M. G. Peterman, Milwaukee, and David Bodian, Baltimore.

Allergy to Milk.
Preston A. McLendon and Dorothy S. Jaeger-Lee, Washington, D. C.
Discussion to be opened by W. Ambrose McGee, Richmond, Va., and William F. Matthews, Montclair, N. J.

Thursday, June 12—2 p. m.

Election of Officers

Problems in Management of Tick Typhus (Rocky Mountain Spotted Fever) in Childhood (Lantern Demonstration).
Weston M. Kelsey and George T. Harrell Jr., Winston-Salem, N. J.
Discussion to be opened by Robert Joseph Huebner, Kensington, Md., and David M. Greeley, New York.

Address of Invited Foreign Guest: Deleterious Results of Overdosage of Vitamin D_2 During Infancy.
Robert Debré, Paris, France.

Centennial Address: Progress in Pediatrics.
Edgar P. Copeland, Washington, D. C.

Congenital Atresia of the Esophagus with Tracheoesophageal Fistula (Lantern Demonstration).
Cameron Haight, Ann Arbor, Mich.
Discussion to be opened by Brian B. Blades, Washington, D. C., and Conrad R. Lam, Detroit.

Psychotherapy in Pediatrics.
Dorothy Donley-Dowd, Washington, D. C.
Discussion to be opened by Earl H. Baxter, Columbus, Ohio.

Causes of Death in 13,000 Admissions (Lantern Demonstration).
Ralph V. Platou, New Orleans.

Friday, June 13—2 p. m.

Clinical Application of a Laboratory Method for the Selection of Antibiotic Therapy.
Robert H. High, Earl H. Spaulding, Amedeo Bondi and Waldo E. Nelson, Philadelphia.
Discussion to be opened by Paul C. Bucy, Chicago.

Some Practical Measures for the Reduction of Morbidity and Mortality in Premature Infants (Lantern Demonstration).
Lewis A. Koch, Brooklyn.
Discussion to be opened by Ethel C. Dunham, Washington, D. C.

Rheumatic Fever in Childhood (Lantern Demonstration).
William Weston Jr., Columbia, S. C.
Discussion to be opened by Ira Gore, Washington, D. C.; Stanley Gibson, Chicago, and Rachel Ash, Philadelphia.

Immunologic Studies in Mumps (Lantern Demonstration).
Harriet Davis, Joseph Stokes Jr., John F. Enders, Gertrude Henle and Elizabeth P. Maris, Philadelphia.
Discussion to be opened by Karl Habel, Bethesda, Md.

Lye Poisoning in Children (Lantern Demonstration).
Wallace Kernodle, Grant Taylor and Wilburt C. Davison, Durham, N. C.
Discussion to be opened by John Aikman, Rochester, N. Y.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN WEDGEWOOD ROOM, CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—Carl A. Dragstedt, Chicago.

Vice Chairman—Walter Bauer, Boston.

Secretary—Dwight L. Wilbur, San Francisco.

Executive Committee—Tinsley R. Harrison, Dallas, Texas; E. V. Allen, Rochester, Minn.; Carl A. Dragstedt, Chicago.

Wednesday, June 11—2 p. m.

Centennial Address: The Macrocytic Anemias.
George R. Minot, Boston.

SYMPOSIUM ON THE USE OF NEWER DRUGS

Asymetrine Hydrobromide in the Treatment of Gastroenteric Hypermotility (Lantern Demonstration).
Robert A. Woodbury, George P. Child, G. Frank Jones Jr., and Richard Torpin, Augusta, Ga.

The Use of Nitrogen Mustards in the Treatment of Disease (Lantern Demonstration). Leon O. Jacobsen, Chicago.

Stilbamidine in the Treatment of Multiple Myeloma (Lantern Demonstration). Isidore Snapper, New York.

BAL Therapy in Arsenic and Mercury Poisoning (Lantern Demonstration).
John Luetscher and Warfield T. Longcope, Baltimore.

Use of Antihistaminic Drugs.
Francis M. Rackemann, Boston.
Discussion to be opened by Franklin A. Kyser, Evanston, Ill.

Thursday, June 12—2 p. m.

Election of Officers

Address of Invited Foreign Guest: Blood Pressure Homeostatis and Circulatory Failure (Shock) (Lantern Demonstration).
C. Heymans, Ghent, Belgium.

Chairman's Address: Idiosyncrasy to Drugs.
Carl A. Dragstedt, Chicago.

Effects of Smoking Cigarets on the Heart in Normal Persons and in Cardiac Patients (Lantern Demonstration).
Robert L. Levy and John L. Nickerson, New York.
Discussion to be opened by Harold J. Stewart, New York; Arlie R. Barnes, Rochester, Minn., and David Adlersberg, New York.

The Use of Anticoagulants in the Treatment of Heart Disease.
Irving S. Wright and William T. Foley, New York.
Discussion to be opened by Leo Loewe, Brooklyn, and E. V. Allen, Rochester, Minn.

Preliminary Observation of the Effect of Thoracic Sympathectomy on Heart Rate (Lantern Demonstration).
Earle M. Chapman, Dera Kinsey, William P. Chapman and Reginald H. Smithwick, Boston.

Friday, June 13—9 a. m.

JOINT MEETING WITH SECTION ON INTERNAL MEDICINE IN BALLROOM OF CONVENTION HALL

Address of Invited Foreign Guest, Section on Internal Medicine: The Contribution of the Laboratory to the Differential Diagnosis of Jaundice.
Hector Ducci Claro, Santiago, Chile.

Centennial Address of Section on Internal Medicine: History of Internal Medicine in the United States (Lantern Demonstration).
Reginald Fitz, Boston.

PANEL DISCUSSION ON RECENT ADVANCES IN TREATMENT

Morris Fishbein, Moderator

Virus Diseases.
Thomas M. Rivers, New York.

Gastrointestinal Diseases (Lantern Demonstration).
Henry L. Bockus, Philadelphia.

Cardiovascular Diseases.
Arlie R. Barnes, Rochester, Minn.

Cancer.
Cornelius P. Rhoads, New York.

Blood Diseases.
Russell L. Haden, Cleveland.

Infectious Diseases (Lantern Demonstration).
Chester S. Keefer, Boston.

Pulmonary Disease.
James J. Waring, Denver.

Endocrinology (Lantern Demonstration).
Willard O. Thompson, Chicago.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN WEDGEWOOD ROOM, CHELSEA HOTEL

OFFICERS OF SECTION

Chairman—J. J. Moore, Chicago.
Vice Chairman—Alvin G. Foord, Pasadena, Calif.
Secretary—Frank W. Hartman, Detroit.
Executive Committee—Frank C. Mann, Rochester, Minn.; Virgil H. Moon, Philadelphia; J. J. Moore, Chicago.

Wednesday, June 11—9 a. m.

The Present Status of the Therapy of Experimental Renal Hypertension (Lantern Demonstration).
G. E. Wakerlin, Chicago.

Tumors of the Carotid Gland: A Review (Lantern Demonstration).
Walter L. Bierring and Richard F. Birge, Des Moines, Iowa.

Chairman's Address: The Practice of Pathology.
J. J. Moore, Chicago.

Address of Invited Foreign Guest: Regulation of the Arterial *Pulmonary Pressure.*
Göran Liljestrand, Stockholm, Sweden.

Centennial Address: American Giants of Pathology.
Howard T. Karsner, Cleveland.

Medical Aspects of the Atomic Bomb (Lantern Demonstration).
R. H. Draeger, Washington, D. C.

Various Phases of the Use of Streptomycin in Tuberculosis (Lantern Demonstration).
H. J. Corper, Denver.

Thursday, June 12—9 a. m.

Election of Officers

SYMPOSIUM ON VIRUS DISEASES

The Physician and the Virus Diagnostic Laboratory (Lantern Demonstration).
Joseph E. Smadel, Washington, D. C.

The Electron Microscopy of Viruses.
Ralph W. G. Wyckoff, Washington, D. C.

Common Virus Infections of the Respiratory Tract (Lantern Demonstration).
John H. Dingle, Cleveland.

Search for Extrahuman Sources of Poliomyelitis Virus.
Thomas Francis Jr. and Gordon C. Brown, Ann Arbor, Mich.

Viruses and Virus-like Agents as Causes of Cancer (Lantern Demonstration).
John G. Kidd, New York.

The Present Status of Viruses and Virus Diseases.
E. W. Schultz, Stanford University, Calif.

Friday, June 13—9 a. m.

SYMPOSIUM ON THE PRESENT STATUS OF CANCER RESEARCH

Cancer as an Autoparasite.
R. R. Spencer, Washington, D. C.

The Biologic Assessment of Tumor Potentialities (Lantern Demonstration).
Henry S. N. Greene, New Haven, Conn.

Epidermal Carcinogenesis (Lantern Demonstration).
E. V. Cowdry, St. Louis.

Some Current Trends in Cancer Chemotherapy (Lantern Demonstration).
M. J. Shear, Washington, D. C.

Radioactive Isotopes in the Diagnosis and Treatment of Malignant Disease.
Shields Warren, Boston

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ST. DENNIS ROOM, ST. DENNIS HOTEL

OFFICERS OF SECTION

Chairman—Roland P. Mackay, Chicago.
Vice Chairman—Louis J. Karnosh, Cleveland.
Secretary—Frederick P. Moersch, Rochester, Minn.
Executive Committee—J. M. Nielsen, Los Angeles; Percival Bailey, Chicago; Roland P. Mackay, Chicago.

Wednesday, June 11—2 p. m.

Spontaneous Subarachnoid Hemorrhage of Aneurysmal Origin; Factors Influencing Prognosis: An Analysis of 130 Cases (Lantern Demonstration).
Wallace B. Hamby, Buffalo.
Discussion to be opened by J. C. Richardson, Toronto, Canada, and I. S. Wechsler, New York.

Address of Invited Foreign Guest.
Thierry Alajouanine, Paris, France.

The Program for the Activation of Neurology Under the Veterans Administration.
Pearce Bailey, Washington, D. C.
Discussion to be opened by J. M. Nielsen, Los Angeles, and Percival Bailey, Chicago.

Ischemia of Peripheral Nerves: Experimental and Clinical Studies on the Role of the Vasa Nervorum (Lantern Demonstration).
Joseph T. Roberts, Washington, D. C.
Discussion to be opened by Louis J. Karnosh and Joseph L. Fetterman, Cleveland.

Surgical Treatment of Intractable Unilateral Cephalalgia (Lantern Demonstration).
Walter G. Haynes, Birmingham, Ala.
Discussion to be opened by Roland P. Mackay and Percival Bailey, Chicago.

A Survey of the Value of Neurosurgical Treatment for the Relief of Intractable Pain.
Henry T. Wycis and Michael Scott, Philadelphia.

Thursday, June 12—2 p. m.

Election of Officers

Centennial Address: One Hundred Years of Progress in Neurology, Neurologic Surgery and Psychiatry (Lantern Demonstration). Stanley Cobb, Boston.

The Historical Contribution of Neurophysiology to Neuropsychiatry (Lantern Demonstration).
John F. Fulton, New Haven, Conn.
Discussion to be opened by Henry R. Viets, Boston, and Percival Bailey, Chicago.

Neurosurgery (and the Neurosurgeon) in World War II.
R. Glen Spurling, Louisville, Ky.

Surgical Experience with Pituitary Tumors.
Francis C. Grant, Philadelphia.
Discussion to be opened by James L. Poppen, Boston, and Edgar A. Kahn, Ann Arbor, Mich.

Friday, June 13—2 p. m.

Chairman's Address: The Neurologist Looks at Discipline.
Roland P. Mackay, Chicago.

Research Leads in Contemporary Neurochemistry.
Nolan D. C. Lewis, New York.

Personality and Illness.
Karl M. Bowman and Jurgen Ruesch, San Francisco.
Discussion to be opened by Harold G. Wolff, New York, and Franz G. Alexander, Chicago.

Common Emotional Disturbances in the First Two Years of Life. Benjamin McLane Spock, Rochester, Minn.
Discussion to be opened by Karl M. Bowman, San Francisco.

The Organic Paranoid Syndrome (Lantern Demonstration).
George N. Thompson and J. M. Nielsen, Los Angeles.
Discussion to be opened by S. Bernard Wortis, New York, and Harry C. Solomon, Boston.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN WEDGEWOOD ROOM, MARLBOROUGH-BLENHEIM HOTEL

OFFICERS OF SECTION

Chairman—Nelson Paul Anderson, Los Angeles.
Vice Chairman—George C. Andrews, New York.
Secretary—Clinton W. Lane, St. Louis.
Executive Committee—Clark W. Finnerud, Chicago; Clyde L. Cummer, Cleveland; Nelson Paul Anderson, Los Angeles.

Wednesday, June 11—2 p. m.

Chairman's Address: Cysts, Sinuses and Fistulas of Dermatologic Interest (Lantern Demonstration).
Nelson Paul Anderson, Los Angeles.

Address of Invited Foreign Guest: Dermatology; The International Outlook.
R. M. B. MacKenna, London, England.

Centennial Address: One Hundred Years' Progress in Dermatology. Oliver S. Ormsby, Chicago.

Sarcoidosis: A Present Day Appraisal (Lantern Demonstration). Henry E. Michelson, Minneapolis.
Discussion to be opened by Fred D. Weidman, Philadelphia, and Arthur C. Curtis, Ann Arbor, Mich.

Pemphigus: Experimental and Clinical Studies on the Etiology, Diagnosis and Therapy (Lantern Demonstration).
David I. Macht and Marcus Ostro, Baltimore.

The Causative Agent of Pemphigus Vulgaris (Lantern Demonstration). Arthur W. Grace, Brooklyn.
Discussion on papers of Drs. Macht and Ostro and Dr. Grace to be opened by Richard S. Weiss, St. Louis, and Walter F. Lever, Boston.

Dermatologic Manifestations as Presenting Symptoms of Psychiatric States.
Theodore Cornbleet and Meyer Brown, Chicago.
Discussion to be opened by Marion B. Sulzberger, New York, and H. Hanford Hopkins, Baltimore.

Thursday, June 12—2 p. m.

Election of Officers

Streptomycin in the Therapy of Granuloma Inguinale (Lantern Demonstration).
H. S. Kupperman, R. B. Greenblatt and R. B. Dienst, Augusta, Ga.
Discussion to be opened by Robert R. Kierland, Rochester, Minn., and Donald M. Pillsbury, Philadelphia.

Centennial Address: One Hundred Years' Progress in Syphilis.
Paul A. O'Leary, Rochester, Minn.

Oral Bismuth Therapy in Syphilis and Various Inflammatory Dermatoses (Lantern Demonstration).
James K. Howles, New Orleans, and E. R. Gross, Philadelphia.
Discussion to be opened by Dudley C. Smith, Charlottesville, Va., and Arthur W. Neilson, St. Louis.

The Importance of Circumcision in Prevention of Venereal Disease and Certain Forms of Cancer (Lantern Demonstration). Eugene A. Hand, Saginaw, Mich.
Discussion to be opened by John E. Rauschkolb, Cleveland, and Francis A. Ellis, Baltimore.

The Chemotherapy of Leprosy (Lantern Demonstration).
G. H. Faget and Paul T. Erickson, Carville, La.
Discussion to be opened by Harold M. Johnson, Honolulu, Hawaii, and M. T. Van Studdiford, New Orleans.

Clinical Problems in Penicillin Sensitivity (Lantern Demonstration).
Samuel M. Peck, Sheppard Siegel, Arthur W. Glick and Abner Kurtin, New York.
Discussion to be opened by Harold N. Cole, Cleveland, and E. Myles Standish, Hartford, Conn.

Friday, June 13—2 p. m.

Autosensitization Dermatitis.
H. J. Templeton, C. J. Lunsford and H. V. Allington, Oakland, Calif.
Discussion to be opened by C. F. Lehmann, San Antonio, Texas, and Everett R. Seale, Houston, Texas.

Nitrogen Mustards in the Treatment of Malignant Blastomas (Lantern Demonstration).
Earl D. Osborne, James W. Jordon, Frank C. Hoak Jr. and Francis J. Pschierer, Buffalo.
Discussion to be opened by Charles Spurr, Chicago, and Leon Goldman, Cincinnati.

The Technic and Problems of Roentgen Ray Epilation.
Howard T. Behrman and Frank C. Combes, New York.
Discussion to be opened by Anthony C. Cipollaro, New York, and A. H. Lancaster, Knoxville, Tenn.

The Relation of Exit Dose and Other Dosage Factors to Roentgen Injuries.
June C. Shafer, Carl B. Braestrup and Jerome K. Fisher, New York.
Discussion to be opened by C. Guy Lane, Boston, and Onis G. Hazel, Oklahoma City.

Injection Therapy for Angiomas (Lantern Demonstration).
G. Marshall Crawford, Boston.

Discussion to be opened by Harry F. Anderson, Washington, D. C., and Henry C. Shaw, Rochester, N. Y.

The Use of Liquid Oxygen in Dermatology.
Roy L. Kile and Ashton L. Welsh, Cincinnati.

Discussion to be opened by Howard Hailey, Atlanta, Ga., and Allen W. Pepple, Richmond, Va.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN TRELLIS ROOM, RITZ-CARLTON HOTEL

OFFICERS OF SECTION

Chairman—Clarence O. Sappington, Chicago.

Vice Chairman—R. H. Riley, Baltimore.

Secretary—Rutherford T. Johnstone, Los Angeles.

Executive Committee—Joseph W. Mountin, Washington, D. C.; E. L. Stebbins, New York; Clarence O. Sappington, Chicago.

Wednesday, June 11—9 a. m.

Chairman's Address. Clarence O. Sappington, Chicago.

Centennial Address. Clarence D. Selby, Detroit.

SYMPOSIUM ON HOW CAN QUALIFIED MEDICAL TESTIMONY (SCIENTIFIC PROOF) BE ATTAINED IN WORKMEN'S COMPENSATION CONTROVERSY?

J. W. Holloway Jr., Chicago, Moderator.
D. J. Galbraith, Toronto, Canada.
George N. Edson, Jackson Heights, N. Y.
Carey P. McCord, Detroit.
A. G. Kammer, New York.
W. G. Workman, Tracy, Minn.
Theodore C. Waters, Baltimore.

Discussion on symposium to be opened by Rollin E. Talbert, New York; Henry H. Kessler, Newark, N. J., W. H. Nickels Jr., Richmond, Va., and Frederick W. Slobe, Chicago, followed by participation by audience.

Thursday, June 12—9 a. m.

Election of Officers

The Longevity and Mortality of American Physicians (Lantern Demonstration). Louis I. Dublin, New York.

Address of Invited Foreign Guest: Comparative Practices in Industrial Medicine in Sweden and in the United States.
Sven Forssman, Tomtedoda, Sweden.

SYMPOSIUM ON THE NEED FOR INDUSTRIAL HEALTH EDUCATION, HOW, WHEN AND TO WHAT EXTENT

Robert A. Kehoe, Cincinnati, Moderator.
W. S. McEllroy, Pittsburgh.
J. M. Carlisle, Rahway, N. J.
Leonard J. Goldwater, New York.
Henry F. Vaughan, Ann Arbor, Mich.
James H. Sterner, Rochester, N. Y.
W. C. L. Hemeon, Pittsburgh (Lantern Demonstration)

Discussion on symposium to be opened by Raymond Hussey, Detroit; Russell L. Haden, Cleveland and T. Lyle Hazlett, Pittsburgh, followed by participation by audience.

Friday, June 13—9 a. m.

The Diagnosis of DDT Poisoning.
Paul A. Neal, Bethesda, Md.

New Incisions and Technic in Peripheral Nerve Surgery (Lantern Demonstration). Emil Seletz, Los Angeles.

Preliminary Report on Schick Test Toxin Not Requiring Control in Adults (Lantern Demonstration).
Victor Ross, New York.

Studies of Diphtheria Immunization in Young Infants with Multiple Antigen (Lantern Demonstration).
Joseph A. Bell, Bethesda, Md.

Hookworm Infections in American Servicemen, with Reference to the Establishment of Ancylostoma Duodenale in the Southern United States (Lantern Demonstration).
Elmer H. Loughlin, Brooklyn.

The Development of a Blood and Blood Derivatives Program (Lantern Demonstration). Geoffrey Edsall, Boston.

Health Conditions in the Cemented Tungsten Carbide Industry.
L. T. Fairhall and H. T. Castberg, Bethesda, Md.

SECTION ON UROLOGY

MEETS IN WEDGEWOOD ROOM, MARLBOROUGH-BLENHEIM HOTEL

OFFICERS OF SECTION

Chairman—Grayson Carroll, St. Louis.

Vice Chairman—Clark M. Johnson, San Francisco.

Secretary—Edward N. Cook, Rochester, Minn.

Executive Committee—Gershon J. Thompson, Rochester, Minn.; Arbor D. Munger, Lincoln, Neb.; Grayson Carroll, St. Louis.

Wednesday, June 11—9 a. m.

The Problem of the Posteriorly Located Renal Pelvis Associated with Ptosis (Lantern Demonstration).
William P. Herbst, Washington, D. C.

Ureteropelvic Obstructions: Symptoms and Treatment (Lantern Demonstration). Roy B. Henline, New York.

Prostatic Surgery and Heart Disease (Lantern Demonstration).
Herman L. Kretschmer, Chicago.

Centennial Address: One Hundred Years in Urology (Lantern Demonstration).
William F. Braasch, Rochester, Minn.

Tumors of the Testicle (Lantern Demonstration).
Lloyd G. Lewis, Washington, D. C.

Tumors of the Testicle.
Hans R. Sauer, Ernest M. Watson and Eugene M. Burke, Buffalo.

Primary Carcinoma of the Seminal Vesicles; Differentiation from Extrarectal and Rectal Carcinoma: A Comparative Study (Lantern Demonstration).
Lowrain E. McCrea, Philadelphia.

Thursday, June 12—9 a. m.

Election of Officers

Disappearance of Carcinomatous Ulceration of the Bladder Following Bilateral Ureterosigmoidostomy (Lantern Demonstration). Edwin Davis, Omaha.

Twenty-Five Years of Radon Implantation for Bladder Cancer: Five Year Results.
Benjamin S. Barringer, New York.

Cystectomy for Carcinoma of the Bladder (Lantern Demonstration). Charles C. Higgins, Cleveland.

Chairman's Address: A Study of Pyocyaneus and Aerobacter Aerogenes in Urinary Infections (Lantern Demonstration). Grayson Carroll, St. Louis.

Address of Invited Foreign Guest (Lantern Demonstration).
Frank S. Patch, Montreal, Canada.

Pheochromocytoma (Lantern Demonstration).
George F. Cahill, New York.

Friday, June 13—9 a. m.

Surgical Management of Impacted Stone in the Lower Ureter (Lantern Demonstration).
Hamilton W. McKay and Kenneth M. Lynch Jr., Charlotte, N. C.

Management of Recurrent Formation of Renal Calculi (Lantern Demonstration). J. C. Kimbrough, Washington, D. C.

Hyaluronidase (Lantern Demonstration). W. W. Scott, Baltimore.

Cystourethrography in Children (Lantern Demonstration). M. Leopold Brodny, Boston.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN ST. DENNIS ROOM, DENNIS HOTEL

OFFICERS OF SECTION

Chairman—Francis M. McKeever, Los Angeles.

Vice Chairman—J. Warren White, Greenville, S. C.

Secretary—Joseph S. Barr, Boston.

Executive Committee—Guy A. Caldwell, New Orleans; Theodore A. Willis, Cleveland; Francis M. McKeever, Los Angeles.

Wednesday, June 11—9 a. m.

PANEL DISCUSSION ON FRACTURES OF UPPER END OF THE FEMUR

Philip D. Wilson, New York, Moderator

Treatment of Acute Fractures of the Neck of the Femur (Lantern Demonstration). George W. Van Gorder, Boston.

Management of Intertrochanteric Fracture of the Femur. Mather Cleveland, D. M. Bosworth and F. R. Thompson, New York.

Medical Management of the Patient with a Fractured Hip (Lantern Demonstration). Richard H. Freyberg, New York.

Cause, Development and Treatment of Aseptic Necrosis of the Femoral Head Following Fracture of the Hip (Lantern Demonstration). Carl E. Badgley, Ann Arbor, Mich.

Results of Treatment of Fractures of the Upper End of the Femur (Lantern Demonstration). Harold B. Boyd, Memphis, Tenn.

Treatment of Ununited Fractures of the Femur (Lantern Demonstration). J. A. Dickson, Cleveland.

Thursday, June 12—9 a. m.

Election of Officers

Internal Derangements of the Knee (Lantern Demonstration). Paul R. Lipscomb, Melvin S. Henderson and Ralph E. DeForest, Rochester, Minn.

Discussion to be opened by Mather Cleveland, New York, and E. F. Cave, Boston.

Chairman's Address (Lantern Demonstration). Francis M. McKeever, Los Angeles.

The Treatment of Slipped Capital Femoral Epiphyses (Lantern Demonstration). Armin Klein, Robert J. Joplin and John A. Reidy, Boston.

Discussion to be opened by H. R. McCarroll, St. Louis, and H. Earle Conwell, Birmingham, Ala.

Centennial Address. Edwin W. Ryerson, Chicago.

Friday, June 13—9 a. m.

Massive Bone Grafts for the Restoration of Bone Defects in Long Bone. Carlo S. Scuderi, Chicago.

Discussion to be opened by T. C. Thompson, New York, and Francis E. West, San Diego, Calif.

The Value of Conservative Management in Cervicobrachial Pain (Lantern Demonstration). G. Edmund Haggart, Boston.

Discussion to be opened by I. W. Nachlas, Baltimore, and James McAteer, New York.

Address of Invited Foreign Guest. Jose Valls, Buenos Aires, Argentina.

The Bone Bank (Lantern Demonstration). Leonard F. Bush, Danville, Pa., and C. Zent Garber, New York.

Discussion to be opened by John R. Cobb, New York, and Ralph K. Ghormley, Rochester, Minn.

Experimental Production of Aseptic Necrosis (Lantern Demonstration). Paul C. Colonna, Philadelphia.

Discussion to be opened by Carl E. Badgley, Ann Arbor, Mich., and Dallas B. Phemister, Chicago.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN TRELLIS ROOM, RITZ-CARLTON HOTEL

OFFICERS OF SECTION

Chairman—Martin S. Kleckner, Allentown, Pa.

Vice Chairman—Sara M. Jordan, Boston.

Secretary—Grant H. Laing, Chicago.

Executive Committee—Emmett H. Terrell, Richmond, Va.; J. A. Bargen, Rochester, Minn.; Martin S. Kleckner, Allentown, Pa.

Wednesday, June 11—2 p. m.

Results of Treatment of Esophageal Varices by Injection of Sclerosing Solution (Lantern Demonstration). H. J. Moersch, Rochester, Minn.

Discussion to be opened by Cecil O. Patterson, Dallas, Texas.

Congenital Gallbladder Anomalies (Lantern Demonstration). Bruce C. Lockwood, Detroit.

SYMPOSIUM ON LIVER DISEASE

Diagnostic Aspects:

Address of Invited Foreign Guest: A Review of Some Clinical and Biochemical Problems of Liver Disease as Revealed by Systematic Biopsy Studies. John McMichael, London, England.

The Accuracy of Diagnosis of Jaundice (Lantern Demonstration). William F. Lipp and A. H. Aaron, Buffalo.

Differential Diagnosis of Hepatitis by Histologic and Functional Laboratory Methods (Lantern Demonstration). Hans Popper and Murray Franklin, Chicago.

Therapeutic Aspects:

The Efficacy of Lipotrophic Substances in the Treatment of Liver Cirrhosis (Lantern Demonstration). Frederick Steigmann, Chicago.

Discussion to be opened by Cecil J. Watson, Minneapolis.

Centennial Address: The History of Progress in Our Knowledge of the Digestive Tract During the Last Century. J. A. Bargen, Rochester, Minn.

SYMPOSIUM ON PANCREAS

Chronic Pancreatitis Causing Complete and Incomplete Obstruction of the Common Duct: Report of Illustrative Cases (Lantern Demonstration). Moses Behrend, Philadelphia.

Diagnostic Criteria of Carcinoma of the Pancreas (Lantern Demonstration). Grayson F. Dashiell, Chicago.

Functional Efficiency of the Gastrointestinal Tract Following Resection of the Head of the Pancreas (Whipple Operation): Effect of (1) Anastomosing Remaining Pancreas to the Jejunum; (2) Administration of Pancreatin; (3) Variations of the Fat and Nitrogen Content of the Diet (Lantern Demonstration).
Eric E. Wollaeger, Manfred W. Comfort, Arnold E. Osterberg and O. Theron Clagett, Rochester, Minn.

Discussion to be opened by Allen O. Whipple, New York, and Robert Elman, St. Louis.

Thursday, June 12—2 p. m.

Election of Officers

Chairman's Address: Proctologic Surgery of the Large Bowel (Lantern Demonstration).
Martin S. Kleckner, Allentown, Pa.

The Proctologic Examination of Infants and Children (Lantern Demonstration). Saul Schapiro, Brooklyn.

Anterior Pilonidal Cyst (Lantern Demonstration).
Tom E. Smith, Dallas, Texas.

The Preparation and After-Care of the Patient Undergoing Surgery of the Lower Bowel.
Harry E. Bacon and Robert J. Rowe, Philadelphia.
Discussion to be opened by Frank H. Lahey, Boston, and Louis A. Buie, Rochester, Minn.

SYMPOSIUM ON ULCERATIVE COLITIS

Clinical Aspects:

The Etiologic Diagnosis of Ulcerative Colitis (Lantern Demonstration).
William Z. Fradkin, Brooklyn.

Certain Clinical Aspects of Ulcerative Colitis (Lantern Demonstration). J. B. Kirsner, Chicago.

Treatment:

Total Parenteral Alimentation and Therapy in Ulcerative Colitis: Its Place in Management (Lantern Demonstration). Moses Paulson, Baltimore.

The Surgical Treatment of Ulcerative Colitis (Lantern Demonstration). Richard B. Cattell, Boston.
Discussion to be opened by J. A. Bargen, Rochester, Minn., and E. N. Collins, Cleveland.

SYMPOSIUM ON GASTRITIS AND GASTRIC NEOPLASMS

Therapy of Chronic Atrophic Gastritis with Seven Years' Gastroscopic Control (Lantern Demonstration).
Leonidas H. Berry and T. Jonathan Cole, Chicago.

Clinical Distinctions Between Gastric Sarcoma and Carcinoma, with Special Reference to the Infiltrating Types of Sarcomas (Lantern Demonstration).
Anthony Bassler, New York.

The Prognosis in Gastric Cancer (Lantern Demonstration).
Samuel N. Maimon, Chicago.

Blood Pattern in Presymptomatic Malignancy of the Gastrointestinal Tract (Lantern Demonstration).
H. Leonard Bolen, Fall River, Mass.
Discussion to be opened by Charles Alexander Lamb, Boston, and Hyman I. Goldstein, Camden, N. J.

Friday, June 13—2 p. m.

JOINT MEETING WITH SECTION ON SURGERY, GENERAL AND ABDOMINAL, IN WESTMINSTER HALL, CHELSEA HOTEL

SYMPOSIUM ON PEPTIC ULCER

Statistical Study of Over 1,000 Cases of Peptic Ulcer (Lantern Demonstration). Maurice Feldman, Baltimore.

Onset of Peptic Ulcer in the Aged (Lantern Demonstration).
Henry A. Rafsky, Michael Weingarten and Charles I. Krieger, New York.

Nocturnal Gastric Secretion in Normal Individuals and in Peptic Ulcer (Lantern Demonstration). Ervin Levin, Chicago.

Therapeutic Agents:

Effect of Enterogastrone in Patients with Gastric and Duodenal Ulcer (Lantern Demonstration).
H. M. Pollard and William H. Bachrach, Ann Arbor, Mich.

Aluminum Hydroxide Mixture with Mucin in the Treatment of Peptic Ulcer (Lantern Demonstration).
Leo L. Hardt, Chicago.

Synthetic Resin: A New Antacid for Treatment in Peptic Ulcer (Lantern Demonstration).
Manfred Kraemer and Leo H. Siegel, Newark, N. J.

Discussion on papers of Dr. Feldman, Drs. Rafsky, Weingarten and Krieger, Dr. Levin, Drs. Pollard and Bachrach, Dr. Hardt and Drs. Kraemer and Siegel to be opened by Drs. A. C. Ivy and Lester R. Dragstedt, Chicago; Sara M. Jordan, Boston; Ralph Colp, New York; Walter L. Palmer, Chicago, and Asher Winkelstein, New York.

Favorable and Unfavorable Results of Vagus Nerve Resections in the Treatment of Peptic Ulcer: An Anatomic, Physiologic and Clinical Study (Lantern and Motion Picture Demonstration).
Waltman Walters, Rochester, Minn.
Discussion to be opened by Lester R. Dragstedt, Chicago; Ralph Colp, New York, and Keith S. Grimson, Durham, N. C.

Results of Surgical Treatment for Gastric Ulcer (Lantern Demonstration).
Samuel F. Marshall, Boston, and Mark L. Welch, Dallas, Texas.
Discussion to be opened by Harvey B. Stone, Baltimore, and J. William Hinton, New York.

Complications of Peptic Ulcer (Lantern Demonstration).
Harold L. Thompson, Los Angeles.
Discussion to be opened by Arthur W. Allen, Boston.

SECTION ON RADIOLOGY

MEETS IN ROOM 20, CONVENTION HALL

OFFICERS OF SECTION

Chairman—Bernard P. Widmann, Philadelphia.
Vice Chairman—W. Walter Wasson, Denver.
Secretary—U. V. Portmann, Cleveland.
Executive Committee—Robert A. Arens, Chicago; Edwin C. Ernst, St. Louis; Bernard P. Widmann, Philadelphia.

Wednesday, June 11—2 p. m.

Business Session

Address of Invited Foreign Guest: The Question of Cardiac Hypertrophy in Residents of High Altitudes: Radiologic Study Conducted at 8,636 Feet Above Sea Level.
Gonzalo Esguerra Gomez, Bogota, Colombia, South America.

Centennial Address: Contributions of Radiology to the Diagnosis and Treatment of Disease.
George W. Holmes, Boston.

Routine Roentgen Examination of the Stomach of Symptomless Individuals (Lantern Demonstration).
Leo G. Rigler, Minneapolis.
Discussion to be opened by Ross Golden, New York.

Nonneoplastic Intracranial Calcification: Roentgenologic Manifestations (Lantern Demonstration).
John D. Camp, Rochester, Minn.
Discussion to be opened by Eugene P. Pendergrass, Philadelphia.

Clinical Manifestations of Disease Masked or Modified by Chemotherapy: Increasing Responsibility of the Roentgenologist (Lantern Demonstration).
Vincent W. Archer, George Cooper and Norman Adair, University, Va.
Discussion to be opened by George M. Wyatt, Washington, D. C.

Fundamental Concepts of Radiographic Diagnosis of Lesions of the Kidney (Lantern Demonstration).
Ira H. Lockwood, Arthur B. Smith and John W. Walker, Kansas City, Mo.
Discussion to be opened by H. Dabney Kerr, Iowa City.

Cholangiography in Stone, Stricture and Surgical Injury of Biliary Ducts (Lantern Demonstration).
C. Robert Hughes, John R. Hannan and Bert E. Mulvey, Cleveland.
Discussion to be opened by Thomas E. Jones, Cleveland.

Thursday, June 12—2 p. m.

Business Session

Election of Officers

Roentgen Appearance of the Chest in Some Diseases Affecting the Peripheral Vascular System of the Lung (Lantern Demonstration).
Robert P. Barden and David A. Cooper, Philadelphia.
Discussion to be opened by Francis M. Rackemann, Boston.

Roentgen Diagnosis of Myocardial Infarction (Lantern Demonstration).
L. Henry Garland, San Francisco, and S. F. Thomas, Palo Alto, Calif.
Discussion to be opened by Philip J. Hodes, Philadelphia.

Pulmonary and Superior Caval Angiography in Relation to Pulmonary and Mediastinal Lesions (Lantern Demonstration).
Marcy L. Sussman and Harold Neuhof, New York.
Discussion to be opened by Evarts A. Graham, St. Louis.

Laminography as an Aid in the Diagnosis of Certain Nontuberculous Lesions in the Chest (Lantern Demonstration).
Eldwin R. Witwer, Detroit, and H. L. Hiebert, Topeka, Kan.
Discussion to be opened by Wendell G. Scott, St. Louis.

Clinical and Roentgen Studies of Radiculitis Simulating Coronary Disease (Lantern Demonstration).
Max Ritvo and David Davis, Boston.
Discussion to be opened by Albert Oppenheimer, Laconia, N. H.

Roentgenographic Examination of Breast Cancer.
J. Gershon-Cohen and Phillip J. Hodes, Philadelphia.
Discussion to be opened by W. Walter Wasson, Denver.

Friday, June 13—2 p. m.

Late Results of Radium Therapy for Carcinoma of the Uterine Cervix (Lantern Demonstration).
Harry H. Bowing and Robert E. Fricke, Rochester, Minn.
Discussion to be opened by Leda June Stacy, White Plains, N. Y.

The Role of Transvaginal Roentgenotherapy in the Treatment of Carcinoma of the Cervix (Lantern Demonstration).
Juan A. del Regato, Columbia, Mo.
Discussion to be opened by James A. Corscaden, New York.

Critical Evaluation of Surgical and Radiation Therapy for Carcinoma of the Cervix (Lantern Demonstration).
Manuel M. Garcia and Leon J. Menville, New Orleans.
Discussion to be opened by Karl H. Martzloff, Portland, Ore.

The Role of Radiation Therapy in Cancer of the Breast (Lantern Demonstration).
Orville N. Meland, William E. Costolow and John W. Budd, Los Angeles.
Discussion to be opened by U. V. Portmann, Cleveland.

The Production of Analgesia by X-Radiation.
Frederick W. O'Brien, Boston.
Discussion to be opened by Hugh F. Hare, Boston.

X-Rays in the Prevention and Treatment of Infections (Lantern Demonstration).
James F. Kelly, D. Arnold Dowell and John E. Downing, Omaha.
Discussion to be opened by John S. Bouslog, Denver.

Roentgenologic Treatment of Lymph Nodes and Spleen in Brill-Symmers Disease. Sidney Rubenfeld, New York.
Discussion to be opened by Samuel E. Cohen, Elmira, N. Y.

SECTION ON ANESTHESIOLOGY

MEETS IN ROOM 20, CONVENTION HALL

OFFICERS OF SECTION

Chairman—Charles F. McCuskey, Los Angeles.
Vice Chairman—Harry Boyd Stewart, Tulsa, Okla.
Secretary—John S. Lundy, Rochester, Minn.
Executive Committee—Paul M. Wood, New York; Ansel M. Caine, New Orleans; Charles F. McCuskey, Los Angeles.

Wednesday, June 11—9 a. m.

Business Meeting for Presenting Resolutions.

Balanced Anesthesia for Thoracoplasty.
Clarence L. Hebert, Washington, D. C.
Discussion to be opened by Robert Richard Jones, Battle Creek, Mich., and Robert B. Orr, St. Albans, N. Y.

Chloroform (Lantern Demonstration).
Ralph M. Waters, Madison, Wis.
Discussion to be opened by Paul M. Wood, New York, and Irving W. Potter, Buffalo.

Anesthesia for Abdominal Surgery (Lantern Demonstration).
Edward B. Tuohy, Rochester, Minn.
Discussion to be opened by Frederico Volbrechthausen, Mexico City, Mexico, and Harry J. Shields, Toronto, Canada.

Controlled Hypotension by Arterial Bleeding During Operation and Anesthesia (Lantern Demonstration).
Donald E Hale, Cleveland.
Discussion to be opened by Perry P. Volpitto, Augusta, Ga., and W. James Gardner, Cleveland.

Effect of Procaine on Liver Function: An Experimental and Clinical Study (Lantern Demonstration).
J. J. Jacoby, J. M. Coon and H. M. Livingstone, Chicago.
Discussion to be opened by Robert D. Dripps Jr., Philadelphia, and John Adriani, New Orleans.

Thursday, June 12—9 a. m.

Election of Officers

Chairman's Address: The Present Status of the Anesthesiology Specialist or Specialty.
Charles F. McCuskey, Los Angeles

Pathology and Anesthesiology. Frank W. Hartman, Detroit.
Discussion to be opened by Wesley Bourne, Montreal, Canada, and Virgil H. Moon, Philadelphia.

Address of Invited Foreign Guest: Anesthesia for Operations Within the Vertebral Canal.
A. R. Hunter, Manchester, England.

Centennial Address: One Hundred Years of Anesthesia (Lantern Demonstration). John S. Lundy, Rochester, Minn.

Anesthesia in Pediatric Patients.
Charles H. Robson, Toronto, Canada.
Discussion to be opened by Curtiss B. Hickcox, Philadelphia, and Lloyd H. Mousel, Washington, D. C.

Friday, June 13—9 a. m.

A Comparison of the Analgesic Effects in Human Subjects of 6-Dimethyl Amino-4, 4-Diphenyl-3-Heptonone (An-148), Morphine and Meperidine (Demerol), and the Relative Efficiency of An-148 for Preoperative and Postoperative Use. Eunice Christensen and E. G. Gross, Iowa City.
Discussion to be opened by Leo V. Hand, Boston, and Stuart C. Cullen, Iowa City.

Anesthesia Study Commission: Findings of Eleven Years' Activity.
Henry S. Ruth, Haverford, Pa., and Frederick P. Haugen and D. Dwight Grove, Philadelphia.
Discussion to be opened by R. J. Whitacre, East Cleveland, Ohio, and Floyd T. Romberger, Lafayette, Ind.

Cardiac Arrest.
Edwin R. Ruzicka and Morris J. Nicholson, Boston.
Discussion to be opened by John B. Flick, Philadelphia, and Ralph M. Tovell, Hartford, Conn.

Use of Differential Spinal Block in the Investigation of Intractable Pain Following Trauma to the Lower Extremity (Lantern Demonstration).
Julia G. Arrowood and Stanley J. Sarnoff, Boston.
Discussion to be opened by Meyer Saklad, Providence, R. I., and Joe Baird, Minneapolis.

Anesthesia in the Aged (Lantern Demonstration).
John B. Dillon, Los Angeles.
Discussion to be opened by Ansel M. Caine, New Orleans, and Mary Karp, Chicago.

SECTION ON GENERAL PRACTICE OF MEDICINE

MEETS IN CAMBRIDGE HALL, CLARIDGE HOTEL

OFFICERS OF SECTION

Chairman—Paul A. Davis, Akron, Ohio.
Vice Chairman—E. A. Royston, Los Angeles.
Secretary—W. B. Harm, Detroit.
Executive Committee—Wingate M. Johnson, Winston-Salem, N. C.; *Paul A. Davis, Akron, Ohio.*

Wednesday, June 11—9 a. m.

Chairman's Address. Paul A. Davis, Akron, Ohio.

Address of Invited Foreign Guest: Nutrition and Endocrinology, with Special Reference to Nutrition Among the Indians of Mexico.
Francisco deP. Miranda, Mexico City, Mexico.

Centennial Address: What Should the General Practitioner Know About This New Psychosomatic Medicine?
Walter C. Alvarez, Rochester, Minn.

The Significance of Hypergenitalism Occurring Before or at the Time of Puberty (Lantern Demonstration).
Lewis M. Hurxthal, Boston.

The Use of Fluorine in Pediatrics (Lantern Demonstration).
Nils P. Larsen, Honolulu, Hawaii.

Thursday, June 12—9 a. m.

Election of Officers

The General Practitioner as an Adjunct to the Industrial Surgeon. F. E. Poole, Glendale, Calif.

Common Misconceptions in Regard to Dermatology (Lantern Demonstration). Marion B. Sulzberger, New York.

The Management of Hypertension and Its Chief Complications (Lantern Demonstration).
Francis D. Murphy, Milwaukee.
Discussion to be opened by N. C. Gilbert, Chicago.

Nasal Stuffiness (Lantern Demonstration).
J. Lewis Dill, Detroit.

The Traumatic Abdomen (Lantern Demonstration).
Arthur R. Metz and Raymond Householder, Chicago, and Gerrit Dangremand, Lake Bluff, Ill.
Discussion to be opened by Grover C. Penberthy, Detroit.

Reducing Mortality in Gastric Carcinoma (Lantern Demonstration). Gilson Colby Engel, Philadelphia.
Discussion to be opened by T. Grier Miller, Philadelphia.

Friday, June 13—9 a. m.

Further Observations on *Dehydration Treatment in Poliomyelitis*, with Some New Concepts in the Pathologic Physiology of the Disease. T. E. Robinson, Salt Lake City.

The Treatment of Chronic Auricular Fibrillation with Quinidine Sulfate (*Lantern Demonstration*).
Robert L. McMillan and Charles R. Welfare, Winston-Salem, N. C.
Discussion to be opened by Roy W. Scott, Cleveland.

Psychotherapy in Everyday Practice.
Edward Weiss, Philadelphia.
Discussion to be opened by Carl A. L. Binger, New York.

Hints in General Surgery (Lantern Demonstration).
R. B. Robins, Camden, Ark.

Headache. Stuyvesant Butler, Chicago.

Clinical Value of Globin Insulin.
Wallace M. Yater, Washington, D. C.

SECTION ON MISCELLANEOUS TOPICS

MEETS IN CAMBRIDGE HALL, CLARIDGE HOTEL

Session on History of Medicine

OFFICERS OF SESSION

Chairman—John F. Fulton, New Haven, Conn.
Secretary—Howard Dittrick, Cleveland.

Wednesday, June 11—2 p. m.

HISTORY OF AMERICAN MEDICINE

In the Old Dominion. M. P. Rucker, Richmond, Va.

In the Massachusetts Bay Colony (Lantern Demonstration).
H. R. Viets, Boston.

In Philadelphia. R. H. Shryock, Philadelphia.

In Kentucky and the Mississippi Valley.
E. F. Horine, Louisville, Ky.

Intermission

Address of Invited Foreign Guest: Spread of the Public Health *Movement, 1847-1947.*
E. Ashworth Underwood, London, England.

HISTORY OF MILITARY MEDICINE

Public Health Service. R. E. Dyer, Bethesda, Md.
United States Navy. L. H. Roddis, Washington, D. C.
United States Army. H. W. Jones, Washington, D. C.

Session on Physical Medicine

OFFICERS OF SESSION

Chairman—Frank H. Krusen, Rochester, Minn.
Secretary—George M. Piersol, Philadelphia.

Thursday, June 12—2 p. m.

Address of Invited Foreign Guest: The Relationship of Physical Medicine to Industrial Medicine (Lantern Demonstration).
D. Y. Solandt, Toronto, Canada.

Rehabilitation of Paraplegics.
Earl C. Elkins, Rochester, Minn.

Psychiatric Aspects of Physical Medicine (Lantern Demonstration). Arthur L. Watkins and Jacob Ellis Finesinger, Boston.

Fundamentals of Physical Medicine of Interest to the General Practitioner. Steven M. Horvath, Philadelphia.

Intermission

PANEL DISCUSSION ON PHYSICAL MEDICINE IN GENERAL PRACTICE

Frank H. Krusen, *Rochester, Minn., Moderator*

Physical Treatment of Arthritis.
Walter M. Solomon, Cleveland.

Physical Medicine in the Treatment of the Aged.
Walter S. McClellan, Saratoga Springs, N. Y.

Physical Medicine and Backache. Frank R. Ober, Boston.

Physical Treatment of Common Dermatologic Conditions (Lantern Demonstration).
Anthony C. Cipollaro, New York.

Physical Medicine in the Management of Fractures (Lantern Demonstration). Miland E. Knapp, Minneapolis.

Session on Allergy

OFFICERS OF SESSION

Chairman—Harry L. Huber, Chicago.
Secretary—Richard Kern, Philadelphia.

Friday, June 13—2 p. m.

Allergy in the Perspective of General Medical Practice (Lantern Demonstration). Harry L. Alexander, St. Louis.
Discussion to be opened by Stearns S. Bullen, Rochester, N. Y.

The Newer Concept of Allergy to Drugs and Bacteria.
Francis C. Lowell, Boston.
Discussion to be opened by M. G. Bohrod, Rochester, N. Y.

The Practical Aspects of Allergic Rhinitis (Lantern Demonstration). Leo H. Criep, Pittsburgh.
Discussion to be opened by Theodore L. Squier, Milwaukee.

Cutaneous Allergy in Pediatric Practice (Lantern Demonstration). Jerome Glaser, Rochester, N. Y.
Discussion to be opened by Albert V. Stoesser, Minneapolis.

The Newer Drugs in the Treatment of Allergic Diseases.
Samuel M. Feinberg, Chicago.
Discussion to be opened by Leon Unger, Chicago.

PANEL DISCUSSION ON THE TREATMENT OF ASTHMA

J. Harvey Black, Dallas, Texas, Moderator.
Charles H. Eyerman, St. Louis (Lantern Demonstration).
Louis Tuft, Philadelphia.
George Piness, Los Angeles.
Discussion to be summarized by Robert A. Cooke, New York.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on the main floor of the Atlantic City Auditorium, with entrances adjacent to the general registration desks.

In addition to the seventeen groups of exhibits sponsored by the sections of the Scientific Assembly there will be four special exhibits subsidized by the Board of Trustees. Question and answer conferences on heart disease and on diabetes will be conducted in conjunction with exhibits on those subjects, and three motion picture theaters will show films continuously throughout the week. While a considerable amount of historical material will be shown, the main emphasis of the Scientific Exhibit will be placed on the latest developments in medicine.

Admission to the Scientific Exhibit will be limited to persons wearing the Fellowship badge or other official badge of the Convention. The public will not be admitted to the Scientific Exhibit.

SPECIAL EXHIBITS

The Committee on Scientific Exhibit is sponsoring four special exhibits—cardiovascular diseases, fractures, fresh pathologic material and physical medicine.

Special Exhibit on Cardiovascular Diseases

The Special Exhibit on Cardiovascular Diseases is presented under the auspices of a special committee of which Paul Dudley White, Boston, is chairman, assisted by a large group of physicians. Following are the subjects which will be shown, together with a brief description of each and the names of the demonstrators:

Paul Dudley White and Fred Alexander, Massachusetts General Hospital, Boston:

The Range of the Normal Heart: The range of the normal human cardiovascular characteristics is illustrated by several charts and diagrams constructed for age, body build (height, weight and somatotype) and physiologic activity.

Robert E. Gross, Lewis Dexter, Merrill C. Sosman and C. Sidney Burwell, Children's Hospital, Boston:

Congenital Cardiovascular Disease, Noncyanotic: This exhibit illustrates the physiologic and clinical findings in congenital heart disease of the noncyanotic type, particularly patency of the ductus arteriosus and coarctation of the aorta, and their surgical correction.

Helen B. Taussig, Alfred Blalock and R. N. Paul, Johns Hopkins Hospital, Baltimore:

Congenital Cardiovascular Disease, Cyanotic: Congenital cardiovascular disease of the cyanotic type and its surgical correction are illustrated by diagrams, roentgenograms, electrocardiograms and patients themselves, with particular reference to the tetralogy of Fallot.

T. Duckett Jones, Boston; Edward F. Bland, Brookline, and David D. Rutstein, Albany, N. Y.:

Rheumatic Fever and Rheumatic Heart Disease: The vital importance of the development of community programs for the study and control of rheumatic fever and rheumatic heart disease is illustrated in this exhibit.

Thomas H. Hunter and Richard B. Duane Jr., New York:

Subacute Bacterial Endocarditis: This exhibit illustrates the remarkable progress during the last few years in the treatment of subacute bacterial endocarditis by chemotherapy, particularly by the use of penicillin. The diagnosis and prophylaxis of the disease are also emphasized.

Mandel E. Cohen, Neurological Unit, Boston City Hospital, Boston:

Neurocirculatory Asthenia: The clinical findings of neurocirculatory asthenia, anxiety neurosis or effort syndrome are summarized by the use of charts showing the high familial incidence, abnormalities in breathing and in blood lactate during work, reaction to painful stimuli at low levels and abnormal psychologic tests.

Herrman L. Blumgart, Monroe J. Schlesinger and P. M. Zoll, Beth Israel Hospital, Boston:

Coronary Heart Disease: Variations in the coronary arterial pattern in health and disease are illustrated by statistical charts, tables and colored and labeled roentgenograms. Coronary venous injections are shown also.

William C. Bridges, Reginald H. Smithwick, Lewis Dexter, Dera Kinsey and John R. Graham, Boston:

Hypertension and Hypertensive Heart Disease: An analysis of hypertension, its effects on the heart and its treatment by various measures, in particular sympathectomy, are illustrated in this exhibit.

Conger Williams, Massachusetts General Hospital, Boston:

Electrocardiography: In this exhibit emphasis is placed on the newer technics of electrocardiography and their results, in particular the unipolar and precordial leads and their application to important changes in the myocardium.

Gordon S. Myers, Massachusetts General Hospital, Boston:

Cardiovascular Roentgenology: The importance of cardiovascular roentgenology is illustrated by examples showing its value in studies of the heart, particularly of the auricles and of the great vessels. Special methods of study are included; namely diodrast injection, kymography and cardiac catheterization.

David Littmann, Veterans Hospital, West Roxbury, Mass.:

Rare Heart Disease: To remind the medical profession of rare but important kinds of cardiovascular disease, this exhibit has been prepared with illustrations of seventeen types.

D. C. Elkin and Frederick W. Cooper Jr., Emory University, Atlanta, Ga.:

Vascular Surgery: The physiologic effects of arteriovenous fistulas and other vascular injuries on the circulation are presented and the results of surgical therapy shown.

Arthur C. DeGraff and Robert C. Batterman, New York University, New York:

Treatment of Myocardial Failure and Coronary Artery Insufficiency: This exhibit presents various therapeutic procedures in the treatment of myocardial failure and coronary artery insufficiency, emphasizing in particular the use of digitalis, diuretics and dietary regimens.

Robert R. Linton, Gordon A. Donaldson, George Emerson, Kenneth Evelyn, Richard Hamlin, Irad Hardy, H. E. Kennard, F. A. Simeone, Richard Thompson, Howard

Ulfelder, Richard H. Wallace, Richard Warren and **Claude E. Welch**, Massachusetts General Hospital, Boston:

Diseases of Arteries and Veins: Photographs and charts are presented in this exhibit to describe and illustrate the chief diseases that involve peripheral arteries and veins.

Paul Dudley White, Massachusetts General Hospital, Boston:

Historic Books: A collection of historic volumes which have been milestones in the progress of our knowledge of the heart and circulation in health and disease is demonstrated along with charts showing the evolution of our knowledge in this field.

George E. Burch and **Thorpe Ray**, New Orleans:

Cardiovascular Syphilis: The most important features of cardiovascular syphilis for present day information are illustrated in this exhibit.

Howard B. Sprague, Boston, and **H. M. Marvin**, New Haven, Conn.:

American Heart Association: The exhibit graphically presents the relative importance of diseases of the heart and circulation as well as the need for and the services rendered by local heart associations throughout the country.

Special Exhibit on Fractures

The Special Exhibit on Fractures is presented for the sixteenth time under the auspices of the following committee:

Kellogg Speed, Chicago, chairman.
Frank D. Dickson, Kansas City, Mo.
Gordon M. Morrison, Boston.

The exhibit will be accompanied by continuous demonstrations throughout the week on the following subjects:

Compression Fracture of the Spine.
Fracture of the Carpal Navicular.
Fracture of the Shaft of the Femur.
Fractures into the Knee Joint.
Fracture of the Lower End of the Radius.

A pamphlet giving the essential features of the exhibit will be distributed.

The following orthopedic surgeons will assist the committee with the demonstrations:

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C. Fred Ferciot, Lincoln, Neb.
Alfred E. Gallant, Los Angeles.
Nicholas J. Giannestras, Cincinnati.
G. Edmund Haggart, Boston.
Frank M. Hand, Washington, D. C.
J. Whitfield Larrabee, Hartford, Conn.
Henry Milch, New York.
John J. Milroy, Waukegan, Ill.
Gordon M. Morrison, Boston.
Frank G. Murphy, Chicago.
John R. Norcross, Chicago.
John W. O'Meara, Worcester, Mass.
Col. Leonard T. Peterson, Washington, D. C.
Thomas B. Quigley, Boston.
H. E. Reading, Paterson, N. J.
Sheppard [illegible]
Carlo S.
Russell F
Samuel Turek, Chicago.
Theodore H. Vinke, Cincinnati.
Herbert W. Virgin, Miami, Fla.

Special Exhibit on Fresh Pathologic Material

The Special Exhibit on Fresh Pathologic Material is presented with the cooperation of the Section on Pathology and Physiology under the auspices of the following committee:

Frank W. Konzelmann, Atlantic City Hospital, Atlantic City, N. J., chairman.

Jefferson H. Clark, Philadelphia General Hospital, Philadelphia.

Edwin S. Gault, Temple University Medical School, Philadelphia.

Peter A. Herbut, Jefferson Medical College, Philadelphia.

An advisory committee has been appointed to assist the general committee, and includes the following members:

Helen Engleby, Philadelphia.
Alvin G. Foord, Pasadena, Calif.
Frank W. Hartman, Detroit.
Edward B. Krumbhaar, Philadelphia.
Harrison S. Martland, Newark, N. J.
Virgil H. Moon, Philadelphia.
J. J. Moore, Chicago.
Robert A. Moore, St. Louis.

Continuous demonstrations will be carried on throughout the week with the aid of the following pathologists:

Ernest E. Aegerter, Philadelphia.
William P. Belk, Wynnewood, Pa.
Theodore J. Curphey, Hempstead, N. Y.
William Ehrich, Philadelphia.
H. Russell Fisher, Los Angeles.
William W. Hershon, Atlantic City, N. J.
Morton McCutcheon, Philadelphia.
Carlos A. Pons, Asbury Park, N. J.
Helen E. Riggs, Philadelphia.
Asher Yaguda, Newark, N. J.

Special Exhibit on Physical Medicine

The Special Exhibit on Physical Medicine includes Physical Therapy, Occupational Therapy and Rehabilitation. It is presented for the second time under the auspices of the following committee:

Frank H. Krusen, Rochester, Minn., chairman.
Winifred Overholser, Washington, D. C.
Howard A. Rusk, New York.

The subjects covered in the exhibit, with the demonstrators in charge, are as follows:

Kurt Lion, Massachusetts Institute of Technology, Cambridge, Mass.:

Technology and Physical Medicine: This exhibit will deal with the fundamentals of biophysics and instrumentation as related to practice of and research in physical medicine.

Khalil G. Wakin, Mayo Foundation, University of Minnesota, Rochester, Minn.:

Experimental Research in Physical Medicine: This exhibit will present recent developments in experimental research concerning high frequency radiation (microwaves) for heating of living tissues and also studies on the effects of physically induced fever on flow of blood.

Frances Hellebrandt, Baruch Center on Physical Medicine, Medical College of Virginia, Richmond:

Clinical Research in Physical Medicine; Disability Evaluation: This exhibt will demonstrate methods of clinical research in physical medicine and elucidate particularly the employment of ergographs and other measuring devices in the evaluation of disabilities commonly encountered in the practice of physical medicine.

Lieut. Col. Benjamin A. Strickland Jr., Physical Medicine Consultants Division, Office of the Surgeon General, War Department, Washington, D. C.:

Dynamic Physical Reconditioning: This exhibit will demonstrate the methods developed in army hospitals for reconditioning convalescent and disabled persons.

Donald Covalt, Division of Rehabilitation and Physical Medicine, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.:

Physical Rehabilitation for Hemiplegia: This exhibit will demonstrate the employment of physical therapy, occupational therapy and physical rehabilitation in the management of persons having hemiplegia.

Robert L. Bennett, Warm Springs Foundation, Warm Springs, Ga.:

Physical Rehabilitation for Poliomyelitis: This exhibit will describe the use of physical therapy, occupational therapy and physical rehabilitation for persons having poliomyelitis.

Winthrop M. Phelps, Children's Rehabilitation Institute, Baltimore:

Physical Rehabilitation for Cerebral Palsy: This exhibit will present the methods of employing various phases of physical medicine for rehabilitation of persons having cerebral palsy.

Howard F. Polley, Mayo Foundation, University of Minnesota, Rochester, Minn.:

Physical Rehabilitation for Arthritis: This exhibit will deal with the employment of physical procedures for rehabilitation of persons having arthritis.

Henry H. Kessler, New Jersey Rehabilitation Clinic, Newark, N. J.:

Physical Rehabilitation of Amputees: This exhibit will present methods of rehabilitating persons who have major amputations of upper or lower extremities.

A pamphlet giving the essential features of the exhibit will be distributed.

The following demonstrators will assist in the presentation of the exhibit:

Maxwell R. Berry, Atlanta, Ga.
Ruth Brunyate, Baltimore.
Howard A. Carter, Chicago.
Anthony C. Cipollaro, New York.
George G. Deaver, New York.
Ellen Neal Duvall, Richmond, Va.
Mildred Elson, New York.
Harry S. Etter, U. S. Navy.
Salman Faik, Rochester, Minn.
Sara Jane Houtz, Richmond, Va.
Grace Keefe, New York.
LeMoyne C. Kelly, Waterbury, Conn.
Harry Kessler, Bronx, New York.
Robert A. Knight, Baltimore.
A. B. C. Knudson, Washington, D. C.
Peter LaBarba, Hasbrouck Heights, N. J.
Hugo Logemann, Boston.
Leslie London, Hasbrouck Heights, N. J.
Duane D. Love, Sandusky, Ohio.
Margaret Lee Moore, Richmond.
J. M. Moore, Baltimore.
Cecil W. Morgan, Washington, D. C.
Campbell McCullough, Baltimore.
Arthur M. Pruce, Atlanta, Ga.
William D. Robinson, Ann Arbor, Mich.
A. I. Robbins, Baltimore.
Herman L. Rudolph, Reading, Pa.
Roy Schubert, Hasbrouck Heights, N. J.
Marion G. Smith, Chicago.
Richard T. Smith, Philadelphia.
Robertine St. James, Baltimore.
George D. Wilson, Asheville, N. C.
Charles S. Wise, Boston.
Ralph E. Worden, Rochester, Minn.
Catherine Worthingham, New York.
Walter J. Zeiter, Cleveland.

QUESTION AND ANSWER CONFERENCES

Two question and answer conferences will be conducted throughout the week with the cooperation of the Section on Internal Medicine.

Cardiovascular Diseases

The question and answer conference on cardiovascular diseases will be conducted by the American Heart Association in an area adjacent to the Special Exhibit on Cardiovascular Diseases. The chairman of the conference is E. V. Allen, Rochester, Minn. Following is the tentative schedule:

Monday, June 9

9 to 11 a. m. *The Use of Anticoagulants in Cardiovascular Diseases.* N. W. Barker, Rochester, Minn., Samuel Levine, Boston, and E. Sterling Nichol, Miami, Fla.

2 to 4 p. m. *The Diagnosis of Congenital Heart Disease.* Herrman L. Blumgart, Boston, and Helen B. Taussig, Baltimore.

Tuesday, June 10

9 to 11 a. m. *The Peripheral Arterial Diseases.* Wallace M. Yater, Washington, D. C.; Irving S. Wright, New York, and N. W. Barker, Rochester, Minn.

2 to 4 p. m. *The Use of Drugs in Heart Diseases.* Arthur C. DeGraff, New York; Harry Gold, New York, and Howard B. Sprague, Boston.

Wednesday, June 11

9 to 11 a. m. *Surgical Treatment for Vascular Diseases.* Norman E. Freeman, San Francisco; Geza de Takats, Chicago, and J. Ross Veal, Washington, D. C.

2 to 4 p. m. *Problems in Electrocardiography.* Charles T. Wolferth, Philadelphia; Franklin Johnson, Ann Arbor, Mich., and George Burch, New Orleans.

Thursday, June 12

9 to 11 a. m. *Hypertension.* Irvin H. Page, Cleveland; M. H. Barker, Rochester, Minn., and J. Q. Griffith, Philadelphia.

2 to 4 p. m. *Rheumatic Fever.* T. Duckett Jones, Boston, and May Wilson, New York.

Friday, June 13

9 to 11 a. m. *Management of the Failing Heart.* Francis C. Wood, Philadelphia; Graham Asher, Kansas City, Mo., and Eugene Stead, Durham, N. C.

Diabetes

The question and answer conference on diabetes will be conducted in a room adjoining the group of exhibits on diabetes by members of the American Diabetic Association, the Diabetes Section of the U. S. Public Health Service and of the George F. Baker Clinic, New England Deaconess Hospital, Boston. The chairman of the group is Howard F. Root, Boston. A regular schedule will be followed each day.

AMERICAN MEDICAL ASSOCIATION

One Hundred Years of Progress

A group of exhibits from the headquarters office of the American Medical Association depicts the progress which has been made since 1847. The exhibits are arranged in chronological order, according to the date of establishment of the various councils and bureaus.

Organization of the American Medical Association—1847. George F. Lull and members of the Headquarters staff with the cooperation of L. M. Tocantins, College of Physicians, Philadelphia:

American Medical Association, 1847-1947: The exhibit shows interesting details of the early days of the Association, the development through the years and the present organization of more than two thousand component county medical societies, fifty-three constituent state and territorial medical societies and the headquarters organization with its House of Delegates, Board of Trustees, councils, bureaus, committees and publications.

Bureau of Exhibits—1899. Thomas G. Hull and Ralph P. Creer, with the cooperation of Thurman B. Rice, Indiana University Medical School, Indianapolis:

Visual Education: The exhibit presents the beginnings of the Scientific Exhibit in 1899, with the subsequent development of the Bureau of Exhibits and the Committee on Medical Motion Pictures. Information about exhibits is presented both for medical meetings and for public gatherings. Information about motion pictures and how to use them is presented. Pamphlets dealing with these subjects will be available.

Council on Medical Education and Hospitals—1904. Victor Johnson, F. H. Arestad, Frode Jensen and William R. Albus:

Progress of Medical Education and Hospitals: The exhibit displays the progress of medical education and hospitals since the organization of the American Medical Association. There is a life chart of all existing and extinct medical colleges in the United States, showing the years of their existence from 1825 to the present day. Another chart illustrates important dates in the history of the Association's endeavors in the improvement of medical schools and hospitals, commencing with the formation of the Committee on Medical Education at the first session of the American Medical Association. The number of institutions approved by the Council are listed and the medical student register and the hospital registry are illustrated. There is a chart showing the expansion of hospital residencies from 1941 to 1947 and a graph showing the number of medical college and medical school graduates since 1800.

Council on Pharmacy and Chemistry—1905. Austin E. Smith, Walton Van Winkle Jr. and Harold D. Kautz:

Therapeutic Highlights—Past, Present and Future: The exhibit emphasizes the more important advances in medicinal therapeutics that have come within its scope since its establishment in 1905. It includes historic landmarks in therapeutics, illustrations of conditions for which the use of certain prophylactic and therapeutic agents are focused at the present time, and preferred steps in the development of new therapeutic agents in the future. Pamphlets describing these details will be available for distribution.

Chemical Laboratory—1906. Albert E. Sidwell:

Progress in Drug Analysis: The exhibit includes a comparison of the drugs analyzed by the laboratory forty years ago and the drugs analyzed at the present time. There is a display of old books connected with this work. Emphasis is placed on the work now being done by the Laboratory.

Bureau of Investigation—1906. B. O. Halling.

Mechanical Quackery of the Past One Hundred Years: The exhibit consists of about twenty gadgets that have been promoted for healing various physical disorders, including such things as the Perkins tractors, the "magic horse-collars," a goiter necklace, the "gas-pipe" fraud, a radium water jar and "medical shoe plates." The exhibit is intended to show that there are no limits to fantastic fakery or to human gullibility and that there have been as preposterous medicomechanical swindles foisted on the public in recent years as there were a century ago.

BUREAU OF HEALTH EDUCATION—1910. W. W. BAUER and W. W. BOLTON:

Health Education by the Medical Profession: The exhibit sets forth highlights on health education by the medical profession as far as it is channeled through this Bureau, with a recognition that the work of many other departments of the Association contributes also to health education. The exhibit includes material on radio, electrical transcriptions, meetings and lectures, cooperation with other agencies, correspondence with the public, television and physical fitness in relation to health.

LIBRARY—1911. MARJORIE HUTCHINS MOORE:

Dispensing Medical Information: The exhibit will feature the package library and periodical lending services, with sample package libraries. A collection of foreign language periodicals received since the end of the war will be on display. The QUARTERLY CUMULATIVE INDEX MEDICUS will also be exhibited, showing particularly photostatic copies of pages covering the references on penicillin, streptomycin and the sulfonamides.

BUREAU OF LEGAL MEDICINE AND LEGISLATION—1922. J. W. HOLLOWAY JR. and GEORGE E. HALL:

Prevention of Malpractice: A photographic representation of situations which might give rise to malpractice claims. Each photograph has an explanatory and cautionary caption. An accompanying file contains abstracts of actual court cases exemplified by the photographs.

COUNCIL ON PHYSICAL MEDICINE—1925. HOWARD A. CARTER and FREDERIC T. JUNG:

Atomic Energy and the Future of Medicine: Charts illustrating some of the basic principles and describing some of the most interesting transformations. There will be a display of apparatus (Geiger counter, oscilloscope) used in the detection of the presence of radioactive elements that are used as tracers.

COUNCIL ON FOODS AND NUTRITION—1929. JAMES R. WILSON:

Food Acceptance Program: The exhibit illustrates some of the things that the Council on Foods and Nutrition has accomplished in this field and some of the things it hopes to accomplish in the future.

BUREAU OF MEDICAL ECONOMIC RESEARCH—1930. FRANK G. DICKINSON:

Medical Economic Research: The exhibit features charts showing a comparison of professional incomes—dentists, physicians, certified public accountants, consulting engineers and lawyers; the increases in the expectation of life at birth during the past century from 40 years in 1847 to 65 years in 1947, and eight selected items of consumer expenditures in the United States for the latest year available (1942), including payments to physicians and all expenditures for medical care in relation to the other selected items.

COUNCIL ON INDUSTRIAL HEALTH—1937. CARL M. PETERSON and HAROLD H. HENNESSY:

Industrial Health—Past, Present and Future: The exhibit consists of drawings on panels depicting industrial medicine in the Ramazzini era, the present modern era and the Atomic era of the future.

COUNCIL ON MEDICAL SERVICE—1944. GEORGE W. COOLEY and HOWARD O. BROWER:

Medical Service: Exhibit featuring the work of the Council and showing the Council's relationship to the physician, the public and the patient. It includes organization and function charts of the Council, examples of state and county medical society activities, picture display of Ten Point Program and charts, maps and other material on prepayment plans. Pamphlets and copies of exhibit material will be available at the booth.

BUREAU OF INFORMATION—1945. VIRGINIA SHULER:

Distribution of Physicians and Rural Medical Service: A 7 by 5 foot map showing by counties the physician distribution throughout the United States will be presented. Listings of areas which have requested physicians will be available for review. A panel prepared by the Medical Department, U. S. Army, will illustrate the transition of doctors from military to civilian life. Facing this panel the Division of Hospital Facilities, U. S. Public Health Service, has prepared a graphic presentation of the Coordinated Hospital System relating the rural clinic to the nearest hospital and on up the line to the university medical center. This system provides a two-way channel of hospital and medical services. The original paintings of "The Family Doctor" by Norman Rockwell will be shown.

COMMITTEE ON NATIONAL EMERGENCY MEDICAL SERVICE—1946. FRANCES TOFIELD:

Physicians' Problems in a National Emergency: The exhibit presents graphically the part that the American physician will play in safeguarding the health and lives of the civilian population of his community in time of national emergency. The exhibit includes the tabulated returns from questionnaires which were sent to 50,000 discharged medical officers and 5,000 physicians who remained at home during World War II. Tables, charts and statistical summaries of the opinions of approximately 28,400 physicians on the subject of military service and civilian medical care are presented.

SECTION EXHIBITS

Each of the seventeen sections of the Scientific Assembly has arranged a group of exhibits dealing with the various branches of medicine.

Section on Internal Medicine

The representative to the Scientific Exhibit from the Section on Internal Medicine is Thomas C. Garrett, Philadelphia.

M. HERBERT BARKER and RICHARD B. CAPPS, Northwestern University Medical School, Chicago:

Infectious Hepatitis: A series of charts, in color, covering the symptoms, physical findings, laboratory tests and liver function tests, hematology, epidemiology and treatment of infectious hepatitis. A comparison of liver function tests made during the course of the disease is illustrated.

GRACE A. GOLDSMITH, Tulane University School of Medicine, New Orleans:

Treatment of Macrocytic Anemia with Pteroylglutamic Acid (Folic Acid): The effect of the administration of pteroylglutamic acid on clinical findings, peripheral blood picture and bone marrow in patients with pernicious anemia, sprue and nutritional macrocytic anemia is illustrated by graphs, charts, photographs and roentgenograms of the gastrointestinal tract. Diagnostic criteria of each of these types of anemia are indicated, and the results of therapy over periods as long as eighteen months are included. Slides illustrating changes in the peripheral blood and bone marrow in response to therapy will be available for microscopic study.

O. C. DURHAM, Abbott Laboratories, North Chicago, Ill.:

Technics in Aerobiology as Applied to Allergy: The essential advances in the study of the dispersal of aeroallergens during the past century are presented. Various pieces of recently developed or adapted apparatus are shown, including the standard exposure device adopted in 1944 by the National Pollen Survey Committee of the American Academy of Allergy. Methods of air sampling, the counting of pollens and fungus spores, the interpolation of gravity slide figures and graphic presentation of statistics are illustrated and demonstrated.

LEON UNGER, HERMAN A. LEVY, ALBERT H. UNGER and ISABELLE BRANDT EISELE, Northwestern University Medical School and Wesley Memorial Hospital, Chicago:

Asthma Through the Ages: Murals depicting scenes which illustrate the highlights in the history of the study of asthma are exhibited. One scene is from the ancient and medieval period to 1500 A. D.; one from the preindustrial period (1500-1900 A. D.), and two from the modern and contemporary periods (since 1900 A. D.). Portraits of twenty men who were pioneers in the study of asthma, telling contributions of each, are also shown. The exhibit demonstrates present views regarding etiology, pathology, diagnosis, prevention and treatment of bronchial asthma. The education of the physician and the public is stressed. The display includes a preserved emphysematous lung, and chest x-ray films of asthma and its complications. Kodachrome transparencies of chest abnormalities, positive skin reactions, eosinophilia in blood, sputum and nasal smears, and several causative factors, e. g. molds and weeds, are shown. The technic of scratch and intradermal tests will be demonstrated on patients. Reprints and information leaflets which deal with etiology, diagnosis, differential diagnosis, treatment and results of treatment will be distributed.

Edward Matzger and W. W. Washburn, Southern Pacific Hospital, San Francisco, and LeRoy Abrams, Leland Stanford Jr. University, Palo Alto, Calif.:

Allergy: An evaluation of twenty years of the allergy service of the Southern Pacific Railroad Hospital Department is presented, with study of patients referred for their allergic complaints. The study includes the industrial problems involved, outlining the importance to safe train operation. The methods of pollen surveys and the maps and charts of chronology of pollination are shown. The methods employed and the technic of individual allergic study and the simplified, effective antigen therapy are summarized.

Charles A. Doan, E. Von Haam and B. K. Wiseman, Ohio State University College of Medicine, Columbus:

Hypersplenism: Diagnosis, Pathology, Therapy: The clinical and hematologic criteria for recognizing the various hypersplenic states will be demonstrated. The differential splenic histopathology will be illustrated in photomicrographs, with special reference to "primary" versus "secondary" splenic involvement. Evidence for the humoral and/or phagocytic mechanisms in these splenic-bone marrow syndromes will be presented. The results of therapeutic splenectomy, as observed in this clinic during the past seventeen years, will be reviewed.

William S. Reveno, Harper Hospital and Wayne University College of Medicine, Detroit:

Antithyroid Therapy: A comparison of the therapeutic action of iodine, thiouracil and propyl thiouracil, alone and combined, based on clinical experience, is presented.

J. Russell Twiss and R. Franklin Carter, New York Post-Graduate Hospital, New York:

Should Your Patient's Gallbladder Be Removed? Notwithstanding the prevalence of disorders of the gallbladder, there is still no general acceptance of definite indications and contraindications for operation. The exhibit reflects fifteen years' experience of a combined medical and surgical biliary tract clinic. The results of diagnostic methods which have proved of value are presented, stressing the differential diagnosis between functional disorders and organic disease. Further consideration is given to an evaluation of the role played by factors such as infection, obstruction and stone formation. Conclusions as to the indications for medical or surgical treatment are based on diagnostic, operative and follow-up studies in approximately 500 cases.

E. P. McCullagh, R. S. Dinsmore, George Crile Jr. and Robert W. Schneider, Cleveland Clinic, Cleveland:

Indications for Medical or Surgical Treatment of Hyperthyroidism: Transparencies of patients illustrate examples of various types of hyperthyroidism, accompanied with data regarding treatment recommended and clinical progress both in the cases shown as well as cumulative data relating to the value and limitations of propyl thiouracil.

Otto Steinbrocker, Norman Spitzer and H. Harold Friedman, Bellevue Hospital, 4th Medical Division, New York University, New York:

The Shoulder-Hand Syndrome: A pictorial description of this syndrome is presented, with illustrations of clinical features, progress and long-range results by black and white and colored transparencies of the patients; x-ray films, oscillometric graphs, venograms and other data are shown.

Michael A. Rubinstein, Montefiore Hospital, New York:

Iliac Crest versus Sternal Bone Marrow Puncture; Diagnostic Importance: Bone marrow studies were performed simultaneously in iliac crest and sternal aspirations in over 200 cases of various hematologic disorders and different cases of cancer. A modified technic of iliac puncture is shown and its advantages are indicated. The comparative value of iliac crest and sternal marrow studies in different affections is reviewed. The iliac crest aspiration has proved to be much more informative than the sternal aspiration in early diagnosis of multiple myeloma and in detection of metastatic lesions in cancer; neoplastic cells were much more frequently recovered from iliac than from sternal aspirations. In some cases the first indication of cancer was furnished by iliac aspiration before the appearance of any clinical or x-ray evidence. Illustrative examples of these findings are presented.

Smith Freeman and C. H. Slocumb, Mayo Clinic, Rochester, Minn.:

Vitamin D Poisoning (Hypervitaminosis D) in Human Subjects: The exhibit includes histories, symptoms, clinical, roentgenologic and chemical findings in patients with vitamin D poisoning. The contributing factors, early recognition, course, complications and management are presented.

John D. Currence and F. LeVerne Eby, Post-Graduate Hospital and Medical School, Columbia University, New York:

Osteoarthritis: The exhibit is a presentation of traumatic, senile, postinfectious and menopausal osteoarthritides with etiology, pathology, prognosis and emphasis on therapy.

Hugo A. Freund, Gabriel Steiner and Carl E. Duffy, Harper Hospital and Wayne University College of Medicine, Detroit:

Recent Advances in Studies of Rheumatoid Arthritis: Photographs, history, laboratory and x-ray findings of cases of rheumatoid arthritis are presented. Pathologic findings at necropsy, especially of nerves and muscles, are demonstrated, and other pathologic evidences of rheumatoid arthritis compared with recent findings of nodular perineuritis and generalized polymyositis. The correlation between clinical and pathologic states are shown and biopsied muscle material from a series of cases of rheumatoid arthritis are presented. Results of recent investigations and comparative studies concerning the etiology of rheumatoid arthritis are presented.

Arthur M. Master, Simon Dack, Arthur Grishman, Henry Horn and Leonard E. Field, Mount Sinai Hospital, New York:

Acute Coronary Insufficiency (Without Acute Occlusion): The etiologic factors are those which produce myocardial anoxia, such as effort, operation, anoxemia, acute hemorrhage, severe anemia, shock, pulmonary embolism and tachycardia. The electrocardiogram is chacterized by T wave inversions and ST depressions. Severe coronary insufficiency may result in focal necrosis localized to the papillary muscles and subendocardial layers of the left ventricle. Treatment may be life saving and should be directed to the etiologic factors such as hemorrhage, shock and anoxemia. This disease is quite different from acute coronary occlusion, from which it can be differentiated clinically.

Don Carlos Peete, University of Kansas Hospitals, Kansas City:

Psychosomatic Genesis of Coronary Artery Disease: Historical contributions were made to our present understanding of coronary artery disease by Galen, Heberden, Jenner, John Hunter, Pavlov, Krogh, Einthoven, Cannon and Herrick. Clinical study shows importance of environment and early social history in developing a vasospastic reaction pattern that ultimately leads to sclerosis and complicating thrombosis.

Irving Treiger, Los Angeles:

Correlative Study of Cardiac Diseases: Correlative study of roentgenograms, electrocardiograms and pathologic specimens in frequently encountered heart conditions to emphasize the correlative clinical value of various methods of examination in diagnosis and treatment of cardiovascular diseases.

(This work was done at the University of Illinois College of Medicine and Presbyterian Hospital, Chicago.)

William Dressler, Israel Zion Hospital, Brooklyn, and Hugo Roesler, Temple University Hospital, Philadelphia:

Advances in the Electrocardiographic Diagnosis of Myocardial Infarction: Exhibit showing (1) the role of multiple chest leads in the diagnosis of myocardial infarction; (2) high T waves, an early sign of myocardial infarction; (3) an electrocardiographic pattern of septal infarction which extends from the anterior to the posterior aspect of the heart; (4) reciprocal changes of ST and T in the chest leads from right side and left side positions; (5) the significance of the pattern $T_1 < T_3$ for the diagnosis of myocardial infarction; (6) myocardial infarction associated with bundle branch block; (7) myocardial infarction associated with left ventricle hypertrophy; (8) changes in the electrocardiogram which simulate myocardial infarction but which are caused by pendulous heart, pulmonary emphysema or a large breast; (9) an attempt at evaluation of the electrocardiogram for the prognosis in myocardial infarction; (10) serial electrocardiographic tracings in myocardial infarction.

Henry B. Kirkland, A. M. Lyle and C. E. Kiessling, Prudential Insurance Company, Newark, N. J.:

The Abnormal Thoracic Aorta and Its Prognostic Significance: A correlation of x-ray findings, electrocardiographic changes and the clinical course in individuals with roentgenologic evidence of aortic atheromatosis is shown. The development of intimal calcification is demonstrated. Studies bearing on ultimate prognosis are presented. Emphasis is laid on the importance of correct evaluation of findings, and films illustrating diagnostic pitfalls are shown.

George E. Burch and Paul Reaser, Tulane Medical School, New Orleans:

Radio Elements and Mechanism of Congestive Heart Failure Radiosodium (Na^{24} and Na^{22}): Studies in patients with various degrees of congestive heart failure and control subjects showed a considerable disturbance in sodium excretion in congestive failure. There was a much more prolonged retention of Na^{22} in CHF than in the normal subject. Mercurial diuretics increased the rate of Na^{22} excretion. In congestive heart failure the degree of renal tubular reabsorption of Na is greatly increased over the normal. Other edema states of renal origin tend to show an Na pattern similar to that in congestive heart failure. The physiologic and therapeutic significance of these findings is indicated.

J. Q. Griffith Jr., M. A. Lindauer, R. L. Shanno and E. Roberts, University of Pennsylvania, Philadelphia:

Hyperpituitarism Causing Arterial Hypertension: Diagnosis and Treatment: Illustrations and models are used to demonstrate the bioassay methods for antidiuretic hormone of the posterior lobe of the pituitary and gonadotropic hormone of the anterior lobe. The effect of anterior lobe hormones in producing increased activity of the posterior lobe in susceptible animals is described, and the analogy indicated with human hypertension occurring at the menopause or during pregnancy. Results of therapy are shown (1) by pituitary irradiation, (2) by repeated injections of pitressin tannate in oil, probably with the production of an antihormone state, (3) by sex hormone therapy.

David Ayman and Archie D. Goldshine, Beth Israel Hospital, Boston:

Therapeutic Methods in Essential Hypertension: Charts of patients studied in the past ten years show carefully followed blood pressure levels, both at the clinic and in many cases by home readings under treatment with placebos, sedatives, thiocyanates, low sodium diet, rice-fruit-sugar diet, vitamin K, testosterone and sympathectomy.

Lieut. L. Martin Griffin Jr., M. C., and Lieut. Fred I. Gilbert, M. C., Stanford University School of Medicine and Veterans Administration, Palo Alto, Calif.:

Glomerular Nephritis—Recognition and Treatment: The exhibit presents the dynamic concept of glomerular nephritis with diagrams illustrating the progression of the disease through the initial, latent, degenerative and terminal stages. To accomplish this, charts and photographs correlating the clinical picture of glomerular nephritis with pathologic changes of the blood, urine and kidneys are used. This includes photomicrographs and drawings of kidney sections and urinary sediment during various stages of the disease. Simple clinical laboratory methods for determinig the activity and progression of the renal lesion are demonstrated. Treatment and management of the different stages are outlined in terms of renal pathologic change.

T. J. Dry, J. E. Edwards, R. L. Parker, H. B. Burchell and H. M. Rogers, Mayo Clinic, Rochester, Minn.:

Congenital Anomalies of the Heart and Great Vessels; Clinicopathologic Correlation: Representative examples of major anomalies of the heart and great vessels are presented by models showing external anatomy as well as internal structure of the various types encountered; drawings explaining the abnormal circulation; roentgenograms and electrocardiograms of the various types; pertinent clinical features observed in each type; significant embryologic considerations contributing to these congenital anomalies.

Edward M. Kent, George J. Kastlin and Theron B. Childs, Pittsburgh:

Solitary Pulmonary Abscess Occurring with Bronchogenic Carcinoma: Translites of roentgenograms and operative specimens are presented to illustrate the location and characteristics of solitary pulmonary abscess due to bronchogenic carcinoma, resulting from (1) bronchial obstruction or (2) central necrosis, infection and excavation within the carcinoma. These lesions simulate closely the more commonly recognized solitary pyogenic abscess of other origin. Recognition of these lesions as a complication of bronchogenic carcinoma is necessary so that treatment of the primary tumor is not delayed. The clinical importance of history, symptom complex, bronchoscopy and biopsy is presented. The pulmonary lesions usually associated with bronchogenic carcinoma are demonstrated such as pulmonary atelectasis, diffuse pulmonary suppuration and solitary pulmonary mass.

Robert L. McMillan, J. P. Rousseau and J. C. Wiggins, Bowman Gray School of Medicine of Wake Forest College, and North Carolina Baptist Hospital, Winston-Salem, N. C.:

Pulmonary Infarction: The exhibit consists of charts, posters, photographic reproduction of typical roentgenograms, drawings of the pulmonary circulation, heart and lungs, and drawings of the venous circulation from the legs to the vena cava with thrombi and emboli illustrated. A new physical sign is described.

Henry Schwerma and A. C. Ivy, Northwestern Medical School and University of Illinois College of Medicine, Chicago:

Resuscitation from Asphyxia: The results of controlled experiments designed to determine the best method for resuscitation from carbon monoxide and obstructive asphyxia are presented. Evidence supporting such statements as the following is presented: The heart is the critical organ in relation to immediate survival and the brain in relation to the occurrence of significant sequelae following resuscitation. The incidence of neurologic sequelae is related to the degree and duration of the anoxia. The percentage of immediate survivals and the incidence of neurologic sequelae is the same whether 100 per cent oxygen or 7 per cent carbogen is used. The important point in treating asphyxia is to oxygenate the blood as quickly as possible in order to revive the failing heart and to stop the deleterious effects of anoxia on the brain cells.

K. J. Henrichsen, Municipal Tuberculosis Sanitarium, Chicago:

Diseases of the Lungs—Differential Diagnosis in Tuberculous and Nontuberculous Conditions Encountered in the Sanitarium:

History and roentgenograms of cases, with pathologic specimens demonstrating diseases of the lungs, tuberculous and nontuberculous, differential diagnosis and treatment.

William Dameshek and S. Estren, J. H. Pratt Diagnostic Hospital, Tufts College Medical School and Boston Dispensary, Boston:

The Spleen and Splenic Syndromes: Spleen-bone marrow relationships are brought out by various types of experiments, including splenectomy and parabiosis and by the clinical and laboratory findings in various pathologic conditions. Splenomegaly is often associated with anemia, leukopenia or thrombocytopenia or with various combinations of these. The bone marrow under such conditions is hyperplastic, suggesting a "block" between the marrow and the circulating blood. The "blocking" organ appears to be the spleen, as judged by the results of splenectomy. Various syndromes of "hypersplenism" may be discriminated. These may be total, with pancytopenia, or selective with anemia, leukopenia or thrombocytopenia. Idiopathic thrombocytopenic purpura, splenic neutropenia, splenic pancytopenia and certain types of hemolytic and nonhemolytic anemia are examples of various types of splenic syndromes. Recognition of these syndromes by careful blood and other examinations is all important, since splenectomy may lead to complete recovery.

Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Warren H. Cole, Chicago.

J. Ross Veal, Georgetown University Medical School, Washington, D. C.:

Hyperhidrosis—Surgical Management: Charts, colored photographs, descriptive drawings of the etiology, symptomatology, course and treatment is presented, and the relation of excessive sweating to other vascular conditions is shown.

Thomas A. Shallow, Sherman A. Eger, and Frederick B. Wagner Jr., Jefferson Medical College, Philadelphia:

Modern Concepts of Acute Pancreatitis: All phases of this subject are presented and amply illustrated from a personal series of 50 cases. Special emphasis is placed on methods of early diagnosis and proper management from both medical and surgical points of view.

Lester R. Dragstedt, Paul V. Harper, Edward R. Woodward, E. Bruce Tovee and Augustin Rodolfo, University of Chicago Medical School, Chicago:

Gastric Vagotomy in the Treatment of Peptic Ulcer: Photographs, charts and diagrams illustrate the physiologic basis for gastric vagotomy in the treatment of peptic ulcer. Experimental evidence indicates that pure gastric juice has the capacity to digest all living tissue, including the mucous membrane of the stomach, duodenum and jejunum. A gastric content which approximates the composition of pure gastric juice accumulates in the stomach under conditions in which the alkaline duodenal secretions fail to reach the intestine or when there is an excessive secretion of gastric juice either in response to the ingestion of food or in the empty stomach. The latter situation most often obtains in patients with peptic ulcer and is a major factor in the cause of the disease. An excessive continuous secretion of gastric juice in the stomach of ulcer patients is shown, and this excessive secretion is abolished by section of the vagus nerves to the stomach. Data also are presented from the experimental laboratory indicating the effect of vagus section on the total output of acid from the stomach of experimental animals. The effect of vagotomy on gastric sensation and on other gastrointestinal functions is described.

Keith S. Grimson, G. J. Baylin, H. M. Taylor, F. H. Hesser and R. W. Rundles, Duke Hospital, Durham, N. C.:

Transthoracic Vagotomy for Peptic Ulcer: Transthoracic vagotomy has been performed on 57 patients observed from nine to thirty-six months. The clinical results and the effect on the secretions and the motility of the stomach are presented. The possible role of chemical or nervous mechanisms in the causation of ulcer is considered. Particular emphasis is placed on the complications such as retention and diarrhea that occurred after vagotomy.

I. A. Brunstein, Stuyvesant Polyclinic, New York:

Critical Evaluation of the Trendelenburg Test: Evaluation of the Trendelenburg test based on the anatomic distribution of varicose veins in the lower extremity is made. Criteria for the selection of the proper method of treatment of individual cases of varicosities are presented. An appliance with which to execute the Trendelenburg test in cases with wide distribution of varicose veins is shown.

Donald C. Beaver and William E. Johnston, Woman's Hospital, Detroit:

Tumors of Lateral Aberrant Thyroids: Lateral aberrant thyroid tumors are of sufficient clinical importance and occur frequently enough to warrant a better understanding of their pathogenesis, pathology and clinical behavior. The complete story of these tumors, including historical sketch, embryology, pathogenesis, medical and surgical survey, diagnosis, treatment, pathology, postoperative follow-up and summary, is given, with the presentation of 6 cases. The exhibit is prepared on 5 by 7 inch transparency film.

E. L. MacQuiddy, University of Nebraska College of Medicine, Omaha:

Absorbable Powder Tissue Reactions and Physical Properties: Results obtained with an absorbable powder showing tissue reactions obtained by intraperitoneal and tissue implantation and insufflation are demonstrated. Both short and long term experiments are represented. Allergenic properties are reported. This is a processed starch, studied as a glove, dressing and dusting powder.

Meyer O. Cantor, Grace Hospital, Detroit:

Simplified Intestinal Decompression Tube: Roentgenograms demonstrate that a simplified single lumen intestinal decompression tube is the most efficient instrument to produce intestinal decompression. A life size plaster model with the gastrointestinal tract constructed of glass has been made. In this way it can be demonstrated how gravity is utilized in this type of tube, which was constructed to utilize the physical properties of mercury to the utmost, i. e. weight, lability and cohesive force. To utilize these properties fully a different technic in passing these tubes will be demonstrated.

A. H. Bulbulian, Mayo Clinic, Rochester, Minn.:

Prosthesis of the Face and Hands: Methods, material and equipment used in the reconstruction of the nose and ear, hands and fingers by the prosthetic means. Examples of representative types of such reconstruction in colored transparencies. Steps of the technic from taking the impression up to the preparation of the finished prosthesis will be shown.

W. M. Adams, Memphis, Tenn.:

Free Composite Grafts of the Nipples in Mammary Plasty: The exhibit shows pictures of cases before and after operation as well as pictures and drawings illustrating the procedure.

James Barrett Brown, Louis T. Byars, Frank McDowell and Minot P. Fryer, Washington University School of Medicine, St. Louis:

Repairs in Plastic Surgery by Single Operations: Representative lesions requiring plastic surgery that may be repaired in a single operation are shown and the results of the single operation are recorded. This is to call attention to the fact that not all lesions requiring plastic surgery demand long periods of hospitalization and multiple operations. In many instances this depends on the use of a free graft rather than a flap, or the use of local available tissue rather than a distant flap or a graft. The economic and hospital space saving is an important result.

Nicholas A. Michels, Daniel Baugh Institute of Anatomy, Jefferson Medical College, Philadelphia:

Arterial Variations—Liver, Gallbladder, Stomach, Duodenum Pancreas and Spleen: A demonstration of the variations in the arterial blood supply of supramesocolonic organs as ascertained by dissections of the cadavers at the Daniel Baugh Institute of Anatomy, Jefferson Medical College, is presented. Detailed dissections were made previous to student dissection in 100 bodies for the spleen and in 200 bodies for the other organs. In every instance a drawing was made of the existent arterial variation, no two patterns being the same. Charts with appended explanatory notes and a group of wet specimens show the most striking variations.

George M. Dorrance, J. W. Bransfield, S. Gordon Castigliano and A. J. Donnelly, American Oncologic Hospital, Philadelphia:

Reparative Surgery and Its Place in the Treatment of Malignant Growths: Indications for reparative surgery in the management of malignant neoplastic disease involving the skin of the scalp, face, breast and extremities, mouth and jaw are demonstrated. The influence of radiation therapy on reparative surgery is brought out, and the difference in the management of the cancer case and the traumatic case is emphasized.

William Law Watson and John L. Pool, Memorial Hospital, New York:

Silent Intrathoracic Tumors—Discovery and Management: This material is derived from a relatively large group of asymptomatic patients in whom demonstrable intrathoracic tumors were discovered by chance radiographic examination carried out in the screening of large numbers of healthy young adults. A high percentage of the total number of cases in this series occurred in navy personnel and were discovered during routine radiographic chest examination. Representative cases are demonstrated by (1) preoperative chest x-rays, (2) colored transparencies of the gross operative specimen and (3) photomicrographs in color. The object and purpose of the presentation are to emphasize the need for routine, periodic chest x-ray examination for all young adults.

Herbert Willy Meyer, Tumor Clinic, New York Post-Graduate Medical School and Hospital, New York:

Cancer of the Head and Neck: The lymphatic drainage of lip and tongue cancer is shown, as well as cancers of the head and neck of patients before operation, surgically removed specimens and patients after operation with follow-up. Literature describes the basis of the principles of therapy of cancer of the head and neck as performed at the Tumor Clinic of New York Post-Graduate Hospital.

Leonard B. Goldman, Queens General Hospital, and Abram Belskie, Sculptor Academy of Medicine, New York, Queens County Cancer Committee, Jamaica, L. I.:

Teaching Cancer by Models: Life size medical sculptures in full color with interchangeable parts demonstrating anatomy and varieties of neoplasms, with emphasis on early cancer. Different consistencies of the rubber permit palpation. The exhibit includes sculptured pieces of the head and neck, breast, prostate and bladder, female pelvic organs and torso, with removable organs of the thorax and abdomen.

Jacob J. Weinstein, George Washington University Medical School, Washington, D. C.:

Protein Metabolism in Surgery; Use of Oral and Parenteral Protein Hydrolysate: Charts show (1) incidence of hypoproteinemia preoperative, (2) blood changes after operation, (3) mechanism of hypoproteinemia and clinical manifestations, (4) postoperative nitrogen balance studies, (5) postoperative nitrogen balance studies with intravenous protein hydrolysate, (6) postoperative nitrogen balance studies with oral protein hydrolysate, (7) effects of intravenous, subcutaneous, intramuscular and oral protein hydrolysate on blood and urine (8) and reactions with parenteral administration.

L. E. Holmgren, Jackson Clinic, Madison, Wis.:

Varicose Veins—Diagnosis and Treatment: Charts and drawings explain the necessity of individualization of each case for determining the proper type of therapy to use. Anatomic drawings and drawings which illustrate a special diagnostic test are shown. Charts and moulages illustrate surgical steps in the high ligation of the saphenous vein. Charts and moulages also illustrate the treatment of varicose ulcers. The end results of some 700 cases are presented.

John O. Bower, Foundation for Clinical and Surgical Research, Philadelphia General Hospital, Philadelphia:

Hyperplasia—Hyperplasia in the Healing of Injured Tissue as Affected by Hemoglobin, Foreign Bodies, Foreign Proteins and Other Chemical Compounds, Poisonous and Nonpoisonous, Absorbable and Nonabsorbable: Photomicrographs show early and progressive hyperplasia followed by normal tissue regression and repair after embedding sutures impregnated with hemoglobin; encapsulative hyperplasia following the embedding of nonabsorbable sutures—silk, cotton and linen; delayed hyperplasia following the embedding of plain surgical gut (foreign protein) and delayed atrophic hyperplasia following the embedding of chromicized gut. Photographs and photomicrographs show: (1) A new method of determining the cellular response to nontoxic and toxic absorbable and nonabsorbable compounds. The nontraumatic liver contact response to plain, chromicized and hemoglobin impregnated sutures in powder form, the sulfonamides, tannic acid, gauze, silk, cotton, linen, gallstones and other absorbable and nonabsorbable material. (2) The hemoglobin electrolyte stroma solution for treatment of burns—a new method for the treatment of the initial shock, the prevention of secondary shock and infection and the promotion of early epithelization. (3) The use of hemoglobin electrolyte stroma solution combined with penicillin in the management of compound fractures. (4) The use of hemoglobin electrolyte stroma penicillin solution in the preparation of the epidermis for surgical procedures.

Edgar J. Poth, L. J. Manhoff Jr. and Joseph P. McNeill, University of Texas Medical Branch, Galveston, Texas:

Healing of Bowel, as Influenced by Succinylsulfathiazole and Phthalylsulfathiazole: An experimental demonstration of the influence of the intestinal bacterial flora on the healing process following bowel suture is presented. The subject matter is illustrated by drawings and gross and microscopic color photographs of control preparations contrasted with the findings after modifying the bacterial flora of the bowel by the administration of succinylsulfathiazole and phthalylsulfathiazole.

Stuart W. Harrington, Howard K. Gray and O. Theron Clagett, Mayo Clinic, Rochester, Minn.:

Surgical Treatment of Certain Intrathoracic Lesions: The exhibit deals with diagnosis and surgical treatment of (*a*) lesions of the esophagus such as benign and malignant tumors and esophageal and pharyngeoesophageal diverticula; (*b*) extrapulmonary lesions such as neurofibromas, teratomas and thymoma; (*c*) intrapulmonary lesions such as carcinomas of the lung and bronchus, bronchial adenomas, hamartomas and pulmonary suppurative diseases; (*d*) cardiac lesions such as chronic constrictive pericarditis and patent ductus arteriosus.

Champ Lyons, H. S. Mayerson and Paul T. DeCamp, Tulane University, New Orleans:

Chronic Shock, the Problem of Reduced Blood Volume in the Chronically Ill Patient: The surgically significant feature of protein depletion is a reduced blood volume. Deficiencies of total circulating hemoglobin frequently outweigh deficiencies of tissue protein. These features have been correlated in a syndrome of "chronic shock." The exhibit presents the evidence validating quantitative aspects of transfusion therapy. It is shown that correction of blood volume preoperatively is a clinically practical method of preparing the patient with protein depletion for any needed operation. Increased dietary protein is reserved for especial emphasis in the postoperative care of patients after surgical correction of the etiologic factors contributing to protein depletion.

Bernard Judovich, William Bates and Maurice Jacobs, Graduate School of Medicine, University of Pennsylvania, Philadelphia:

Scalenus Anticus Syndrome: Etiology, anatomy, symptoms, physical signs, differential diagnosis and treatment are shown.

There are presentations of a hypodermic needle technic for diagnostic and therapeutic infiltration, atypical cases of scalenus anticus syndrome, primary and secondary scalene syndromes and differentiation, and cases simulating the pain of coronary diseases, electrocardiograph changes induced by compression of the subclavian artery, brachial plexus and suggested mechanism for postcoronary shoulder pain.

E. S. Gurdjian, J. E. Webster and H. R. Lissner, Wayne University College of Medicine and Grace Hospital, Detroit:

Mechanism of Production of Linear Skull Fracture. Studies with the Stresscoat: This material consists of experimental work in dogs, monkeys and human studies on cadaver and dry skulls with the Stresscoat technic. A strain sensitive lacquer is applied on the external and internal surfaces of the skull; deformation of the skull from blows causes cracks in the lacquer, showing the pattern and direction of the strains. It has been shown that the skull of the dog and the monkey under pentobarbital sodium anesthesia has strain patterns similar to the dry skull in the same animal. The strain patterns of human cadaver skulls and dry skulls are also similar. When both the external and internal surfaces are available for study, bending activity of the skull can be visualized. Following impact there is an area of inbended bone. Peripheral to this region there is selective outbending of the skull, as shown by the Stresscoat technic. Linear fractures are initiated at a distance from the point of impact and result from outbending of the bone. The fracture line propagates toward the point of impact and in the opposite direction.

Arkell M. Vaughn, John W. Howser and William M. Lees, Mercy Hospital and Loyola University School of Medicine, Chicago.

Surgery of the Stomach: History of gastric surgery from Bilroth's number 1 gastrectomy in 1881 to Dragstedt's vagus nerve resection in 1943 is shown. Indications and contraindications for gastroenterostomy, gastric resection, gastrostomy, gastrotomy and so on are demonstrated. Diagrams and sketches show the various types of operative procedures and other charts showing roentgenograms before and after surgery of the stomach.

James L. Poppen, the Lahey Clinic, Boston:

Neurosurgery: This exhibit covers intracranial aneurysms with results based on 103 verified cases. It shows colored photographs of actual specimens with data regarding handling of cases. Hypertension is taken up from the point of view of the surgeon with operative technic of splanchnicectomy shown by drawings. Photographs of splanchnic nerves resected intact and data regarding indications and contraindications of treatment are presented.

Bowman C. Crowell, Malcolm T. MacEachern and George H. Miller, American College of Surgeons, Chicago:

One Hundred Years' Progress in the Development of Cancer Detection Centers, Hospitals and Surgery: The exhibit demonstrates certain scientific and educational phases of the work of the American College of Surgeons, including cancer detection centers, hospitals and surgery.

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Frederick H. Falls, Chicago.

Joe V. Meigs, Ruth M. Graham, Maurice Fremont-Smith, Somers H. Sturgis, Deloris Chapman and Marjorie Soule, Vincent Memorial Hospital, Massachusetts General Hospital, Boston:

Carcinoma of the Cervix: A New Method of Prognosis: The vaginal smear from cases of cervical carcinoma during irradiation shows pronounced and characteristic changes. These have been shown to have prognostic value. The presence of the typical reaction of both normal and malignant cells to radiation may be regarded as a good response and the absence of the reaction as a poor response. Clinical follow-up of these cases has confirmed this prognosis. Photomicrographs of the cellular changes, charts and case reports are presented to demonstrate the importance of the vaginal smear in the prognosis of carcinoma of the cervix treated with radiation.

Milton S. Sacks, William Kuhns and Elsa Jahn, University of Maryland School of Medicine, Baltimore Rh Typing Laboratory, Baltimore:

Studies in Rh Isoimmunization in Pregnancy: The Baltimore Rh Typing Laboratory, sponsored by the Obstetrical and Gynecological Section of the Baltimore City Medical Society and established in August 1945, was intended to serve as a central laboratory for Rh studies on the pregnant patients of any physician in the community. Approximately twelve to fifteen hundred women are being studied per month. The method of operation of this community service will be described. Quantitative and qualitative antepartum and postpartum antibody studies and their correlation with outcome of pregnancy will be presented.

Willis E. Brown, James T. Bradbury and A. F. Jennings, University of Iowa, Iowa City:

Comparative Studies of Radiopaque Substances Used for Salpingography: The exhibit shows roentgenograms of five currently used commercial products to demonstrate their effectiveness in casting radiographic shadows, their time of absorption from the pelvis, microscopic studies of the human tubes removed after such studies, gross and microscopic studies of the rabbit tubes following the injection of these agents and a collection of the unusual intrauterine pathologic changes delineated by these methods.

A. Herbert Marbach, Jewish Hospital, Philadelphia:

The Infected Cervix—Pathology and Treatment: Moulages of two pelves are shown with vaginal specula in situ. There is a control dial on each moulage which, when rotated, brings the various types of infected cervices into view on the one moulage and the types of treatment and the postoperative course on the other moulage. The histopathology of the cervix preoperatively and every day postoperatively until healing takes place is also presented, with emphasis on the use of conization as an ideal method for treating the infected cervix. The follow-up treatment is stressed, with the use of chemotherapeutic agents in promoting more rapid healing.

Bernard Berglas and I. C. Rubin, Mount Sinai Hospital and New York University Medical School, New York:

The Supporting Mechanism of the Uterus; Anatomic and Functional Principles (Based on the Study of Gross and Microscopic Anatomy of Pelvic Connective Tissue and X-Ray Myography of the Levator Ani Muscle): Transparencies show (1) full life size sections of pelvis with latex injected blood vessels and (2) anatomic and functional characteristics of the levator ani muscle in the living subject, as determined by intramuscular injection of radiopaque solution.

A. P. Hudgins, Charleston, W. Va.:

Modifications in Technic for Perineal Repair: Variations are presented in technic in the perineal repair which accomplish (1) ease and precision in accomplishing an anatomic dissection, (2) minimum blood loss and (3) good exposure and identification of tissues for accurate approximation. The technic is applicable when tissues are friable, postoperative healing is satisfactory and it is time saving.

Herbert Kupperman and Robert B. Greenblatt, University of Georgia School of Medicine, Augusta, Ga.:

The Two Hour Pregnancy Test: The evolution of the two hour pregnancy test is presented and the technic depicted in charts, pictures and paintings. The physiologic basis of the hyperemic reaction is discussed and data are presented to indicate the role of the luteinizing and luteotrophic hormone in producing ovarian hyperemia. A comparison of the accuracy of the two hour test with that of the Friedman test is made. The advantages of the two hour test are enumerated and compared with those of the other tests. Charts are presented on the three most popular tests now in use and a short description is given of the performance of these tests.

Paul F. Fletcher, St. Louis University School of Medicine and the St. Louis County Hospital, St. Louis:

Abdominal Colpocystopexy for Complete Prolapse of the Bladder and Vagina: The rectus suspension principle of operative treatment for complete prolapse of the bladder and vagina following panhysterectomy is presented in detail. Living fascial strips mobilized from the anterior sheath of the rectus muscle on each side are employed in such a manner as to effect permanent restoration of the normal anatomic relationships of these viscera in the pelvis. A crossed suspender support is thus provided for both bladder and vagina, but may be applied to the bladder alone when ventral fixation of the vaginal vault is to be preferred. A case showing each step in the operative technic is presented graphically and in colored pictures. The analysis of a five year follow-up study of results obtained is included.

Karl John Karnaky and Frank Poche, Jefferson Davis Hospital, Houston, Texas:

Lesions of Vulva, Vagina and Cervix: Photographs of various lesions of the vulva, vagina and cervix are presented, together with models of various lesions of labia, vagina and cervix. An attempt to establish the relation of the hydrogen ion concentration (p_H) to various lesions of vagina and cervix is shown.

F. H. Falls, University of Illinois College of Medicine, and Charlotte S. Holt, Illinois State Department of Public Health, Chicago:

Puerperal Sepsis: Moulages, models, drawings, photomicrographs, charts and graphs depicting the etiology, pathology, diagnosis and treatment of various forms of puerperal sepsis are shown. The subject of puerperal sepsis is presented as part of the program of visual education in Illinois. It is a cooperative educational program between the State University and the State Department of Public Health and is used in the instruction of undergraduate and postgraduate medical students, interns and nurses throughout the state.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana D. Theobald, Oak Park, Ill., chairman; Derrick Vail, Chicago, and A. B. Reese, New York.

C. S. O'Brien, Lee Allen, James H. Allen and Sherwood P. Burr, State University of Iowa College of Medicine, Iowa City:

Gonioscopy: Drawings show various chamber angles as seen with the Allen prism gonioscope. Models and diagrams demonstrate the principles of this gonioscope.

Albert D. Ruedemann and Otto Glasser, Cleveland Clinic, Cleveland:

Use of Radium in Ophthalmology: The various uses of radium in ophthalmology and the end results to be expected are shown.

Abraham L. Kornzweig, Mount Sinai Hospital, New York:

Embryonic Development of the Human Cornea, Sclera and Corneoscleral Junction: Photomicrograph transparencies show the embryonic development of the human cornea, sclera and corneoscleral junction from the fourth week of embryonic life up to term. The importance of the corneoscleral junction in the development of the anterior segment of the eye is emphasized. The different rates of growth of the different sections of the sclera are shown, together with their possible relationship to the clinical development of myopia. The congenital anomalies of the cornea and sclera are presented, and a graph exhibiting the differences in the rate of growth of the cornea and the sclera is included.

Hunter H. Romaine, New York Eye and Ear Infirmary and New York University Reading Clinic, New York:

Reading Disabilities: Some of the various concepts of the causes of reading disability and the present trend in treating this disability are presented. Many factors are concerned, and this exhibit attempts to consolidate the picture as far as it is possible, placards and photographs being used to indicate the methods of approach.

Franklin M. Foote and Florence Nelson, National Society for the Prevention of Blindness, Inc., New York:

Causes of Blindness: Three large panels, illustrated, show leading causes of blindness and indicate problems in research and education which are of most importance in prevention of blindness programs.

Ernest Sheppard, George Washington University School of Medicine, Washington, D. C.:

A Simple Technic of Low Magnification Gonioscopy: Gonioscopic drawings and demonstration with the Obrig gonio lens show a simple technic of low magnification gonioscopy.

Adolph Posner, Abraham Schlossman and Otto Lowenstein, New York:

Practical Points in the Diagnosis and Management of Glaucoma: The exhibit consists in demonstration of (1) standardized simplified tangent screen unit for quantitative field studies; (2) model of a modified Schiötz tonometer, together with the technic of tonometry; (3) pedigrees of glaucoma families to emphasize the importance of careful history taking; (4) charts illustrating the course of primary glaucoma in patients followed over periods of five to thirty years, and (5) pupillographic studies in glaucoma.

Peter Kronfeld and H. Isabelle McGarry, Illinois Eye and Ear Infirmary and College of Medicine, Chicago:

A Five Year Follow-Up of Glaucomas: The exhibit is based on a follow-up study over a period of at least five years of a representative number of so-called primary glaucomas and of glaucomas secondary to cataract extraction.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Paul H. Holinger, Chicago.

Julius Lempert, Philip E. Meltzer and Leroy Schall, Massachusetts Eye and Ear Infirmary, Boston, and Dorothy Wolff, New York:

Surgical Treatment of Clinical Otosclerosis: A. Histology and pathology. Photomicrographs at fenestrations of monkeys show natural process of bone regeneration and results of attempts to present it; human ossicles removed at the fenestration operation show degenerative changes; photomicrographs of bony lid of fenestra, cartilage stopple, petrasa showing Jacobson's nerve and ganglions are shown with microscopic slides of these subjects. B. Restoration of practical and serviceable unaided hearing. Cadaver specimens show each individual step of the fenestra for ovalis operation; drawings depict the continuance solution of fenestration surgery; demonstration of Lempert visatron for projecting the surgical field for teaching purposes; demonstration of Lempert scope for taking motion pictures of surgical field.

Louis H. Clerf and Peter A. Herbut, Jefferson Hospital, Philadelphia:

Progress in Diagnosis of Bronchogenic Carcinoma: Progress in the diagnosis of bronchogenic carcinoma during the past twenty-five years is shown, together with instruments developed and used during this period, and statistical studies of diagnosis and their influence on treatment. The results obtained by cytologic study are included.

James S. Greene, National Hospital for Speech Disorders, New York:

Treatment of Speech and Voice Disorders: Photographs illustrate diagnostic and therapeutic procedures carried out in a model speech clinic. A series of lantern slides of facial parakinesias associated with stuttering and of various oral and laryngeal defects associated with other speech and voice disorders are shown.

George E. Shambaugh Jr., Arthur L. Juers and Charles Whitaker, Chicago:

Fenestration Operation: New Improved Technic based on Experimental Studies: Exhibit of photomicrographs show the factors that influence osteogenesis and labyrinthitis after experimental fenestration of the labyrinth in the monkey. Models show the technic of the new improved fenestration operation. Charts show the history of the fenestration operation, indications and results.

J. Brown Farrior, Ochsner Clinic, Tulane Medical School, New Orleans:

Ear Surgery: Anatomic dissections of ear operations with accompanying anatomic drawings and explanatory descriptions are shown. The classic ear operations and the modern advances in the surgical treatment of deafness, facial paralysis and Ménière's disease are demonstrated, together with the simple mastoidectomy, the complete mastoidectomy, the radical and modified radical mastoidectomy, the fenestration operation for otosclerosis, petrous apicectomies, decompression, grafting and rerouting of the facial nerve, labyrinthectomy and electrocoagulation of the labyrinth for Ménière's disease.

Gordon B. New, F. A. Figi, F. Z. Havens and John Erich, Mayo Clinic, Rochester, Minn.:

Cancer of the Larynx—Methods of Treatment and Results: The exhibit is divided into four parts: (1) diagnosis of cancer of the larynx; (2) treatment of laryngeal cancer by suspension laryngoscopy and thyrotomy; (3) treatment of laryngeal cancer by laryngectomy, and (4) statistical analysis of cancer of the larynx. Various phases of diagnosis and treatment of cancer are depicted by means of photographs, photomicrographs and models.

Chevalier L. Jackson, Charles M. Norris and Walter Maloney, Temple University Hospital and School of Medicine, Philadelphia:

Foreign Bodies in the Air and Food Passages and Their Role in the Development of Bronchoesophagology: The history of bronchoscopy and esophagoscopy is presented in outline form, and specimens of early instruments are shown. Salient features of disease of foreign body origin are presented from point of view of etiology, symptomatology and diagnosis, pathology and treatment. The mechanism of bronchial obstruction by foreign body and the importance of its manifestation by physical signs and roentgen examination in diagnosis of foreign body as well as in diagnosis of disease of other than foreign body origin are demonstrated. Actual specimens of foreign bodies are displayed and interesting facts regarding the case histories of typical cases are given, including explanation of the mechanical problems presented and the methods of their solution.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Albert V. Stoesser, Minneapolis.

Willis J. Potts, Stanley Gibson and Sidney Smith, Children's Memorial Hospital and Northwestern University Medical School, Chicago:

Aortic Pulmonary Anastomosis for Pulmonary Stenosis: The exhibit shows (1) the diagnosis of pulmonary stenosis (tetralogy of Fallot) illustrated by roentgenograms, electrocardiograms and brief histories of typical cases; (2) the experimental work on approximately 30 dogs: development of the operation, drawings, specimens and demonstration of the clamps; (3) results in patients operated on: technic, mortality and outcome.

Milton I. Levine and Helene Eliasberg, Cornell University Medical College, New York:

The Chest in Infants and Children: Chest roentgenograms illustrate pathologic changes in the mediastinum and lungs of infants and children. A brief description accompanies each plate, directing attention to salient features.

Alfred D. Biggs, Northwestern University Medical School and St. Luke's Hospital, Chicago:

Primary Tuberculosis—A Correlation of the Clincal and Roentgen Ray Findings in 115 Cases: The Vollmer patch agrees with purified protein derivative tests in 97 per cent of the entire series, the Vollmer patch being a little less sensitive. Primary tuberculosis is a subclinical disease and can be detected only by a tuberculin test. Its course is best followed by serial roentgenograms. These groups are to be enlarged and followed through adolescence and beyond. If allergy is the dominant factor, the morbidity and mortality rate will be higher in the positive reactors. If immunity is the dominant factor, the morbidity and mortality rate will be lower in the positive group.

A. L. Van Horn, U. S. Children's Bureau, Washington, D. C.:

Rheumatic Fever: The exhibit describes the grant-in-aid program for children with rheumatic fever and a study of mortality from rheumatic fever.

Harold W. Dargeon, Memorial Hospital Center for Cancer and Allied Diseases, New York:

Tumors of Childhood: Common varieties of tumors, benign and malignant, occurring in children, birth to 15 years, are illustrated. Statistical charts show position which neoplasms occupy in mortality during childhood.

Charles F. McKhann and Samuel Spector, Babies and Children's Hospital, Cleveland:

The Malnourished Child: The exhibit depicts the incidence, causation and the approach to and alleviation of chronic malnutrition in children. The major cause for chronic malnutrition as observed in this clinic has proved to be not dietary insufficiency but disease in the child.

Donald B. Armstrong and George M. Wheatley, Metropolitan Life Insurance Company, New York:

The School Child, Health Progress and Needs: Charts describe the conquest of childhood diseases; evidences of improvement in physical status of school children; current problems of child health as revealed by mortality and morbidity are demonstrated by statistics and photographs; the principles of case finding, prevention and care are stated.

John P. Hubbard, American Academy of Pediatrics Study of Child Health Services, Washington, D. C.:

Study of Child Health Services: The organization, development, conduct and purpose of a nationwide study of child health services being currently conducted by the American Academy of Pediatrics is shown.

Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is Robert W. Wilkins, Boston.

F. F. Tisdall, Committee on Nutrition, Canadian Medical Association, Toronto, cooperating with the Council on Foods and Nutrition, American Medical Association, Chicago:

Physical Signs of Nutritional Failure: A group of colored illustrations show physical manifestations of nutritional failure.

Rita S. Finkler, George M. Cohn and N. James Furst, Newark Beth Israel Hospital, Newark, N. J.:

Osteopathies Encountered in the Endocrine Clinic: The group consists of thyropituitary dysfunction, Turner's syndrome, Lorain-Levy dwarfism, hypogenitalism with polyostotic fibrous dysplasia, pseudo Froehlich's syndrome with osteogenesis imperfecta, pituitary adenoma with acromegalic manifestations and macrosomia genitalis with accelerated bony maturation. Presentation consists of before and after photographs of the patient, x-ray prints at various stages of period of observation, laboratory findings, synopsis of clinical and laboratory findings and discussion. The group of cases presented have been seen in the Endocrine Clinic of the Newark Beth Israel Hospital. These cases have been referred by various sources and have demonstrated a common denominator of osseous pathologic change. In some cases the etiology could be definitely assumed to be endocrine dysfunction; in others no definite endocrine etiology could be demonstrated even though these cases were referred under the assumption that some obscure endocrinopathy was present.

Janet G. Travell, Seymour H. Rinzler, Audrie L. Bobb, Nolton H. Bigelow and Lawrence W. Hanlon, Cornell University Medical College, New York:

Somatic Pain Syndromes: Clinical data obtained in several hundred subjects with pain due to various disorders of the myofascial structures is presented. Many of the commonly occurring referred pain patterns, which are shown to be relatively constant from individual to individual, are mapped for different regions of the body. The role of the somatic component in visceral pain reference, as observed in patients with acute myocardial infarction, is demonstrated. The basis for the therapeutic effects of local block of somatic trigger areas by means of ethyl chloride spray, dry needling and infiltration with procaine hydrochloride or isotonic solution of sodium chloride is analyzed.

George R. Meneely, Robert Furman and Robert Gale, Vanderbilt University School of Medicine, Nashville, Tenn.:

Experimental Myocardial Infarction—The Capillary Factor: Following brief temporary ischemia of the left ventricle, classic electrocardiographic changes indicative of myocardial infarction may develop despite reestablishment of circulation. Temporary ischemia may result in local permeability to colliodal dyes or radioactive isotopes. Conversely, general asphyxia results in diffuse myocardial capillary permeability at times and at other times results in local capillary injury causing an infarct. Graded histologic changes ranging from mere edema to permeability of the capillaries to red cells occurs, depending on the duration of local ischemia. It is concluded that temporary ischemia or asphyxia can injure myocardial capillaries and set the stage for infarct even if the artery reopens.

Charles F. Geschickter, Georgetown University Medical School, Washington, D. C.:

Oil Soluble Metals in the Treatment of Leukemia: Charts show the clinical history and hematologic response of leukemia patients to oil soluble copper and nickel compounds. Photomicrographs of blood smears, bone marrow and so on in color are included.

Benedict E. Abreu, Henry W. Elliott, Grant W. Liddle and Carroll A. Handley, University of California Medical School, San Francisco:

Drugs Affecting Cerebral Circulation and Metabolism: Changes produced on cerebral circulation and in vivo and in vitro cerebral metabolism by central nervous system depressants and by agents effective in the therapy of migraine are demonstrated. Analysis of effects on metabolic processes transpiring in the nervous system as indicated by in vitro metabolism studies (Warburg technic) are shown, together with correlation of changes produced in vitro with those observed in the intact mammalian central nervous system.

Joseph M. Hill, Sol Haberman and E. E. Muirhead, Baylor Hospital and Southwestern Medical College, Dallas, Texas:

CDE (Rh-Hr) Blood Antigens and Antibodies: New information in respect to the CDE (Rh-Hr) blood antigens, together with original work on the corresponding antibodies, is presented. Clinical applications and the need for routine Rh typing are shown and practical simplified typing technics are demonstrated.

Robert A. Woodbury, George P. Child, Frank Jones, Charles W. Hock, George McInnes and Richard Torpin, University of Georgia School of Medicine, Augusta, Ga.:

Treatment of Pylorospasm and Peptic Ulcer with Asymatrine Hydrobromide: Asymatrine hydrobromide, diethylaminoethyl phenylthionylacetate hydrobromide, has a pronounced effect in reducing pylorospasm and gastric hypermotility, thereby causing a return to normal activity. It has no direct influence on gastric hyperacidity though it sometimes reduces it, apparently by improving pyloric activity. It has proved to be very effective in the treatment of peptic ulcer, pylorospasm, nervous indigestion and some headaches initiated with gastric distress. When hyperacidity is present, this should be controlled with antacids. Asymatrine has not produced mydriasis cycloplegia or cutaneous flush in any patient even though doses far above the therapeutic level have been administered. Slight nervousness was observed in only 1 of the 400 patients who received therapeutic doses. This was transient in nature and disappeared even though therapy was continued.

Kurt Lange, David Weiner and Linn J. Boyd, New York Medical College, New York:

Nephrosis. New Concepts of Functional Pathology and Therapy of the Nephrotic Stage: The nephrotic stage of chronic glomerular nephritis is a generalized disease of the small vessels with a tremendous increase in capillary permeability. The edema formation is due to this fact and not primarily to the lowered colloid osmotic pressure. A new simple method for rapidly and accurately determining the colloid osmotic pressure of plasma indicates that edema appears and disappears independently of the colloid osmotic pressure but is paralleled by the changing capillary permeability as measured by the fluorescein method. The same can be noticed in edema due to starvation and in myxedema. Some common errors in the treatment of the nephrotic syndrome as, for example, the use of plasma transfusion, will be explained. With a reduced glomerular filtration area the increased permeability of the glomerular capillaries is essential to prevent retention of metabolites. This is illustrated by the fact that tightening of the capillaries by calcium leads to a reversible azotemia. The one hour excretion of fluorescein is a good test of glomerular function, as demonstrated by the parallelism between inulin clearance and fluorescein excretion tests.

Norman Jolliffe, the Nutrition Clinic, Department of Health of the City of New York and the Department of Preventive Medicine, New York University College of Medicine, New York:

Signs of Nutritional Deficiency Disease: The exhibit illustrates (1) skin lesions associated with vitamin A deficiency; (2) hemorrhagic manifestations of vitamin C and K deficiency; (3) dyssebacia associated with riboflavin deficiency; (4) skin lesions of pellagra; (5) conjunctival lesions sometimes attributed to deficiency of vitamin A and riboflavin; (6) eye lesions sometimes attributed to nutritional deficiency; (7) lip lesions associated with nutritional deficiencies; (8) tongue lesions manifested chiefly by color changes; (9) stages of chronic glossitis; (10) stages of chronic gingivitis.

Earl R. Loew and Klaus R. Unna, University of Illinois College of Medicine, Chicago:

Pharmacology of Antihistamine Drugs: The chemical nature, toxicity, side-actions and pharmacologic actions of the antihistamine drugs neoantergan, benadryl and pyribenzamine are shown. These drugs prevent or diminish the prominent effects of histamine such as bronchoconstriction, intestinal and uterine spasm, vasodilatation and wheal and edema formation, but not secretagogue effects of histamine on gastric glands. Laboratory findings are compared or contrasted with information concerning clinical effectiveness. The evidence supporting the contention that histamine is a major cause of anaphylactic manifestations will be summarized.

Alvan L. Barach, Bettina Garthwaite and Hylan A. Bickerman, Presbyterian Hospital and College of Physicians and Surgeons, Columbia University, New York:

Penicillin Treatment of Bronchopulmonary Disease: The clinical results of penicillin aerosol therapy will be presented in the following clinical entities: bronchiectasis, lung abscess, sinusitis, bronchial asthma and chronic bronchitis. Laboratory data will include concentration of penicillin in the blood and sputum as well as the effect of treatment on predominating organisms. The effectiveness of various technics of aerosol therapy will be presented.

William H. Feldman and H. Corwin Hinshaw, Mayo Clinic, Rochester, Minn., and Karl Pfuetze, Mineral Springs Sanatorium, Cannon Falls, Minn.:

Streptomycin, Experimental and Clinical Observations: Charts, photographs, photomicrographs and roentgenograms demonstrate (*a*) the effect of streptomycin in experimental tuberculosis in guinea pigs and (*b*) the effect of the drug on various types of clinical tuberculosis.

George T. Harrell, Bowman Gray School of Medicine, Winston-Salem, N. C.:

Reaction in Human Beings to Lipid Fractions of Human Tubercle Bacilli: The chemical derivation of the fractions from the whole bacillus is shown, with descriptions of the three fractions phosphatide acetone soluble fat and wax used in these experiments. The cellular reaction in the biopsies of human beings is presented, as well as descriptions of the cellular reaction in guinea pigs. Photographs of the legs of patients at different intervals showing the reactions produced illustrate tuberculosis (incipient, moderately advanced and far advanced), sarcoid and normal or psychotic individuals for comparison. Photomicrographs of the reactions and kodachrome slides show the reactions in these groups at various stages. The highly reactive character of phosphatide, the nonspecific and variable reactions to acetone soluble fat, a constant nonspecific ulceration to the wax are shown. Sarcoid is not an altered reaction to a lipid fraction of the tubercle bacilli.

Henry Turkel, Detroit; J. Joe Quilligan and James T. Mason, University Hospital, University of Michigan, Ann Arbor:

Tissue Biopsies and Bone Marrow Infusions: Demonstrations of the trephine method of biopsies of bone marrow, liver, prostate and bone marrow infusions are presented.

Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Frank W. Konzelmann, Atlantic City, N. J.

Benjamin T. Terry, Tacoma, Wash.:

Razor Section Technic and the Polychroming of Methylene Blue: Razor section technic has been thoroughly tested in private and in hospital practice. In tissue pathology it has proved to be dependable and very helpful. Usually in sixty seconds or less a section of tissue can be cut, stained and mounted ready for immediate diagnosis microscopically. The technic is applicable to most fresh unfixed tissues and to tissues recently thoroughly fixed in solution of formaldehyde. The instruments used are inexpensive, and the technic is so simple that any one can learn it easily and quickly. To those interested, opportunity will be given to practice it under supervision. A new and simple way to prepare and neutralize polychrome methylene blue will also be demonstrated.

Carroll L. Birch and Louis R. Limarzi, University of Illinois College of Medicine, Chicago:

Bone Marrow: Evaluation of various methods of bone marrow study are illustrated by transparencies accompanied with enlargements in natural color of bone marrow pictures in various blood dyscrasias. A series of five illustrations depict the development of bone marrow.

Max M. Strumia and J. Ivan Hershey, Bryn Mawr Hospital, Bryn Mawr, Pa.:

Embedding of Tissues in Transparent Plastic: A method for the embedding of human tissues in a transparent plastic is presented. The method consists in freezing of the fresh specimens, dehydration of these specimens by sublimation of water in vacuo by means of low temperature condensation while the specimens are kept in the frozen state, impregnation of the dehydrated specimen with the monomer methyl methacrylate, polymerization of the monomer to a solid "Plexiglas" cutting and polishing. This means allows the preservation of portions of human organs or whole organs without distortion and with good color preservation. This method is applicable to many biologic specimens, insects and plants. The exhibit includes a large number of specimens of human tissues thus embedded as well as a few biologic specimens.

Harold S. Tuft, Richard E. Rosenfield, David R. Weill Jr. and K. Y. Yardumian, Montefiore Hospital, Pittsburgh:

Thromboembolic Disease: Photographs and a mannequin demonstrate the etiology, pathogenesis and pathologic physiology of the intravascular clotting phenomenon. Diagnosis as aided by the heparin tolerance principle and treatment based on the estimation of prothrombin activity under dicumarol therapy are also presented.

Jane S. Robb, Cornelius T. Kaylor and William G. Turman, Syracuse University College of Medicine, Syracuse, N. Y.:

Distribution of Nerves and of the "Conducting" System in the Human Heart—Suggestions Regarding Function: Photomicrographs, paintings and reconstructions in plastic and in wax indicate the course and distribution of the conducting system and of the ventricular nerves. Complete serial sections of several human fetal hearts were taken (*a*) from a 16 weeks fetus stained by the Mallory technic, (*b*) from a 5½ months fetus stained with Masson's technic and (*c*) two other series obtained at approximately the fifth month and stained by the Cajal silver nitrate method for nerve structures.

Milton G. Bohrod and John J. Beiter, Rochester General Hospital, Rochester, N. Y.:

Medical Photography in a General Hospital: The exhibit shows the work of a photographic department in a medium sized general hospital. Use of photography for record and education in clinical medicine, in pathology, in the demonstration of methods and in hospital public relations is presented, together with examples of complete photographic case studies, comparison of the old pathology museum with a photographic library, advantages of use of photographs over demonstration of actual patients in conferences and demonstration of simple equipment as aids in producing good pictures.

Jacob Furth, Cornell University Medical College, New York:

Induction and Characteristics of Ovarian Neoplasms with Hormonal Changes and Hypervolemia: A chart shows relation of time and dose to induction of ovarian neoplasms by roentgen rays and other methods. Illustrations and charts show the different types of induced and transplanted tumors (granulosa cell, luteomas, tubular adenomas and chorionepitheliomas) and the secondary changes (feminizing and virilizing) they produce. The pathology and pathogenesis of hypervolemia (increased blood volume) secondary to transplanted granulosa cell tumors are shown, together with methods of measuring blood.

Laurance W. Kinsell, Harry Weiss, George Michaels, Earl Evans, Harry Barton and John Shaver, United States Naval Hospital, Oakland and University of California Medical School, San Francisco:

The Pathologic Physiology of Liver: The exhibit correlates abnormalities in liver function, as determined chemically, with abnormalities in liver structure, as obtained in serial liver biopsies in patients with cirrhosis of the liver. Current concepts of pathogenesis and treatment are presented diagrammatically.

Hans Popper, Frederick Steigmann, Karl A. Meyer, Donald D. Kozoll and Murray Franklin, the Hektoen Institute for Medical Research of the Cook County Hospital, Chicago:

Clinical Application of Liver Function and Liver Structure: Based on clinical observation, laboratory study and histopathologic examination of needle or surgical biopsy and necropsy specimens of a large series of patients with liver diseases, a correlation between structural and functional changes of the liver is demonstrated. This correlation leads to a better evaluation of the functional and morphologic methods used in the clinical diagnosis of liver diseases and of the rationale and indications of their therapy. Furthermore, a classification of acute hepatitis into infectious (viral), toxic, biliary (obstructive) and purulent forms is presented and an attempt of a similar division of chronic hepatitis (cirrhosis) is illustrated. The exhibit shows the extent to which modern laboratory procedures, including liver biopsies, can be used in the clinical management of hepatic diseases.

Timothy Leary, Mallory Institute of Pathology, Boston:

Irritant Crystalline Ester Cholesterol and Atherosclerosis: The exhibit illustrates the characteristics of crystalline ester cholesterol in health and disease; presents evidence that this substance will produce in the experimental rabbit lesions (cirrhosis of liver, enlargement of spleen, chronic nephritis) corresponding to those accepted by Gye and Purdy as characteristic of chronic silica poisoning; demonstrates that crystalline ester cholesterol is present in all active atherosclerotic lesions.

David B. Tyler, California Institute of Technology, Pasadena, Calif. (present address Army Chemical Center, Medical Division, Edgewood Arsenal, Md.):

Effects of Prolonged Wakefulness on Man: The physiologic, biochemical and psychologic findings in prolonged wakefulness are presented. Data were obtained from twenty experiments involving 600 subjects who submitted to voluntary insomnia for periods up to one hundred and twelve hours. Special emphasis is placed on the electroencephalographic changes.

Charles P. Larson and Murray L. Johnson, Tacoma General Hospital, Tacoma:

Surgical Diseases of the Ovary: Specimens demonstrate all the various pathologic lesions of the ovary as well as the normal physiologic changes occurring in the ovary which are often misinterpreted at surgery as being pathologic lesions calling for oophorectomy. Charts show the analysis of the pathologic study of all oophorectomies over a five year period from nine different hospitals, including one county hospital. The various lesions encountered are classified according to frequency and percentage. The total percentage of ovaries removed in which no pathologic lesion was observed is computed for each hospital, with comments. The exhibit stresses the various physiologic changes which are often misdiagnosed by surgeons as pathologic changes. Microscopic slides of the various pathologic lesions are available for study.

S. E. Gould, Wayne County General Hospital and Infirmary, Eloise, Mich.:

Trichinosis, A Major Health Problem: The method of spread of the disease, signs and symptoms, diagnostic methods, treatment and method of control are shown. Diagnostic tests and apparatus used in diagnostic methods are shown and living worms prepared from infected pork are demonstrated.

Lall G. Montgomery, Registry of Medical Technologists of the American Society of Clinical Pathologist, Muncie, Ind.:

Registry of Medical Technologists, American Society of Clinical Pathologists: The history, aims, requirements and development of the Registry of Medical Technologists are presented, and the part the registry has taken in the general development of medical technology is shown, together with a map showing distribution of registered medical technologists. A booklet of information and a list of schools of medical technology approved by the Council on Medical Education and Hospitals of the American Medical Association will be distributed.

Otto F. Kampmeier and Thomas N. Haviland, University of Illinois College of Medicine, Chicago:

Anatomic Specimens Preserved in Plastics: The exhibit includes cleared specimens, injected specimens, corrosion specimens, fragile wax models, dried preparations, transections of fetuses and adults, whole mounts of embryos, colored preparations, small dissections and brain sections mounted in plastics. The essential aim of the exhibit is to demonstrate the usefulness of plastics in the preservation of human material for study.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is A. B. Baker, Minneapolis.

Walter L. Bruetsch and Max A. Bahr, Central State Hospital and Indiana University School of Medicine, Indianapolis:

Optic Nerve Atrophies: Sections and photomicrographs of various stages of atrophy of the optic nerves as they occur in cases of brain tumor, Schilder's disease, Pick's disease, multiple sclerosis, hydrocephalus, syphilis of the nervous system and optic atrophy caused by tryparsamide are presented. Therapeutic considerations, which vary with the etiology, are shown.

Henry R. Viets, Massachusetts General Hospital, Boston:

A Pictorial History of Myasthenia Gravis: Charts and photographs show the history of the knowledge of myasthenia gravis from the first description in the seventeenth century to the present time, with particular emphasis on the advances made in the last twelve years since the advent of neostigmine therapy.

Wallace B. Hamby, Buffalo General Hospital, Buffalo.

Subarachnoid Hemorrhage of Aneurysmal Origin. Review of 130 Cases: A series of 130 cases is shown, with sufficient basic material to make the information attractive to those not previously informed on the topic. Data of chief interest concern the outcome of these cases.

Mary E. O'Sullivan, Bellevue Hospital, New York:

Migraine Is Curable: The result of a twelve year study includes (*a*) a therapeutic survey with the method and the results of twenty-five different drugs in the treatment of 932 migraine patients; (*b*) a symptom survey in relation to type of medication which cures migraine; (*c*) photomicrographs of the capillaries during the migraine and nonmigrainous periods.

Randolph Leigh Jr. and Hugh Paige Newhill, University of Virginia College of Medicine, Charlottesville:

Epilepsy in Virginia: Incidence and distribution of epilepsy in Virginia is shown. Patients treated in an eighteen month period through the Anti-Convulsive Clinic of the Department of Neurology and Psychiatry of the University of Virginia Hospital with referring agencies. Examples of electroencephalograms of main types of epilepsy treated are included.

H. S. Rubinstein, Sinai Hospital, Alfred Ullman Laboratory for Neuro-Psychiatric Research, Baltimore, and C. L. Davis, University of Maryland School of Medicine, Baltimore:

Stereoscopic Atlas of Neuroanatomy: Stereoscopic photographic plates depict the embryology, gross structure and internal structure of the human brain dissected by an original method to disclose functional fiber systems. These plates are observed by means of the stereoscope, thus allowing a three dimensional picture of sequential stages of dissection. Each plate is accompanied with a labeled drawing which serves as an aid in orientation.

Rudolph Jaeger and William Whitley Jr., Jefferson Medical College and Hospital, Philadelphia:

Specimen of First Successfully Removed Brain Tumor: Specimen of a brain tumor (meningioma) removed by W. W. Keene in 1888 at Jefferson Hospital is exhibited. The tumor removed at operation, with the brain of the patient, obtained at necropsy thirty years later, which shows the defect created by removal of the growth, is demonstrated. This is of historical value as the first intracranial tumor to be successfully removed in the entire world.

Ernest A. Spiegel, Mona Spiegel-Adolf, Henry T. Wycis and Morton Marks, Temple University Medical School, Philadelphia:

Cerebral Concussion: It has been attempted on clinical as well as experimental material to elucidate the mechanism of cerebral concussion by various physical and physicochemical measurements, such as studies of the impedance of the brain, determination of the convulsive reactivity, electroencephalography, spectrophotometry of the cerebrospinal fluid in ultraviolet light and enzyme studies. Histopathologic and electroencephalographic changes in subcortical areas and injuries to the cell surfaces in the central nervous system as well as to intracellular structures will be demonstrated (appearance of nucleic acid compounds and related enzymes in the cerebrospinal fluid).

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Francis W. Lynch, St. Paul.

J. K. Howles and William Branks Stewart, Louisiana State University School of Medicine, New Orleans:

Cutaneous Granulomas: The exhibit contains moulages, colored drawings, paintings, colored histopathologic photographs as well as descriptive charts of the cutaneous granulomas. Some of the rare granulomas are shown as well as the common varieties. An effort is made to facilitate differentiation of these granulomas.

Stephen Rothman and Adelaide M. Smiljanic, University of Chicago Clinics, Chicago, and Alfred W. Weitkamp, Standard Oil Company, Indiana:

Spontaneous Cure of Ringworm of the Scalp in Puberty: Changes are demonstrated in the composition of sebaceous gland secretion which occur in puberty and which are responsible for the spontaneous cure in puberty of ringworm of the scalp and for the immunity of adults. The fungicidal action of adult hair fat is shown with explanatory remarks on the technic of the fungicidal testing together with the tracing of the fungicidal activity by fractionation of the hair fat. It is concluded that the fungicidal activity is dependent on the presence in the sebum of highly fungicidal free fatty acids, the concentration of which is more than six times higher on adults' than on children's scalps.

G. H. Faget, P. T. Erickson and Sister Hilary Ross, U. S. Marine Hospital, Carville, La.:

Chemotherapy of Leprosy: Photographs of patients before and after treatment with sulfone drugs, promin, diasone and promizole are shown. The exhibit clearly demonstrates the suppressive action of the sulfones even in far advanced lepromatous disease of the worst prognosis. Less advanced cases become arrested more rapidly. All the lesions of leprosy respond more or less slowly to the therapeutic action of the sulfones. Improvement is progressive without relapses, so that the sulfones appear to be chemotherapeutic agents for leprosy. Histopathologic changes produced by the sulfones are also shown. The encouraging effects of streptomycin (used for a relatively short time) on leprous lesions are also demonstrated.

Leon Goldman, Department of Dermatology and Syphilology, and Waldo Younker, Kettering Laboratory of Applied Physiology, University of Cincinnati College of Medicine, Cincinnati:

Clinical Microscopy of the Surface of the Skin. Anatomy, physiology and biophysics in relationship to cutaneous optics are reviewed. Various types of apparatus for examination of the skin are shown, from simple magnifiers to new developments of skin microscopes. Types of illumination necessary for different technics of examination of the skin surface and skin capillaries are depicted. These technics include also fluorescent and infra-red microscopy. Brief mention is made of contrast phase microscopy in relationship to dermatology. Photomicrographs illustrating studies of various cutaneous conditions are exhibited, and an outline is given of some disorders in which cutaneous microscopy has been of value.

Wilbert Sachs and Perry M. Sachs, Skin and Cancer Hospital, New York:

Cutaneous Malignant Growths: Clinical and microscopic pictures of the different types of malignant growths of the skin are shown, together with series of microscopic photographs of anoplastic epithelioma.

John G. Downing and Bernard Appel, Tufts College Medical School, Boston:

Dermatoses Due to Leather: A graphic survey of the historical evolution of the process of manufacturing leather, illustrating the hazards that produce industrial dermatoses, with examples of actual cases, is exhibited.

Edward D. DeLamater, Mayo Clinic, Rochester, Minn.:

Dermatomycoses: Clinical Types and Variations in Their Causative Fungi: A pictorial demonstration of the clinical types of dermatomycosis caused by two distinct fungi, Microsporum canis and Trichophyton (Gypseum) mentagrophytes is shown. The variations and mutations of these fungi which occur spontaneously or can be induced by various means are demonstrated graphically in color. Moulages of certain of the more striking and unusual clinical types of disease are also included. The exhibit presents the types of variation, both clinical and mycologic, which have caused confusion in the field.

J. B. Howell, Bedford Shelmire and Gilmore Brau, Southwestern Medical College, Dallas, Texas:

Use of Interstitial Radium Needle Therapy for Cancer of the Skin: Photographs and charts depict the indications and usefulness of radium needles in the treatment of cancer of the skin in certain localities, especially areas offering obstacles to treatment by surgery or roentgen rays. Drawings demonstrate the needles used, the technic of implantation, the arrangement of the needles in particular patterns for adaptation to certain sites and the method of calculating the dose the lesions receive.

Paul E. Bechet, Elizabeth, N. J.:

Synopsis of the More Important Achievements of American Dermatology: Charts present biographic data and the more important contributions to medical literature of twenty-five leading American dermatologists, with complete bibliography and photographs. Original autographed letters and other memorabilia are also presented. An illustrated pamphlet of twenty-seven pages containing all the data in the exhibit will be distributed to visitors on request, as well as detailed biographies of many of the men mentioned.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

Bruno Gebhard, Cleveland Health Museum, Cleveland:

One Hundred Years of Lay Health Education: The role of the medical profession in lay health education during the last hundred years is presented. Samples are taken mainly from the Western Reserve, particularly Cleveland. Pamphlets, posters, journals, books and photographs are arranged chronologically, including material from the first decade of the Cleveland Health Museum.

Carl F. Jordan and I. H. Borts, Iowa State Department of Health, Des Moines and Iowa City:

Brucellosis: The reported occurrence of brucellosis in the forty-eight states from 1930 to 1946 is presented. Attention is directed to the three causative brucella organisms, with special emphasis on the caprine strain (Brucella melitensis) recently recognized as being endemic in Iowa and other Midwestern states. Means of conveyance, population groups concerned and survey findings are portrayed. Clinical and laboratory findings, therapeutic methods and chronic brucellosis received careful consideration. Literature will be available for distribution.

Cleveland J. White, Loyola University School of Medicine, Chicago:

Diseases of the Nails: Charts, posters, drawings and moulages of various nail syndromes are shown. Especial reference is made to dermatologic syndromes, with emphasis on those occurring in the various occupations.

Charles Walter Clarke and John W. Ferree, American Social Hygiene Association, New York:

Prevention of Venereal Diseases: A rounded concept of prevention of syphilis and gonorrhea including medical, social and educational aspects is presented. The exhibit points out that the "find 'em and treat 'em" plan is not enough and emphasizes the need to deal with sexual promiscuity, which is the usual method of spread of infection. The places of chemical, mechanical and oral prophylaxis, therapeutic disinfection and congenital syphilis by antepartum treatment of the mother are shown. An actual epidemiologic investigation is presented, with an indication of what might have been done at various points to prevent the transmission of syphilis or gonorrhea.

Elmer H. Loughlin, Samuel H. Spitz and Richard H. Bennett, Long Island College Hospital, Brooklyn:

Cosmopolitan Intestinal Parasitism: The epidemiology, pathogenesis and diagnosis of the common helminthic and protozoal infections encountered in the United States is presented. Transparencies portray these features in the epidemiology, pathogenesis and development of the parasites from ova to mature worms in the case of helminths and cystic or trophozoite phases of pathogenic protozoa.

J. Lynn Mahaffey, New Jersey State Department of Health, Trenton, N. J.:

The Health Department and the Physician—A Working Partnership: Illustration of some of the many phases of New Jersey's public health program in which the health departments and the practicing physicians work together for a common end—improved health for the state.

J. S. Felton, Health Department, Monsanto Chemical Company, Clinton Laboratories, Knoxville, Tenn.:

Health Education in Industry: Specific objects employed in health education in industry and methods of integrating such objects in changing the health behavior of the atomic worker.

A. H. Whittaker, Wayne University School of Occupational Health, Detroit:

The Historical Background of Occupational Diseases: The exhibit presents the early knowledge of occupational health by means of the earliest writings on the subject, the earliest printed editions and many rare volumes. The presentation is supplemented by portraits of Ramazzini, Agricola, Diemberbroeck and others, and by books and pamphlets including Statius (1485 edition), Aristotle (Aldine edition 1495), Hippocrates, Plinius Secundus, the Bible, Lucretius, Agricola, Diemberbroeck, Paracelsus: the first complete contribution, Ellenbog: the first pamphlet, Ramazzini: the first complete study, numerous editions, writers of the Renaissance, novelists dealing with social conditions such as Dickens and Zola, the American colonies, writers of the late nineteenth century, writers of the early twentieth century, Sir Humphry Davy and Mines, English and German and French writers from 1860, the period introduced by Alice Hamilton, Kober and Hayhurst, publications of the United States Public Health Service dealing with occupational health, modern publications dealing with occupational health.

R. R. Sayers, Bureau of Mines, Washington, D. C., and H. H. Schrenk, Bureau of Mines, Pittsburgh:

Modern Welfare Facilities in Mining Communities: Photographs of modern welfare facilities such as houses, schools, club houses, playgrounds, change houses and hospitals in various metal and coal mining communities are shown.

J. G. Townsend, Industrial Hygiene Division, United States Public Health Service, Washington, D. C.:

Progress in Industrial Hygiene: Progress is shown in the two major activities of the Industrial Hygiene Division, U. S. Public Health Service, investigations of hazardous industries leeading to the control of occupational diseases, and growth of industrial hygiene practice through the establishment of industrial hygiene units in states and localities.

H. L. Mantz and M. L. Furculow, U. S. Public Health Service, Kansas City, Mo., and E. J. Gillespie, Ira Lewis and L. B. Edwards, U. S. Public Health Service, Bethesda, Md.:

Pulmonary Lesions Associated with Sensitivity to Histoplasmin: A demonstration of chest radiographic findings correlated with the histoplasmin skin test. In the last few years the correlation between calcification in the chest and histoplasmin sensitivity has been established. Films demonstrating parenchymal infiltrates which in many cases progress to calcification and which are associated with coincident conversion in histoplasmin sensitivity are shown.

F. J. Weber and H. F. A. Long, Tuberculosis Control Division, U. S. Public Health Service, Washington, D. C.:

Control of Tuberculosis: The exhibit shows certain aspects of diagnosis, prognosis and treatment of tuberculosis.

J. R. Heller Jr., Eugene A. Gillis, Max R. Kiesselbach and C. Judson Hardy, Venereal Disease Division, U. S. Public Health Service, Washington, D. C.:

Aids to the Private Physician in the Management of Venereal Disease: The exhibit shows the newer treatment methods for syphilis and gonorrhea. Reprints and pamphlets of interest to physicians will be available.

C. W. Emmons, Joseph A. Bell and Byron J. Olson, National Institute of Health, U. S. Public Health Service, Bethesda, Md.:

Histoplasmosis: The exhibit shows the fungus Histoplasma capsulatum and the pathology in man and animals, methods of diagnosis and natural history of the disease it causes.

Roy Hertz, National Cancer Institute, U. S. Public Health Service, Bethesda, Md.:

Hormonal Control of Tissue Growth; Normal and Abnormal: A graphic presentation of the tissue growth effects induced by administration of gonadal and pituitary hormones; the reciprocal antagonism between various steroid hormones in relation to tissue growth; vitamin-hormone interrelationships; the application of these phenomena to hormonal therapy of cancer of the prostate.

R. J. Huebner, W. L. Jellison and Morris Greenberg, National Institute of Health, U. S. Public Health Service, Bethesda, Md., and the City of New York Department of Health, New York:

Rickettsialpox: The exhibit shows clinical characteristics, etiology and epidemiologic factors such as the vector and the reservoir and some of the environmental conditions responsible for the spread of the disease.

Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is John H. Morrissey, New York.

Roger W. Barnes, R. Theodore Bergman and D. S. Rausten, College of Medical Evangelists, School of Medicine, Los Angeles:

Undergraduate Urologic Instruction: Specimens, photomicrographs, moulages and other material used in the instruction of medical students in urologic diagnosis are shown. The moulages consist of normal and pathologic conditions of the prostate, as felt by rectal palpation. Photomicrograph and specimens accompany these models.

Robert H. Herbst and James W. Merricks, Presbyterian Hospital and University of Illinois College of Medicine, Chicago:

Transurethral Drainage of Seminal Vesicles: The exhibit shows cleared postmortem specimens illustrating relations of seminal vesicles to prostate, bladder and ureters from normal and diseased persons; photographs of seminal vesiculograms of the normal and pathologic changes in these organs; charts and drawings including some brief case histories depicting the management of 350 patients with end results up to ten years, many of which were originally classified as chronic prostatitis.

C. M. Simpson, E. O. Bradfield and J. R. Kilman, Scott and White Hospital, Temple, Texas:

Plastic Surgery for Hydronephrosis: Moulages, roentgenograms and specimens show the various types of pathologic conditions producing hydronephrosis and various methods of their correction by surgical means.

Ernest M. Watson, Hans R. Sauer and Eugene M. Burke, Roswell Park Memorial Institute and University of Buffalo School of Medicine, Buffalo:

Tumors of the Testicle: A review of over 200 testicular tumors observed over a twenty-five year period is presented. The tumors have been classified according to the criteria adopted by the Army Institute of Pathology. An attempt is made to correlate the histologic findings with the prognosis and the response to irradiation. The signs, symptoms, diagnosis and clinical course of the disease is here discussed, together with the end results obtained.

GEORGE F. CAHILL and MEYER M. MELICOW, Squier Urological Clinic, Presbyterian Hospital, New York:

Tumors of the Adrenal Gland: This exhibit deals with tumors of the adrenal gland. From correlated clinical and pathologic studies, these tumors are classified. Four main groups of cortical tumors are discussed: (1) asymptomatic, (2) adrenogenital, (3) Cushing syndrome, (4) mixed adrenogenital and Cushing. The medullary tumors are discussed and illustrated. Studies on phenochromocytomas are shown and illustrate (1) the specificity of eyeground change, (2) the specificity of the antiepinephrine action of benzodioxane compounds and (3) the use of histamine as an epinephrine stimulant. The value of perirenal air insufflation as a localizer of adrenal tumors is demonstrated.

HOWARD I. SUBY and FULLER ALBRIGHT, Massachusetts General Hospital, Boston:

Mechanical Problems in the Retrograde Dissolution of Urinary Stones with Solution G: Glass models of kidneys containing stones show various surgical and cystoscopic methods used in dissolution of these stones with solution G. The exhibit also introduces a new automatic irrigator which works by electricity. Charts, drawings and roentgenograms show mechanical problems encountered in stone dissolution and how they may be managed.

VICTOR F. MARSHALL, WILLET F. WHITMORE JR., MORRIS SCHMITTMAN, MAUS STEARNS and ARCHIE L. DEAN JR., Cornell University Medical College, New York:

Pyelographic Results of Ureterointestinal Anastomosis by the Coffey I Method: A demonstration by means of photographs of roentgenograms of results obtained after ureterointestinal anastomosis, compared with preoperative films. Several mounted specimens obtained at autopsy will show further correlations. Early and late pyelographic results will be compared. A résumé of approximately 100 consecutive cases will accompany the presentation and a brief set of conclusions.

F. C. HENDRICKSON, Canton, Ohio:

A Visualizing Lithotrite: The new lithotrite has the following features incorporated in its design: (*a*) excellent vision between the jaws close to the field of operation, (*b*) adequate flow of water, (*c*) strength of jaws sufficient to crush stones up to 2 cm. in diameter. The method of using the lithotrite will be demonstrated. Samples of all other well known types of lithotrites will be at hand for comparison and for demonstration of the evolution of the instrument.

HENRY SANGREE, HOWARD FRETZ, JOHN HUGHES and NORTON GROTH, University of Pennsylvania, Philadelphia:

Fertility in the Male—Surgical and Clinical Problems: A statistical survey of 300 consecutive cases of husbands of a barren marriage, whose wives had a previous examination by the gynecologist or the obstetrician. A report of seven epididymovasostomy operations with one successful result. Photographs of the successful completion of four Ombredanne operations for penile hypospadias. Photomicrographs in color of testicular biopsies from men showing azoospermia and oligozoospermia and the improvement under treatment of spermatogenesis shown by subsequent biopsies of the seminiferous tubules. A report of endocrine disorders causing infertility, particularly thyroid and pituitary gland disturbances, which occurred in 21 per cent of our series. Azoospermia was present in 12 per cent of men examined.

SEYMOUR F. WILHELM, Beth Israel Hospital, New York:

Diagnosis and Treatment of Diseases of the Adrenal Glands: The value of laminography, or tomography, in the roentgenographic delineation of the normal and the enlarged adrenal gland is demonstrated by a comparison of simple films with laminograms made following perirenal insufflation. Over seventy insufflations have so far been done on 46 patients suspected of suffering from disease of the adrenal gland, without serious sequelae. The diagnosis and surgical treatment of female pseudohermaphroditism, virilism and Cushing syndrome is illustrated by photographs, roentgenograms and transparencies of gross and microscopic slides.

Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is David M. Bosworth, New York.

LEONARD F. BUSH, C. ZENT GARBER, WILLIAM H. VON LACKUM and JAMES P. MILLER, New York Orthopedic Hospital, New York:

Bone Bank and Homogenous Bone Grafts: Sources, use, storing preservation of bone are outlined. Results of experimental work on rabbits in grafting of homogenous and autogenous bone are shown, together with clinical results in the use of homogenous bone in the human being and comparative human autogenous and homogenous grafts.

ARTHUR C. STIRLING, Jackson Clinic, Madison, Wis.:

Intervertebral Disk Herniation: The exhibit is prepared with special reference to the protruding nucleus pulposus in the lumbar region, with the causes, symptoms, diagnostic tests, and the methods of treatment, conservative and surgical.

JOSEPH S. BARR, JOHN A. REIDY and JAMES R. LINGLEY, Massachusetts General Hospital, Boston, and EDWARD GALL, Bethesda Hospital, Cincinnati:

The Control of Epiphysial Growth by Roentgen Irradiation: The result of roentgen irradiation on growing epiphyses of experimental animals is demonstrated. This experimental work, which has been in progress for a number of years, shows that roentgen rays have a highly selective effect on growing epiphysial cartilage cells. The danger inherent in the therapeutic clinical use of roentgen irradiation on or near the joints of growing children is obvious.

STEPHEN S. HUDACK and CLAY RAY MURRAY, Columbia University College of Physicians and Surgeons, New York:

Matrix Variation in Bone Regeneration: Tissue reaction in relation to the type of matrix, artificial and otherwise, and the donor elements involved in the filling of bone defects and deficiencies are demonstrated. Wherever possible the matrix influence is correlated to bone healing.

J. E. M. THOMSON, C. F. FERCIOT, W. W. BARTELS, F. S. WEBSTER and F. P. STONE, Orthopaedic Clinic, Lincoln, Neb.:

Use of Reverse Dennis-Browne Splints in Congenital Pes Calcaneovalgus: Congenital pes calcaneovalgus is more common than generally appreciated. Photographs and roentgenograms together with models illustrate the diagnostic points and show the rationale of treatment with reverse Dennis-Browne splints and also indicate the type of case for which they are applicable.

FRANCIS M. POTTENGER JR., Francis M. Pottenger Jr. Hospital, Monrovia, Calif., and JOSEPH C. RISSER, Orthopaedic Hospital, Los Angeles:

Studies in Epiphysitis: Roentgenograms show various forms of epiphysitis and fragmentation of bones as they appear, beginning with those noted in the tarsal and metatarsal region at birth, the knees, the elbows and the spine. Posters describe the sequence of development and healing of the various epiphysitides and suggested methods of prevention. Illustrations of comparable conditions produced experimentally in the cat and rat are shown.

JAMES A. DICKSON, Cleveland Clinic, Cleveland:

Geometric Osteotomy for Ununited Fracture of Neck of Femur: A new operation for the treatment of ununited fractures of the neck of the femur is presented, combining the advantages of the osteotomy and the bone graft. The rotation of the head and upper end of the femur is accurately controlled by internal fixation. The geometric osteotomy restores the femoral neck, overcomes shortening and equalizes the length of the legs. The use of a cast is eliminated. Technic and end results are also shown.

BRADLEY L. COLEY and N. L. HIGINBOTHAM, Memorial Hospital, New York:

The Differential Diagnosis of Bone Tumors: Photographic reproductions of x-ray films mounted in pairs. Each pair shows similar appearing lesions with different diagnoses. The points in the differential diagnosis are enumerated in a printed paragraph between the members of each pair. All phases of malignant and benign bone tumors are thereby covered in the sixty plates presented.

Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology is Donovan C. Browne, New Orleans.

HENRY A. RAFSKY, MICHAEL WEINGARTEN, CHARLES I. KRIEGER and WILLIAM F. HERZIG, Lenox Hill and Beth Israel Hospitals, New York:

Syphilis of the Stomach: The historical aspects of syphilis of the stomach, the incidence, symptoms, physical and laboratory findings and gastroscopic findings in the cases which have been reported in the literature are shown. An additional case with gastroscopic findings is reported. In this case intragastric photographs in color were taken in conjunction with the gastroscopies which were made at various stages of treatment. These photographs and x-ray films illustrate the lesions before and after treatment. Various therapeutic aspects of syphilis of the stomach and nonsyphilitic gastric lesions in patients who have syphilis will be demonstrated.

JOSEPH FELSEN and WILLIAM WOLARSKY, Bronx Hospital, Bronx, New York:

Acute and Chronic Bacillary Dysentery: Exhibit dealing with acute and chronic bacillary dysentery with particular reference to World War II. Studies on returning veterans and associated personnel in training and combat areas and follow-up studies on the incidence of regional ileitis and chronic ulcerative colitis are shown. General studies on the new epidemiologic, bacteriologic, clinical and therapeutic aspects are included, with the status of prophylactic vaccination. Teaching sets for physicians and public health workers will be presented.

CECIL O. PATTERSON, MILFORD O. ROUSE, JOHN S. BAGWELL and LEWIS WATERS, Southwestern Medical College, Dallas, Texas:

The Injection Treatment of Esophageal Varices: This exhibit shows by large drawings the anatomic bases of esophageal varices; it demonstrates their treatment diagrammatically; it shows roentgen ray results in several selected cases and gives typical patient histories and summary of work to date.

WILLIAM P. CHAPMAN, CHESTER M. JONES, FRANCIS D. MOORE and AUDREY DENNISON, Massachusetts General Hospital, Boston:

Gastrointestinal Motility: Studies of gastrointestinal motility have been made during resting conditions and in response to drugs and surgery of the autonomic nervous system. A four-channeled tube was employed connecting each of four balloons to separate water manometers. An attempt has been made to evaluate changes in tone and what is thought to represent mixing contractions and propulsive activity. The subjects represent both healthy individuals and patients with symptoms of the gastrointestinal tract, vagotomized patients and hypertensive patients following thoracolumbar ganglionectomy. The effects of drugs with cholinergic and spastic action, antispasmodics and procaine block of sympathetic ganglions have been noted.

ROBERT TURELL, New York:

Tattooing with Mercury Sulfide for Intractable Anogenital Pruritus: Clinical and histologic studies of tattooed pruritic skin are presented together with the therapeutic results obtained in a series of 93 cases, with statistical analysis. Neural studies to explain the modus operandi of this form of treatment are presented graphically. A new instrument for therapeutic tattooing is described.

LESTER M. MORRISON, College of Medical Evangelists, Los Angeles County General Hospital, Los Angeles:

Alcohol and the Liver—Effects and Treatment: The results of eight years' investigation of the clinical and pathologic changes in the liver resulting from an abnormal intake of ethyl alcohol are presented. Histologic changes in the liver, as secured by punch biopsy before and after treatment, are shown. The results of treatment by various new lipotropic agents such as a new choline carbonate, a new liver extract and high protein diet, are shown. The various forms and stages of the liver damaged by alcohol are described with particular reference to therapy and prognosis.

EDWIN BOROS, New York City Cancer Hospital, New York:

A New Flexible Esophagogastroscope: A metal spiral tip is employed in this instrument enabling ease and safety in introduction with no more mechanical difficulty than that required in the passage of an ordinary stomach tube. By means of a metallic rod the tube is straightened after it is introduced, so that an open passage is provided for visualization and instrumentation.

MANFRED KRAEMER and LEO H. SIEGEL, Presbyterian Hospital, Newark, N. J.:

Synthetic Resin, a New Antacid for Treating Peptic Ulcer: Various antacids that have been used in treating peptic ulcer are shown, and a comparison of their neutralizing effect on gastric juice with that of phenol formaldehyde type resins; a summary of clinical findings with the use of resins on a number of patients with peptic ulcer are included, together with a history of the development of resins as antacids.

HAROLD LINCOLN THOMPSON, Los Angeles:

Melena: A Study of Underlying Causes: Charts, diagrams and roentgenograms are presented illustrating cases of gastrointestinal bleeding wherein the predominant symptom was melena, as compiled from the records of the Los Angeles General Hospital.

LEO L. HARDT, JOHN S. COULTER and LEONARD P. BRODT, Loyola University School of Medicine, Northwestern Medical School, and Cook County Post-Graduate School, Chicago:

Clinical and Local Effects of Antacids and Physical Therapy as Shown Gastroscopically: Comparative study of objective findings produced by various antacids and physical therapy in patients with gastric lesions as seen by grastroscopy and x-ray examination. The changes noted in the mucosa were also compared with the gastric secretory response. Gastric acidity curves, kodachrome pictures of the gastric mucosa and tables comparing the response to various antacids are shown. The Hardt and Schindler gastroscopes are demonstrated.

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

LEWIS E. ETTER, Pinewood Farm, Warrendale, Pa.:

Postwar Views of Röntgen's Laboratory: An Exhibit of Photographs, Books, Correspondence and Papers Pertaining to Röntgen and the Discovery of X-Rays: Photographs with captions, showing the present state of the University of Würzburg and Röntgen's laboratory. Views of original tubes, films and other mementoes and views of Röntgen's birthplace and burial place are shown. A collection of previously unpublished correspondence between Röntgen and Professor P. Lenard of Heidelberg, who claims precedence in the discovery (these letters disprove his contentions), are included, with recent (1944) books of Lenard's detailing his claims. Data showing the way discovery of x-rays came about are presented.

J. GERSHON-COHEN and PHILIP J. HODES, Philadelphia:

Breast Cancer Roentgenology: The methods and technics for examining the breast roentgenographically are presented. The wide range of x-ray films of the normal breast are shown and compared with the various groups of abnormal conditions of the breast necessary to be acquainted with for differential diagnosis of breast cancer. The corresponding photomicrographs of biopsy and tissue material are part of the exhibit.

MAURICE LENZ, Columbia University, New York:

Radiocurability of Cancer: Curability of cancer by radiotherapy (roentgen ray, radium, radioactive substances) depends on the natural growth characteristics, extent, location, microscopic structure and inherent radiosensitivity of the cancer and on the radioresistance of the irradiated normal tissues, tolerance of the patient, dosage of radiation reaching the tumor and technic of radiotherapy. The relationship of these various factors to the five year freedom from clinical evidence of cancer is illustrated on transparencies.

LEO G. RIGLER, THOMAS B. MERNER and ROBERT SHAPIRO, University Hospital, University of Minnesota, Minneapolis:

Carcinoma of the Lung, Roentgen Diagnosis: Drawings and roentgenograms illustrate the multiformity of roentgen findings in bronchogenic tumors. Cases illustrate (1) the early signs of bronchogenic carcinoma, especially segmental, lobar or unilateral emphysema, (2) the other evidences of obstruction such as atelectasis and bronchiectasis, (3) the delineation and localization of the bronchial tumor by bronchography and (4) the usefulness of body section roentgenography (planigraphy) as a supplementary and substitute procedure for the delineation and localization of bronchial tumors.

WILLIAM E. HOWES, SIGFRIED W. WESTING, HERMAN BOLKER, RICHARD SHAPIRO and JOSEPH SKAPIER, Brooklyn Cancer Institute, Brooklyn:

Hodgkin's Disease: Charts show the historical and pathologic classification of clinical types, including locations of spread; statistical record of cases treated at Brooklyn Cancer Institute, methods of treatment and longevity; photomicrographs of various types and postradiation, and roentgenograms of interesting organoid involvement before and after radiation therapy.

JAMES F. KELLY, D. ARNOLD DOWELL, JOHN E. DOWNING and JAMES F. KELLY JR., Creighton University School of Medicine, Omaha:

Roentgen Rays in Prevention and Treatment of Infections—A Fifty Year Review: Considerable experimental and clinical evidence has accumulated in the past fifty years on the use of roentgen rays in prevention and treatment of infections. The old concept of heavy dosage, such as used in treating malignant conditions, has been universally discarded in favor of lower voltage and lower dose therapy in treating infections. It is now recognized that therapy of inflammations and the therapy of tumors are two entirely different procedures. Observations of many workers who assisted in establishing these facts will be presented. Roentgen rays in infections have definitely passed from the theoretical to the practical stage.

MARCY L. SUSSMAN and HAROLD NEUHOF, Mount Sinai Hospital, New York:

Angiography in the Differential Diagnosis of Intrathoracic Neoplasms: Roentgenograms and photographs of specimens illustrate the displacement, distortion and occlusion of superior vena cava and pulmonary vessels which occur in intrathoracic neoplasms.

JAMES E. LOFSTROM, St. Mary's Hospital, Wayne University College of Medicine, Detroit, and DONALD A. KOCH and RICHARD C. SCHNEIDER, Detroit:

Penetrating Cranial Wounds: A collection of roentgenograms demonstrate various types of penetrating wounds of the cranium, together with operative treatment. Pneumoencephalographic findings are presented which illustrate the early hydrodynamic compensations that occur following loss of cerebral tissue. Brain abscesses, cranio-orbital wounds and cerebral wounds are separately presented and some of the problems associated are demonstrated. Pneumoencephalographic findings in various stages of progress of these cases are shown, with color photographs of patients, gross specimens and correlated material.

VINCENT W. ARCHER, GEORGE COOPER JR. and NORMAN ADAIR, University of Virginia School of Medicine, University, Va.:

Clinical Manifestations of Disease Modified or Masked by Chemotherapy: Roentgenograms of various disease conditions are presented in which the symptomatology was either masked or modified by chemotherapy so that the conditions were not recognizable clinically. Empyema, lung abscess, necrotic mastoiditis, perirenal abscess, pelvic abscess following rupture of the bladder and osteomyelitis are shown. This exhibit emphasizes the increasing responsibility of the radiologist in diagnosis since the advent of specific antibiotics.

B. P. WIDMANN, HERMAN OSTRUM and RUSSELL MILLER, Philadelphia General Hospital, Philadelphia:

Problems in the Roentgenologic Differential Diagnosis of Pulmonary Lesions: The exhibit includes (1) malignant lung tumors simulating tuberculosis, abscess, pneumonia; (2) mediastinal tumors: (*a*) anterior, (*b*) posterior; (3) pulmonary cysts: (*a*) congenital, (*b*) acquired, (*c*) parasitic; (4) isolated tumors in lung simulating metastatic malignancy: (*a*) tuberculomas, (*b*) plasmocytoma, (*c*) Hodgkin's, (*d*) sarcoidosis; (5) lymphoblastomas: (*a*) Hodgkin's, (*b*) giant follicular lymphoadenopathy; (*c*) leukosarcomas; (*d*) reticulum cell sarcoma; (*e*) lymphatic leukemia; (6) pseudomediastinal neoplasm: (*a*) cold abscess, (*b*) aneurysm (aortic), (*c*) megaesophagus, (*d*) cardiac aneurysm, (*e*) lymphatic leukemia; (7) miliary nodulations: (*a*) metastatic malignancy, (*b*) lymphogenic malignant spread, (*c*) hemosiderofibrosis in cardiac decompensation.

LEE A. HADLEY, Syracuse, N. Y.:

Cervical Spine and Shoulder Studies: Exhibit of roentgenograms showing (1) relative positions of the bones of the shoulder girdle in adduction and abduction (*a*) normally, (*b*) acute trauma, (*c*) follow-up; (2) relative positions of the bones of the cervical spine in flexion and extension (*a*) normally, (*b*) acute trauma, (*c*) follow-up, (*d*) with degenerative and arthritic changes and (*e*) with some congenital anomalies; (3) atlanto-occipital fusion; (4) occipital vertebra; (5) basilar impression; (6) foramen magnum encroachment; (7) ossiculum terminale; (8) agenesis of cervical pedicles; (9) spontaneous subluxation of the atlas.

Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is Urban H. Eversole, Boston.

JOHN ADRIANI and DAVID A. DAVIS, Louisiana State University and Charity Hospital, New Orleans:

Physiologic Changes During Spinal Anesthesia: Various physiologic changes resulting from denervation produced by intrathecal injection of local anesthetic drugs in man are summarized. Emphasis is placed on changes in the circulatory system, respiratory system and blood. Effects on the viscera caused by spinal anesthesia on the autonomic nervous system are also stressed.

GEORGE J. THOMAS and PAUL A. SICA, University of Pittsburgh School of Medicine, and St. Francis Hospital, Pittsburgh:

Management of Spinal Analgesia with Intravenous Sympathomimetic Agent: Charts, diagrams and electrocardiograms illustrate the value of intravenous neosynephrin in the minute to minute control of blood pressure during spinal analgesia.

MEYER SAKLAD, PRISCILLA SELLMAN and ELIHU SAKLAD, Rhode Island Hospital, Providence, R. I.:

Intraspinal Segmental Anesthesia: Models, charts, descriptive material of anatomy, physiology and pharmacology show a method for the limitation of spinal anesthesia to definite segments of the cord and the advantages thereto.

JAMES C. MCCANN, St. Vincent Hospital, Worcester, Mass.:

Neurophysiology of Respiration under Pentothal and Other Anesthetic Agents: Abdominal quietude and muscle relaxation during surgical anesthesia depends on the state of the abdominal muscles as accessory muscles of respiration. Their state reflects the physiologic response of respiration to surgical trauma. With reference to this problem quantitative and pneumographic observations were made in 2,500 cases. 1. Quantitative studies show the rate of utilization of pentothal to unconsciousness; to loss of motor response and acceptable anesthesia. Analysis was made of possible factors bearing on utilization (age, weight, length and type of operation). 2. Pneumographic recordings deal with the pharmacologic effects of pentothal on respiration; with specific reflex respiratory response to trauma from the several neurologic segmental areas (cranial, cervical, thoracic, lumbar and sacral); with modifications of these responses by specific segmental block with procaine; with comparative pneumographic studies using spinal and ether and curare; with pneumographic observations on the integrated use of ancillary agents against specific reflexes. 3. Method of anesthesia (pentothal and local nerve block) presents data on safe fractionation of dosage; on pneumographic study of time factor to maximal effect; on reduction of utilization of pentothal by procaine nerve block; on rectus sheath block (transincisional) and anatomy of specific field blocks (intercostal, anterior splanchnic, pelvic, mesenteric and rectal).

Ralph M. Waters, O. S. Orth, F. J. Pohle, Donald R. Kindschi and Lucien E. Morris, University of Wisconsin Medical School, Madison, Wis.:

One Hundred Years of Chloroform: Certain historical data are presented such as early publications, equipment and models of inhalers. Some results are presented of a current reevaluation of chloroform both in the laboratory and in the operating room.

Donald E. Hale, W. James Gardner and Harold E. Harris, Cleveland Clinic, Cleveland:

Control of Bleeding During Operation by Induced Arterial Hypotension: The first result of blood letting on the general circulation is peripheral vasoconstriction. As the bleeding continues there then occurs a fall in blood pressure. Both of these factors may be used to reduce blood loss during surgical procedures. They can be brought into play by preoperative arterial puncture and blood letting followed by intra-arterial reinfusion of the removed blood at the close of the operation. This can best be accomplished by tying a cannula into the radial artery directed toward the heart and connecting this cannula to a pressurized system for the reception and reinjection of the blood. This procedure can be used to control massive bleeding such as may be encountered during the removal of an intracranial tumor or to control slight but troublesome bleeding such as that which hampers the otologist during a delicate fenestration operation. The procedure is safe because the arterial cannula, connected to a reservoir of the patient's blood, enables the operator to control the pressure in the aorta at all times.

Section on General Practice of Medicine

The representative to the Scientific Exhibit from the Section on General Practice of Medicine is J. Craig Bowman, Upper Sandusky, Ohio.

H. Leonard Bolen, Fall River, Mass.:

The Blood Pattern in Malignancy: Photographs and photomicrographs show the normal and malignant blood pattern. Charts show percentage of negative and positive cases and conditions yielding temporary cancer pattern; apparently cured carcinomas and a group of noncancer cases; group of proved cancer cases, together with histories of patients and technic of test.

Willis S. Knighton and Virginia Smith Boyce, Committee on Glaucoma, National Society for the Prevention of Blindness, New York:

The Physician's Part in Preventing Blindness from Glaucoma: Signs and symptoms of glaucoma recognizable during general physical check-up are shown, and information on testing technics is included.

Louis I. Dublin and Mortimer Spiegelman, Metropolitan Life Insurance Company, New York, and Roscoe G. Leland, Chicago:

Longevity and Mortality of Physicians: Charts show (*a*) American experience, derived from records of physicians furnished by the Bureau of Medical Economic Research of the American Medical Association. The current expectation of life of physicians is compared with that of the current general population. A detailed analysis is made of causes of death, according to age, among physicians; comparisons are made with corresponding data for the general population of the United States. A map is prepared showing the geographic variation of mortality among physicians within the United States. (*b*) British experience. The mortality of physicians is compared with that of other professions.

William Benham Snow, College of Physicians and Surgeons, New York:

A Program in Physical Medicine: The exhibit includes (1) the educational program at the College of Physicians and Surgeons, including training courses for therapists in occupational and physical therapy, and postgraduate instruction in physical medicine including fellowships under the Baruch grant, orientation to nurses and other groups; (2) research in physical medicine now going on under the Baruch grant; (3) physical and occupational therapy service and its operation at the Presbyterian Hospital, Vanderbilt Clinic and allied hospitals. Special attention is given to the cerebral palsy problem, posture and occupational therapy in the curative workshop and at bedside for improvement in body function.

H. L. Foss and Henry F. Hunt, George F. Geisinger Memorial Hospital, Danville, Pa.:

The Rural Medical Center under the Group Practice Plan: The development of a rural medical center and the various departments providing diagnostic facilities to physicians referring patients for problems in diagnosis and treatment is presented, together with the role that such a center plays as an educational institution: for (*a*) interns, (*b*) residents, (*c*) physicians of the surrounding areas, (*d*) nurses, (*e*) technicians. For the community as a whole it is shown how such a center may assist in safeguarding the public health by furnishing laboratory and hospital facilities and by instructing the layman in medical and public health problems. Basically the exhibit emphasizes what may be done by the coordination of professional effort in a medical center serving a far flung rural area.

Carl Reich, Lenox Hill Hospital, New York:

A Clinical Atlas of Sternal Bone Marrow: Diagrams and charts illustrate the various steps in performing a sternal puncture and processing the material. In addition there are twenty-five large kodachrome reproductions of various bone marrow pictures, with detailed descriptions covering the most important hematologic conditions.

A. W. Oughterson and G. W. Larimore, American Cancer Society, Inc., New York:

The Cancer Problem Today: A graphic and diagrammatic presentation of the cancer problem today is presented, with especial reference to the role of the general practitioner in the reduction of cancer morbidity and mortality.

Alexander S. Wiener, Office of the Chief Medical Examiner, New York City, and Jewish Hospital, Brooklyn:

Rhesus Blood Factors in Clinical and Legal Medicine: The exhibit covers the most important facts of the Rhesus factor field. The Rh-Hr blood types, their mechanism of heredity and racial distribution and their application in disputed parentage are shown. Tests for Rh sensitization: agglutination test, blocking test and conglutination test, and application in blood transfusion, pathogenesis of erythroblastosis and serologic diagnosis, are presented. Treatment of erythroblastosis by complete exchange transfusion is included.

Ella Best, American Nurses' Association, New York:

Nurses and Nursing: The exhibit consists of charts, graphs and other illustrative material showing the activities of the American Nurses' Association.

W. C. Colbert and L. W. Kibler, State Medical Association, Postgraduate Committee in Cancer, University Center, Memphis:

Postgraduate Medical Education: The exhibit includes two maps of Tennessee, one showing location of teaching and instruction centers for a two year program of extension medical postgraduate teaching in gynecology just completed; the second, the instruction program graphically portrayed for the two year cancer program recently opened. Charts will show the contributing agencies, committee of administration and résumé of the past ten years of postgraduate teaching in Tennessee.

C. C. Grey, O. L. Ostern, J. D. Ray, H. W. Schoening and L. Van Es, American Veterinary Medical Association, Chicago:

Swine Erysipelas: The exhibit shows the animals which may be infected with Erysipelothrix rhusiopathiae, the variety of manifestations of the infection, research findings and control methods and the known geographic distribution of the disease.

Lawrence J. Linck, National Society for Crippled Children and Adults, Chicago:

Services to the Handicapped: The exhibit includes pictures and slides, with descriptions illustrating health, welfare, education, recreation, rehabilitation and employment services for crippled and handicapped persons; special emphasis is placed on services for cerebral palsied children.

G. Foard McGinnes, The American National Red Cross, Washington, D. C.:

Blood Donor Service: The exhibit shows the role of the American Red Cross in meeting needs for blood and useful blood derivatives for civilian medicine.

MISCELLANEOUS EXHIBITS

Exhibits on various miscellaneous subjects are shown under this heading. They include a group of exhibits on diabetes together with the question and answer conference on diabetes, and the exhibits of the United States Army, United States Navy and the Veterans Administration.

Katharine R. Boucot, David A. Cooper and Russell Richardson, Philadelphia County Medical Society and Philadelphia Tuberculosis and Health Association, Philadelphia:

Philadelphia Diabetic Survey: Photofluorograms with abstracts of case histories on some of the significant cases uncovered during the survey of 3,167 diabetic patients during the year 1946. (Of the first 2,867 analyzed, the percentage of reinfection type tuberculosis was 8.3.)

Howard, F. Root, Elliott P. Joslin, Priscilla White, Alexander Marble, C. Cabell Bailey and Allen P. Joslin, George F. Baker Clinic, New England Deaconess Hospital, Boston, and Herbert H. Marks, Metropolitan Life Insurance Company, New York:

Diabetes Mellitus: New data are presented based on follow-up of patients to indicate the changing life expectancy in diabetes. Treatment of complications including retinopathy, pregnancy, acidosis and gangrene is discussed and information concerning experimental diabetes shown. The importance of early detection of diabetes is emphasized and demonstrated by laboratory methods.

Saul S. Samuels, Stuyvesant Polyclinic, New York:

Diabetic Gangrene: Photographs and kodachrome slides show classification of diabetic gangrene, indications for conservative treatment, methods of conservative treatment, indications for amputations, methods of amputations and value of penicillin and other drugs.

Hugh L. C. Wilkerson, Diabetes Section, United States Public Health Service, Joseph H. Barach and Frank N. Allan, American Diabetes Association, Boston:

Diabetes in the United States: The activities of the American Diabetes Association in helping physicians and patients to meet the problems of diabetes are presented. The results of the diabetes program of the United States Public Health Service are demonstrated, with statistics on the incidence of diabetes as revealed by the case finding study in Oxford, Mass.

Ranice W. Birch Davis, Association of Medical Illustrators, Johns Hopkins School of Medicine, Baltimore:

The Development of Medical Illustration: The exhibit shows the historical development of medical illustration from the earliest times. Emphasis is placed on its growth in America during the last hundred years and its present status and relation to medical illustration. Material consists of original drawings, enlarged photographic prints of old engravings, and ancient anatomic and medical illustrations, models and a brief description of the Association of Medical Illustrators.

S. J. McComb, Mayo Clinic, Rochester, Minn., Albert Levin and Anne Shiras, University of Pittsburgh, Pittsburgh:

Preparation of Photographs for Publication and Projection: The exhibit illustrates the requirements which should be met by photographs taken for publication. Successful illustrations in black and white and color are shown and their preparation is explained. Examples are also given of the right and wrong way to prepare charts, graphs and typewritten material for lantern slide demonstration. The exhibit will be attended at all times by a photographer qualified to answer questions about the materials, apparatus and methods used in the various fields of medical photography, with data collected by the Biological Photographic Association.

E. Fullerton Cook, United States Pharmacopeial Convention, Philadelphia:

The United States Pharmacopeia: The exhibit reviews briefly the history of the United States Pharmacopeia for the past hundred years but emphasizes the new Pharmacopeia, the Thirteenth Revision of which became official April 1, 1947. An indication of the international character of the Pharmacopeial Standards is presented.

Robert P. Fischelis, American Pharmaceutical Association, Washington, D. C.:

A Century of Progress in Drug Standardization: The exhibit illustrates the activities of the American Pharmaceutical Association in the evolution of unofficial and official standards for drugs since it was founded in 1852. Special emphasis is laid on the part played by the laboratory and other scientific facilities of the Association and its members in the establishment and revision of the National Formulary as one of the official compendia recognized under federal and state food, drug and cosmetic acts.

Meta R. Cobb, American Occupational Therapy Association, New York:

Occupational Therapy: The exhibit depicts the major functions of occupational therapy in the treatment of patients. Photographs and legends illustrate occupational therapy for morale, general fitness, to increase joint function, to compensate for residual handicaps, for mental illness, for unadjusted youth and the aged, for mental health and for prevocational training. A pictorial chart illustrates the relationship of the various medical adjuncts to the treatment relationship between doctor and patient.

Warren P. Morrill, American Hospital Association, Chicago:

Improving the Quality and Quantity of Hospital Care: This exhibit describes the major programs of the American Hospital Association which have for their purpose the improvement of the quality and quantity of hospital care in America. Accomplishments attained, current programs being conducted and national programs being developed will be graphically summarized.

Everett S. Elwood, National Board of Medical Examiners, Philadelphia:

National Board of Medical Examiners: The exhibit describes the work and progress of the National Board of Medical Examiners and includes graphic presentation of the results of its examinations.

Ada M. Hill, American Hearing Society, Washington, D. C.:

The Conservation of Hearing: Charts, posters, photographs and dioramas show the progress in the conservation of hearing program during the past century. Literature on hearing tests, lip reading, hearing aids, auditory training and the hard of hearing child and adult will be distributed.

Hart E. Van Riper, Morton A. Seidenfeld, Catherine Worthingham and Roland H. Berg, National Foundation for Infantile Paralysis, Inc., New York:

Infantile Paralysis: A graphic presentation of the diagnostic criteria of acute anterior poliomyelitis. Historical review of physical therapy in the treatment of the disease. The role of general hospitals in providing care for the poliomyelitis patient.

Maurice B. Visscher, A. B. Baker, R. Brown, John Adams, Alan Hemingway, R. Anthony and J. Elam, University of Minnesota, Minneapolis:

The Physiologic Problems of Bulbar Poliomyelitis: A graphic visualization of the physiologic problems in the management of bulbar poliomyelitis. Presentations will be made of the various categories of involvement and their specific therapeuses. Lectures on the principles involved and demonstrations of treatment procedures will be made at stated intervals during exhibit hours.

United States Army, Medical Department, Washington, D. C.

The Surgeon General presents a display of transparencies showing clinical and pathologic aspects of atomic warfare.

The Air Surgeon of the Army Air Forces presents graphically a résumé of various technics and displays certain instruments developed primarily to meet combat emergencies, which have been given to the general public to aid clinical medicine throughout the nation. The exhibit includes the technic of catheterizing the right ventricle and auricle through the cubital vein; studies on the Burns, Bennett and Emerson models of pneumatic balance resuscitators, performed at Bellevue Hospital under the Columbia Division; the 0.85 lens which can be used for photographing a fluorescent screen, thus eliminating the need for numerous x-ray plates and a demonstration of the oximeter.

The Medical Consultants Division displays by a series of transparencies and graphic studies certain aspects of tuberculosis which are of value to the general practitioner.

The Surgical Consultants Division displays moulages, graphic illustrations and photographs showing progress studies and essential phases of technics concerned with the utilization of an intramedullary nail in the treatment of certain fractures and interesting aspects of various amputation technics.

The Preventive Medicine Division displays pictures and graphic illustrations depicting the interrelationship of the Surgeon General's Office, the Medical Nutrition Laboratory and the Research and Development Board; the missions of the Army Nutrition Laboratory in connection with studies on troops, treatment of disease and feeding of civilians of occupied countries; the activities of army nutritionists; the relationship of nutrition to health and fitness in troops, and the importance of nutrition in the management of patients.

The Education and Training Division presents a graphic display showing the utilization of medical officers within the Army as a result of the recently organized career plan, the technical training given to those who assist the professional personnel and essential data on hospital facilities of value and interest to physicians and surgeons.

The *Research and Development Division* presents a display showing the fabrication, testing and utilization of a recently developed upper extremity prosthesis.

The Veterinary Service of the Medical Department presents certain important phases of the Food Inspection Service by kodachrome pictures, displays several items of food inspection and analysis equipment which have been developed or approved recently by the Army, and demonstrates some of the important new developments in methods of chemical and bacteriologic analyses of food products. Selected pictures, slides and photomicrographs depict important results of the research studies conducted by the corps, while features of the veterinary service for animals are shown by photographs.

The Physical Medicine exhibit depicts objectively the utilization of physical treatment methods through the integration and coordination of the triad Physical Therapy, Physical Reconditioning and Occupational Therapy which Physical Medicine in the Army embraces. Emphasis is placed on the approach to prescribed levels of treatment in these three branches by a medical officer who is a specialist in physical medicine.

The Dental Division display shows recent developments in acrylic prostheses pertinent to all types of reconstructive procedures, fixation of fractures of the maxillomandibular region and progress studies of reconstruction cases.

The Army Institute of Pathology presents by colored transparencies and photographs pathologic studies of certain intraocular tumors, peripheral nerve injuries, cold injuries, virus hepatitis and mouth infections.

United States Navy, Bureau of Medicine and Surgery, Washington, D. C.

Operations Crossroads: The exhibit portrays the medical research projects and preventive measures instituted at Operations Crossroads when the atomic bomb was tested. Two of the goats which were used at Bikini as experimental animals will be shown, with hematologic charts on the animals from the first bomb visit to the present time.

Veterans Administration

A group of exhibits is presented by the Veterans Administration, Washington, D. C., under the direction of General Paul R. Hawley.

Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., and Veterans Administration, Washington, D. C. and T. McD. Anderson, Veterans Administration, Washington, D. C.:

Orthopedic Braces: Exhibit presents modifications and new developments by Veterans Administration in the design and manufacture of orthopedic braces.

Harold F. Bishop, Veterans Administration Hospital, Bronx, New York:

Endotracheal Anesthesia: Exhibit consists of a series of panels, each dealing with a different aspect of endotracheal anesthesia. Among the topics covered will be history, anatomy, technic, indications and contraindications, topical agents used with, apparatus for, and complications of.

A. Earl Walker, University of Chicago School of Medicine, Chicago, and Veterans Administration, Washington, D. C., and William G. Lennox, Harvard Medical School, Boston, and Veterans Administration, Washington, D. C.:

Post-Traumatic Epilepsy: Neurologic aspects of post-traumatic epilepsy are shown, and advances in its diagnosis and treatment are demonstrated.

Tuberculosis Division, Veterans Administration, Washington, D. C.:

Streptomycin: Presentation of a series of cases showing the effects of streptomycin in the treatment of tuberculosis.

J. M. Nielsen, University of Southern California, Los Angeles and Veterans Administration, Washington, D. C.

Mechanics of Aphasia, Apraxia and Agnosia: Recent studies and the application of their results to the treatment of post-traumatic stages in veterans.

MOTION PICTURES

Three motion picture theaters, located in rooms adjacent to the exhibits, will be in continuous operation. Each film will be shown once daily, Monday noon to Friday noon, on a definite schedule.

United States Army, Medical Department, Washington, D. C.:

Repair of Ruptured Membranous Urethra: Silent, color, ten minutes.

Yaws: Sound, color, twenty minutes.

The Preparation and Insertion of Tantalum Plate: Sound, color, thirty minutes.

Technic of Open Amputation: Sound, color, eleven minutes.

Therapeutic Exercises (Thoracic Surgery): Sound, twenty-eight minutes.

Cine Plastic Operation: Sound, color, seventeen minutes.

Operations Crossroads: Sound, color, twenty-five minutes.

J. Ernest Ayre, Royal Victoria Hospital and McGill University, Montreal, Quebec:

"Precancer" Diagnosis of the Cervix by Cytology: Motion picture demonstrating the use of a new method of uterine cancer diagnosis—the selective cytology technic. While not a biopsy, and not a smear, the selective method is a scraping from the squamocolumnar junction of the cervix by means of a specially adapted cervical applicator. The scraping gives a true "surface biopsy" of this area, so vulnerable to the development of squamous carcinoma. The test is simply and painlessly taken during the course of a routine gynecologic examination. Silent, color, fifteen minutes.

Carroll L. Birch and Louis R. Limarzi, University of Illinois College of Medicine, Chicago:

Physiology and Pathology of the Hemopoietic Principle: Motion picture showing pictures of blood and bone marrow in the megalocytic anemias. Patients with pernicious anemia, sprue, cirrhosis of the liver and aplastic anemia are demonstrated. Silent, color, twenty minutes.

Jay M. Garner and J. Peerman Nesselrod, Evanston Hospital, Evanston, Ill.:

The Sigmoid, Rectum and Anal Canal: Motion picture showing endoscopic views of the normal bowel, diverticulosis, melanosis coli, anal infection, lymphogranuloma venereum, tuberculosis enterocolitis, chronic ulcerative colitis, polyp with fulguration and carcinoma of the rectum. Silent, color, thirty minutes.

Andrew B. Rivers, Natalie M. Briggs and Maurice H. Stauffer, Mayo Clinic, Rochester, Minn.:

The Syndrome of Duodenal Ulcer Perforating to the Pancreas: Motion picture showing that there are certain characteristics such as a shift of pain to new areas and a postural method of relief that patients assume which aids in recognition of the complication. Silent, color, twenty-five minutes.

Leo L. Hardt and E. C. Olson, Loyola Medical School and Cook County Post-Graduate School, Chicago:

Gastroscopy as an Aid in the Diagnosis and Treatment of Gastric Disease Conditions: Motion picture showing: 1. A typical gastroscopic clinic, demonstrating the preparation of the patient and the technic of gastroscopy. A brief description of the Hardt gastroscope, together with comments as to its limitations. 2. Gastroscopic study of the physical appearance of various antacids introduced in the stomach, compared with a new antacid mixture. Sound, color, thirty minutes.

Committee on Medical Motion Pictures, American Medical Association, Chicago:

The Evolution of Medical Motion Pictures: Motion picture consisting of excerpts from several films made prior to, during and following World War I. The first surgical motion picture taken on 16 mm. film is included. Examples of modern technics such as animation, microcinematography, endoscopic photography and moving x-rays are illustrated. The final sequence provides a brief behind the scenes look into the production of good teaching film. Sound, color, thirty-five minutes.

Hugh A. Gamble, Gamble Brothers and Archer Clinic, Greenville, Miss.:

Interinnomino Abdominal Amputation of the Lower Extremity for Malignant Growths with Indications for the Extension of its Employment: Motion picture describing the operative procedures. Silent, color, twenty-seven minutes.

I. W. Magill, Westminster Hospital, London, England:

Technic of Anesthesia—Handling and Care of the Patient: Motion picture dealing with the general care of the patient. Sound, twenty-six minutes.

I. W. Magill, Westminster Hospital, London, England:

Endotracheal Anesthesia: Without a clear airway the administration of a general anesthetic is impossible. This film shows how endotracheal anesthesia overcomes this difficulty by intubation of the larynx. Both oral and nasal methods are given in some detail. Animated diagrams and shots taken actually down a laryngoscope show the principles involved in using this instrument, while slow motion photography elucidates the movements required for "blind" nasal intubation. The advantages of endotracheal anesthesia are summarized. Sound, twenty-six minutes.

John C. Ullery, Upper Darby, Pa.:

Continuous Spinal Analgesia in Cesarean Section: Motion picture shows the anatomy and technic of continuous spinal analgesia for performing a cesarean section. Silent, color, forty-three minutes.

H. F. Hailman, Medical Department, Upjohn Company, Kalamazoo, Mich.:

Energy Release from Food: Motion picture with animation shows the enzymatic role of the vitamins of the B complex in the metabolism of food. The picture explains, on a biochemical basis, the need for vitamins of the B complex in various clinical conditions. Sound, color, twenty-six minutes.

A. H. Bulbulian, Mayo Clinic, Rochester, Minn.:

Technic of Prosthetic Restoration of the Face: Motion picture dealing with some of the recent developments in the technic of facial reconstructions by the prosthetic method. It shows the important steps of the procedure, such as taking the necessary impression of the site of the deformity, preparation of the temporary wax model of the proposed prosthesis, making the final mold and methods of coloring and processing the prosthesis in latex and plastic. Silent, color, fifteen minutes.

J. E. M. Thomson, C. F. Ferciot and W. W. Bartels, Orthopedic Clinic, Lincoln, Neb.:

The Reverse Dennis-Browne Splint as Used in Treatment of Congenital Calcaneovalgus: Calcaneovalgus tendencies of a congenital nature are more common than recognized. These babies tend to sleep on the abdomen with the toes turned outward. Dorsum of feet can be readily approximated to the outer aspect of the leg, and there is decided prominence of the heel. Unless this tendency is corrected, definite structural weakness of the feet develops which delays walking and may result in permanent foot disability. Early correction is urged. Application of reverse Dennis-Browne splints to hold feet in position of overcorrection is demonstrated and the indications are discussed. Silent, color, twelve minutes.

Rudolph Jaeger, Jefferson Hospital, Philadelphia:

Removal of Intraorbital Tumor by Intracranial Approach: Motion picture presenting removal of a dermoid cyst from within the orbit by intracranial craniotomy approach. Appearance of patient before and after operation as well as operative procedure is shown. Silent, color, eighteen minutes.

Harold C. Voris, Loyola University Medical School, Chicago:

Ventriculography: Motion picture illustrating the technic of ventriculography by the usual posterior route and also the frontal and lateral route. Artist's diagrams are included in the film. Silent, color, thirty-five minutes.

L. E. Holmgren, Jackson Clinic, Madison, Wis.:

Varicose Veins—Diagnosis and Treatment: Motion picture demonstrating the various diagnostic tests and the application of these tests to various patients. The operative technic of a high saphenous ligation is shown followed by the postoperative tests made to demonstrate the need, if any, for further treatment. Silent, color, thirteen minutes.

Lester R. Dragstedt and Paul V. Harper, University of Chicago, Chicago:

Section of the Vagus Nerves to the Stomach in the Treatment of Peptic Ulcer: Motion picture illustrating the technic of transabdominal section of the vagus nerves to the stomach, together with a brief statement of the theoretical basis for this operation. Silent, color, approximately twenty minutes.

Malcolm T. MacEachern, American College of Surgeons, Chicago:

Anomalies of the Bile Ducts and Blood Vessels and Strictures of the Common Duct: Motion picture demonstrating the most common anomalies of the bile ducts and blood vessels and strictures of the common duct and their surgical repair. Silent, color, forty minutes.

Herbert R. Hawthorne, Graduate Hospital, University of Pennsylvania, Philadelphia:

Transthoracic Resection for Carcinoma of the Cardiac End of the Stomach: Motion picture for teaching graduate students in surgery at the University of Pennsylvania, showing the entire technic from beginning to end. Captions describe the anatomy and technic as the operation progresses. The surgical anatomy involved is clearly shown. The placing of the sutures between the gastric tube and the esophagus is further classified by a drawing with explanatory captions. Silent, color, twenty-five minutes.

A. W. Oughterson and **G. W. Larimore**, American Cancer Society, Inc., New York:

The Traitor Within: Motion picture, with animation, telling ie medical facts about cancer in understandable terms. It resents the growth and development of cells; the spread of ancer through the body; the control and cure of cancer through he use of surgery, roentgen rays and radium. While this picure is not a technical film designed primarily for physicians, is believed that it will be of interest to them since it portrays y animation in technicolor the malignancy process. Sound, olor, eleven minutes.

Henry Sangree, Howard Fretz, John Hughes and **Norton roth**, University of Pennsylvania, Philadelphia:

Fertility in the Male, Surgical and Clinical Problems: Motion icture showing (1) the epididymovasostomy operation, (2) the mbredanne operation (penile hypospadias). Preliminary photoraphs of the subject of infertility in the male are shown with onsecutive stages in the operation to their completion, using adavers for difficult procedures and then operative room technic. statistical report on 300 consecutive men examined is included. ilent, color, eighteen minutes.

R. H. Flocks, University of Iowa School of Medicine, Uniersity Hospitals, Iowa City:

Ureterointestinal Anastomosis—A New Method: Motion picure presenting a new method for ureterointestinal anastomosis ased on the principle of preservation of ureteral blood supply t the point of the anastomosis. The method is described briefly nd then illustrated on a patient. The results are illustrated ith pyelograms taken late after the procedure. Silent, color, hirty minutes.

Alfred Iason, Adelphi Hospital, Brooklyn:

Repair of Bladder Hernia: Motion picture showing that one f the causes of so-called recurrence of inguinal hernia is an verlooked or improperly repaired bladder protrusion through he inguinal triangle. The indirect component is repaired and he bladder protrusion is exsected as though it were diverticulum, nd repair then consummated. Silent, color, twelve minutes.

M. M. Melicow, J. Robinson and **William Ivers**, Squier Urological Clinic, Presbyterian Hospital, New York:

Interstitial Cell Tumor of Testis: Motion picture illustrating the effect on a 5½ year old boy of an interstitial cell tumor which was present in his right testis. The boy was big for his age, his external genitalia were like those of adult, the pubic hair grew. Silent, color, five minutes.

D. O. Ferris, Mayo Clinic, Rochester, Minn.:

Total Cystectomy with Bilateral Ureterosigmoidostomy for Carcinoma of the Bladder (one stage): Motion picture showing detailed technic of a one stage cystectomy with bilateral ureterosigmoidostomy. Silent, color, twenty minutes.

Roger W. Barnes and **R. Theodore Bergman**, College of Medical Evangelists School of Medicine, Los Angeles:

Use of the Calf for Surgical Training and Research: Motion picture outlining the advantages of the use of calves for animal surgery in the training of residents and fellows and for surgical research. A ureterointestinal anastomosis is shown being performed by two first year residents in urology. Silent, color, twelve minutes.

Paul F. Fletcher, St. Louis University School of Medicine and St. Louis County Hospital, St. Louis:

Abdominal Colpocystopexy for Complete Prolapse of the Bladder and Vagina: A presentation of the rectus suspension principle of operative treatment for complete prolapse of the bladder and vagina following panhysterectomy. Technic is shown in detail, whereby living fascial strips mobilized from the anterior sheath of the rectus muscle on each side are employed to effect permanent restoration of normal visceral relationships of these structures in the pelvis. The construction of a "crossed suspender support" for the base and posterior wall of the bladder is demonstrated. Physical findings on examination one year and five years after operation are included. Silent, color, eighteen minutes.

Special Exhibit Committee on Physical Medicine: The following motion pictures are presented in connection with the Special Exhibit on Physical Medicine:

Rehabilitation of Chronic Neurologic Cases: Motion picture prepared by the Veterans Administration and presented in connection with the exhibit on Physical Rehabilitation for Hemiplegia. Sound, twenty minutes.

Cineplastic Prosthesis in the Elbow of the Amputee: Motion picture prepared by Henry H. Kessler, Newark, N. J., and presented in connection with the exhibit on Physical Rehabilitation of Amputees. Silent, ten minutes.

Training of the Amputee in Walking: Motion picture prepared at Hasbrouck Heights Amputee Clinic and presented in connection with the exhibit on Physical Rehabilitation of Amputees. Silent, eighteen minutes.

Comeback: Motion picture prepared by U. S. Office of Vocational Rehabilitation. Sound, color, twenty-six minutes.

Be Your Age: Motion picture prepared by Metropolitan Life Insurance Company and American Heart Association. Sound, eleven minutes.

Half a Chance: Motion picture prepared by the Surgeon General's Office, U. S. Army. Sound, eleven minutes.

The Sky Is the Limit: Motion picture prepared by the Surgeon General's Office, U. S. Army. Sound, color, twenty minutes.

Convalescent Care and Rehabilitation of Patients with Injury of the Spinal Cord: Motion picture prepared by the Surgeon General's Office, U. S. Army. Sound, color, forty-one minutes.

Harry Wallerstein, Jewish Memorial Hospital, New York:

Treatment of Erythroblastosis Fetalis by Substitution Transfusion: Motion picture giving a brief résumé with pathologic slides of the significant pathologic changes in erythroblastosis. Kernicterus and histologic slides of the significant liver changes, as well as peripheral blood smear, are included. The technics of the procedures described are enumerated step by step and illustrated by actual performance on the screen. Charts are included in the film to show comparative results. Methods using the superior sagittal sinus, the radial artery and superficial veins are included. Silent, color, twenty-five minutes.

Otto Steinbrocker, Norman Spitzer and **H. Harold Friedman**, Bellevue Hospital, New York University, New York:

The Shoulder-Hand Syndrome (Reflex Dystrophy of the Upper Extremity): Motion picture of combined shoulder-hand disorders showing signs of reflex neurogenic dystrophy. Cases of varied etiology with this syndrome and their evolution are illustrated, together with descriptions of the clinical course and diagrams of the presumed physiologic mechanism. A classification of these disorders is included. Present treatment is outlined. Silent, color, twenty minutes.

Philip Thorek, Cook County and American Hospitals, Chicago:

Congenital Diaphragmatic Hernia: Motion picture presenting an unusual case of congenital diaphragmatic hernia in a 7 weeks old infant. The diagnosis is discussed and the x-ray film shown both preoperatively and postoperatively. An animated section of the film is devoted to the abnormal anatomy and the embryologic defect presented, in this case a congenital absence of the left diaphragmatic crus. The operation shows cutting the left triangular ligament of the liver as an aid to exposure and repair of the hernia. The steps of the surgical repair and the replacement of viscera are clearly shown. A new method of closure of the abdominal wall is depicted. Silent, color, fifteen minutes.

James Barrett Brown and Frank McDowell, Washington University School of Medicine, St. Louis:

Neck Dissections for Metastatic Carcinoma: Motion picture showing one operation of complete unilateral neck dissection for metastatic carcinoma from the mouth, together with later pictures of patients cured from five to fifteen years by this procedure. One of the patients shown has been well following operation for a metastatic melanoma eleven years ago. Silent, color, twenty-one minutes.

Bernard D. Judovich and William Bates, Graduate Hospital School of Medicine, University of Pennsylvania, Philadelphia:

Scalenus Anticus Syndrome: Motion picture of patients suffering with symptoms of scalenus anticus syndrome. Detailed explanation of etiology, symptomatology, diagnosis and treatment is presented, with differentiation of primary and secondary scalene syndromes. Simplified hypo-needle technic for diagnostic and therapeutic infiltration is shown. Cases which clinically simulate the pain of coronary disease are presented. Electrocardiograph changes induced by compression of the scalene muscle is included. Silent, color, twenty minutes.

Alfred Iason, Adelphi Hospital, Brooklyn:

Repair of Sliding Hernia: Motion picture showing that difficult sliding hernias can be readily cured by careful dissection of transversalis fascia from peritoneum. One leaflet of transversalis fascia is then sutured to peritoneum as though both were part of the sac. Silent, color, twelve minutes.

W. M. Adams, Memphis, Tenn.

The Correction of Facial Paralysis by Muscle Transplantation: Motion picture showing the correction of complete facial paralysis by multiple muscle substitution. A pedicle of the masseter muscle is transplanted in a region of the corner of the mouth to give support and motion to this region. The temporalis muscle is dissected up from the head of the coronoid process and a portion transferred into the upper and lower eyelids to give support to the lower eyelid and permit the patient to open and close the eyelids. A portion of the opposite frontalis muscle is transferred across the midline of the forehead into the muscle and subcutaneous tissue of the supraorbital region to give support to the eyebrow and restore a certain amount of motion upward. Silent, color, twenty-seven minutes.

Alfred Blalock, Johns Hopkins Hospital, Baltimore:

Surgical Treatment of Pulmonic Stenosis: Motion picture begins with preoperative views of a 5 year old cyanotic child with a diagnosis of the tetralogy of Fallot. The child is then anesthetized, the right pleural cavity is opened, the right pulmonary artery is exposed, and the right subclavian artery is exposed. The proximal end of the right subclavian artery is anastomosed to an opening in the side of the right pulmonary artery, an end to side anastomosis. Incisions in the mediastinal pleura and in the chest wall are then closed. Postoperative views show the child on the thirteenth postoperative day and six months following operation. Silent, color, forty-five minutes.

Henry R. Viets and Robert S. Schwab, Massachusetts General Hospital, Boston:

Myasthenia Gravis (Erb-Goldflam Syndrome) 1941-1946: Motion picture depicting briefly the history of the knowledge of this disease, the treatments used prior to the instigation of neostigmine in 1934, the current treatment of the disease, and a summary of 175 cases observed since 1935 in the Myasthenia Gravis Clinic at the Massachusetts General Hospital, Boston. Silent, twelve minutes.

H. G. Kobrak, University of Chicago, Chicago:

See the Ear Hear: A motion picture on the function of the ear, showing how a method was developed by which the acoustic vibrations of the ear could be seen and photographed for the first time. The motion picture shows the eardrum of an ear of a normal person vibrating when a sound impinges on the drum membrane. Normally, observations are restricted to the eardrum. The deeper parts of the ear were investigated on living animals and on fresh human temporal bones. The acoustic vibrations of the ossicular chain are demonstrated. The reflex contractions of the middle ear muscles during hearing are shown (animal observations and observations in patients). Diseased middle ears are demonstrated (middle ear adhesions, fluid in tympanic cavity, stapes fixation). The acoustic vibrations of the inner ear are shown (stapes footplate, round window membrane, oscillations of the intralabyrinthine fluid). The response of the ear to music is demonstrated. Silent, twelve minutes.

Paul H. Holinger and Albert H. Andrews Jr., University of Illinois College of Medicine, Chicago:

Diseases of the Esophagus: Motion picture giving the clinical histories, laboratory data and roentgenograms of patients with various organic diseases of the esophagus; then by means of motion pictures taken through the esophagoscope the esophagoscopic appearance of the lesions is shown. The technic of esophagoscopy is illustrated by serial roentgenograms taken as the esophagoscope is introduced, as well as by pictures of esophagoscopic procedures. The normal esophagus, lye strictures, diverticula, cardiospasm, foreign bodies and esophageal carcinoma are shown. Silent, color, thirty minutes.

Julius Lempert, Lempert Institute of Otology, New York:

Lempert Fenestra Nov-Ovalis Operation for Clinical Otosclerosis: Motion picture describing the operative procedures. Silent, color, forty-five minutes.

United States Navy, Bureau of Medicine and Surgery, Washington, D. C.:

Psychosomatic Disorders: Sound, twenty-two minutes.

Sciatic Pain and the Intervertebral Disk: Sound, color, twenty-five minutes.

Facial Neuralgias: Sound, color, twelve minutes.

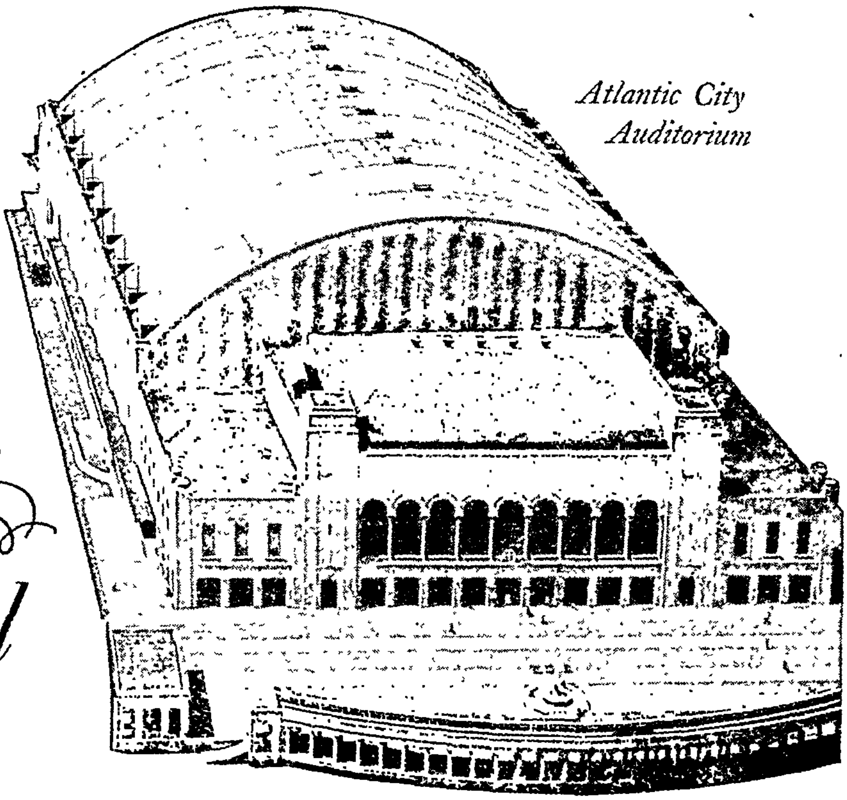
Management of Spinal Cord Injuries: Sound, color, eleven minutes.

Asiatic Schistosomiasis: Sound, color, twenty minutes.

LANTERN SLIDE DEMONSTRATION

Timothy Leary, Medical Examiner, Suffolk County, Boston:

Nature's Method of Preventing Atherosclerosis in Youth: The lesions of atherosclerosis, the important form of arteriosclerosis, arise in the arterial intima about macrophages carrying irritant cholesterol ester crystals. Deposits of these crystals in the arterial intima occur at all ages under diets rich in cholesterol. In youth these deposits disappear, in most cases without trace. The removal of the crystals is due to fibroblasts which take over the crystals and bring them into solution in fat staining material that is metabolized within the cells and disappears. The restitution of the intimal tissue is usually quite perfect. This power to remove crystalline ester deposits is lost largely in the adult period, except in the ascending aorta. Slides will be shown illustrating steps in the removal of the irritant esters. Thirty minutes.



Technical Exposition

The Technical Exhibits this year may well bring a deep feeling of pride to the manufacturers and great satisfaction to the medical profession. In keeping with the Centennial theme, many firms are conforming to the historical keynote of "100 Years of Progress in American Medicine." This elaborate showing of new and important products evidences the progress of our medical industries which have geared themselves to the amazing advances in scientific medicine and in the maintenance of the health of our nation.

Practically every single exhibit will offer the visiting physician something of immediate interest. The pharmaceutical firms will present new drugs or new scientific information. Leading medical publishers will show new books, new editions, as well as their standard works. Producers of food will feature newest developments in nutrition. Instrument, apparatus, and supply houses will offer brand new items, improvements over the old, and new technics.

Altogether more than 282 firms are participating in the Technical Exposition, and will present their products and technics in an impressive and dramatic way, with skilled technicians and researchists in attendance.

Because the Technical Exposition, Scientific Exhibits, General Scientific Sessions, and important Section Meetings are being housed within the Atlantic City Auditorium, physicians will find it convenient to visit exhibits at any time. The Technical Exposition is really one of the practical, educational features of the Annual Session and leisured, unhurried time given to it every day will prove pleasurable, instructive and profitable.

Exhibits are open each day from 8:30 a. m. to 6 p. m., closing at 12 noon Friday, June 13. On the following pages are brief descriptive items of most of the Technical Exhibits.

Thos. R. Gardiner,
Business Manager and Director of Exhibits

Apparatus and Instruments

A. S. ALOE COMPANY
Booth, H-19, H-21, H-23

The A. S. Aloe Company cordially invites you to visit booths H-19, H-21 and H-23. In addition to a complete cross section of surgical, medical, and laboratory equipment and supplies, of special interest will be a display of government surplus instruments. All of these are new, first quality instruments—currently offered at one third to one half list price.

AMERICAN CYSTOSCOPE MAKERS, INC.
Booth C-3

A special feature of this exhibit will be a panel depicting progress in the develop- [illegible] rological equip- [illegible] a complete line [illegible] scopes, proctoscope [illegible] instruments for eye, ear, nose, and throat work and equipment for use of electrosurgical procedures will be demonstrated.

AMERICAN HOSPITAL SUPPLY CORP.
D-23 (½)

Physicians are invited to see Baxter's blood banking and plasma equipment. There will be expendable tube and needle sets demonstrated, and an ingenious method for the cleaning of as many as eight lengths of tubing or eight hypo needles at one time. In addition Aero-Klenz, the deodorant that *destroys* odors, will be on hand as well as the E & J Resuscitator and many other new items of interest.

AMERICAN MEDICAL SPECIALTIES CO., INC

Booth E-28

A number of Amsco products will be displayed in booth E-28, among them: Lindley Folding Pessaries, Infantometers; Biro Ampoule Openers; their new X-Ray View Boxes; and other specialty products for which Amsco has been known for years.

AMERICAN OPTICAL COMPANY

Booths B-1, B-2, C-1, C-2

Exhibited here are scientific and ophthalmological instruments and equipment of special interest to physicians Among the many AO instruments shown are the recently announced Spencer hemoglobinometer, the Spencer Hb-Meter, and the new AO Renshaw Stereo-Disparator—a new orthoptic device that will surely interest practitioners Another interesting feature is a complete display of the AO Monoplex plastic artificial eye

AMERICAN STERILIZER COMPANY

Booth G-7

The new Overholt-Comper Thoracic Table for accommodation of patient-posturing and for bronchoscopic work under bilateral fluoroscopy will be exhibited with other "American" Surgical Operating, Obstetrical, and Fracture Tables. Of particular interest to the surgeon are the new "American" Pressure Instrument Washer-Sterilizer and the new Office Autoclave—an 8x8x16" chamber of Monel construction, with square door and simplified semi-automatic control.

AUSTENAL LABORATORIES, INC.

Booth I-29 (E½)

"Homo Vitallium," an exhibition skeleton with many varied Vitallium appliances in place, will be displayed here. Included in the exhibit will be the complete line of Vitallium appliances which have been redesigned; bone plates and screws; hip nails and screws, hip caps; bolts, intertrochanteric appliances; radius caps; leg screws; spinal fusion plates; mandibular fracture appliances, bile duct, blood vessel and drainage tubes.

BARNETT OPTICAL LABORATORIES

Booth E-1

Clinical photographic apparatus, Kodachrome Slide Libraries, slide projectors, viewing devices, and physicians' examining lamps will be exhibited at this booth Owners of Leica, Contax, Exakta, Perfex, and Argus cameras interested in adapting them for clinical photography are urged to bring them along for a discussion of adaptability.

RUDOLPH BEAVER

Booth J-27

Of particular interest to surgeons is the exhibit of Rudolph Beaver where the Beaver knife and those all-bellied DeBakey knife blades are shown In any position, these knives present a rounded, or bellied, cutting edge so useful in dissecting, in deep and special surgery including hysterectomy, cholecystectomy, mastectomy, lobectomy; and in operations of the throat, semilunar cartilage, etc

BECTON, DICKINSON & CO.

Booths I-9 I-11

Representatives at the booth will be glad to demonstrate the use of Vacutainer equipment in a new method of obtaining blood specimens. A full line of Ace Bandages will be on display, and experts in bandaging technic will gladly demonstrate various uses of all types "A prominent feature of the display will be a chart showing the development of the hypodermic syringe during the past 100 years

BEDFORD SURGICAL COMPANY, INC.

Booths H-5, H-7

A representative line of the Continental products will be displayed here You won't want to miss the completely new medical equipment featured. You are invited to visit their exhibit in booths H-5 and H-7 for a helpful discussion of your office problems with competent medical service technicians.

J. BISHOP AND COMPANY

Booth H-14

The exhibit of the Medical Products Division of J Bishop and Company Platinum Works features two innovations in hypodermic medication—the Bishop "Albalon" plastic hub needle, and the recently introduced "Tubex" syringe developed by Bishop and used by Wyeth, Inc. for their injectable penicillin preparations Bishop's complete line of "Blue Label" needles for every hypodermic use is also displayed

THE BURDICK CORPORATION

Booth A-11

The Burdick Corporation will exhibit their complete line of Physical Therapy equipment This will include Short Wave Diathermy, Ultraviolet and Infra-red Lamps, Muscle Stimulator and the Rhythmic Constrictor for the treatment of Peripheral Vascular conditions. Physicians and Technicians are invited to register for a free copy of the Burdick Syllabus, a compilation of clinical material on the electrode therapy.

CAMERON SURGICAL SPECIALTY COMPANY

Booths B-14, B-16

On display here will be the new Cameron Units for Electro-coagulation, Electro-cauterization and Electro-surgery; Coagular-Sigmoidoscope; Electro-Diagnostosets; Flexible Gastroscopes; Bronchoscopes—Esophagoscopes—Laryngoscopes, Mirrolite; Binocular Spectacle Loupe; Magniscope and other specialties.

WILMOT CASTLE COMPANY

Booths G-6, G-8

New developments in post-war surgical lighting and in sterilization will be displayed here Lights for major operating work and spotlights for clinics and physicians' offices will be shown The new lights will be especially worth seeing. Also newer technics for handling the cleansing and sterilization of instruments will be demonstrated. The use of oil as a sterilizing medium will receive special consideration

THE CAYO COMPANY

Booth EP-4

In Booth EP-4, The Cayo Company will demonstrate stab sawing, which permits of cutting squarely into the bone without previous drilling A feature of the Cayo Reciprocators is that they will cut bone but will not cut soft tissue

WARREN E COLLINS, INC

Booth G-21

Booth G-21 will be headquarters for respiration apparatus—Collins Iron Lungs, Oxygen Tents, Metabolism and Vital Capacity Apparatus Trained technicians will be in attendance to show you the latest developments in this field and to answer your questions.

DePUY MFG COMPANY

Booth B-30

Fracture appliances made of aluminum of the more simple type for the general practitioner, the new DePuy Screw and Plate Rack for the convenience of the bone surgeon, and a pair of simple screw drivers for the orthopedic surgeon will attract interest at the DePuy booth. Representatives in attendance will be glad to discuss your fracture appliance problems.

THE DeVILBISS COMPANY

Booth J-6

Ever encouraging reports relative to spraying or the inhalation of penicillin and other antibiotics make the DeVilbiss Company exhibit in booth J-6 of pertinent interest Atomizers, nebulizers, vaporizers, and powder blowers, for home as well as office use, will be displayed. There are types for any treatment where spray application or inhalation is to be employed.

E & J MANUFACTURING COMPANY

Booth C-12

The E & J Manufacturing Company will exhibit their large tank model resuscitators. This type of unit enables the hospital to greatly decrease the cost of operation without sacrifice of mobility Interesting demonstrations well be given.

J. H. EMERSON COMPANY

Booth G-24

Emerson will exhibit its latest respirator development which is a dome placed over the head of the patient to keep him breathing when the respirator is open, greatly facilitating care of the patient's body Other items displayed include a new radio for respirator patients, single and 2-way patient model resuscitators, and a novel device for the preparation of hot packs

H G FISCHER & CO.

Booth H-25

Visitors to the Centennial Meeting of the American Medical Association in Atlantic City are cordially invited to visit the Fischer display booth, and to inspect the new units of Fischer apparatus which are characterized by precision design and simple, efficient operation Fischer representatives will be present to answer questions and to demonstrate outstanding features of Fischer equipment.

THE FOREGGER CO, INC

Booth C-30

Anesthesia is now a highly specialized art and some of the procedures entailed require highly specialized equipment. Foregger Company specializes in equipment for endotracheal and endobronchial technic as well as for general gas oxygen ether anesthesia New apparatus for large and small tanks and refinements in standard equipment including special apparatus for anesthestizing new born infants will interest surgeons and anesthetists

GOMCO SURGICAL MFG CORP.

Booth B-26

In addition to their line of physicians' and explosion proof hospital pumps, Gomco are featuring at the June meeting their new Tidal Irrigator After several years of clinical research they have perfected a Tidal Irrigator that is simple to operate and is fool-proof. This unit will be shown for the first time at the American Medical Association Meeting

HANDVIA CHEMICAL AND MANUFACTURING COMPANY

Space D-30

Late models of self-lighting ultraviolet quartz lamps for orificial and body irradiation, black light for diagnostic purposes, and Safe-T-Aire germicidal lamps for the destruction of air-borne bacteria will be

Exhibitors

Abbott Lab, N Chicago	J 9 J-11, J 13, J 15
Allergen Proof Encasings, Cleveland, Ohio	I-1
Allison Co, W D., Indianapolis, Ind	F-17
Almay, Inc, New York City	F 23
Aloe Co, A S, St Louis	H-19, H 21, H-23
American Can Company, N Y C	I-18
American Cystoscope Makers Inc N Y C	C-3
American Dietaids Co, Yonkers 2, N Y	EP-16
Amer Hosp Sup Corp, Evanston, Ill	½ G 23
American Institute of Baking Chicago	D 4
American Medical Specialties Co, N Y C	E-28
Am Opt Co, So bridge, Mass	B-1, B-2, C 1, C-2
American Seal Kap Corp L I C, N Y	B-13
American Sterilizer Co, Erie, Pa	G 7
Ames Company Inc, Elkhart, Ind	E 3
Ansco, Binghamton, N Y.	L 8
Appleton Century Co, D, N Y C	I-22
Arlington Chemical Co, Yonkers, N Y	B 28
Armour Laboratories, Chicago	C-9, C-11, C 13
Austenal Labs, Inc N Y C	East ½ I 29
Ayerst, McKenna & Harrison Ltd N Y C	K-14
Aznoe's Woodward Med Bur, Chicago	A 28
Bard, Inc, C R, N Y C	H-27
Barnett Optical Labs, Chicago 26	E 1
Barta Press, Boston, Mass	G 27
Bauer & Black, Chicago	K-13
Baum Co, Inc, W A, New York City	I-20
Bausch & Lomb, Rochester, N Y	C 6, C-8
Beaver, Rudolph, Waltham 54, Mass	J-27
Beck-Lee Corp, Chicago	D-12
Becton, Dickinson, Rutherford, N J	I-9, I-11
Bedford Surgical Co, Inc, Brooklyn	H 5, H-7
Beeber Co, Inc, J, New York City	F-19, F-21
Beech-Nut Packing Co, Canajoharie, N Y	B-4
Beltone Hearing Aid Co, Chicago	L-11

featured at the Hanovia exhibit. Competent and courteous representatives will be at your disposal.

ILLE ELECTRIC CORPORATION
Booth H-10

Ille Electric Corporation will demonstrate in Booth H-10 how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. The corporation will also display an improved Mobile Whirlpool Bath, Mobile Sitz Bath Chair, Improved Paraffin Bath and Folding Thermostatic Bed Tent.

FRANK J. JANKUSKAS
Booth EP-17

The busy physician of today needs all the mechanical help he can get to make his tasks go easier and more quickly. Outfits for measuring capillary fragility, cutaneous lymphatic flow, and blood thiocyanates, can be a material help in these circumstances. For such outfits see the Frank J. Jankuskas exhibit in Booth EP-17.

KANSAS CITY ASSEMBLAGE CO.
WP-15 (No. ½)

The Padgett-Hood Dermatome for Cutting Calibrated Skin Grafts will be demonstrated here. By the use of the Dermatome a sheet of skin of any size up to 4x7¾ inches of uniform thickness may be removed from almost any part of the body—thigh, abdomen, chest, or back. A calibrating mechanism allows one to regulate the thickness of the skin sheet at will.

KIDDE MANUFACTURING CO., INC.
Booth H-11

This firm in its initial exhibit at an AMA Convention, will display the Kidde engineered Utero Tubal Insufflator. Its simple *operation—one* valve, one gage—requiring only small cartridge of Carbon Dioxide gas, will be of especial interest. Also on exhibit will be the Kidde Dry Ice Apparatus used *in treatment of superficial* skin lesions. This apparatus, too, because of its simplicity, is becoming increasingly popular.

CHARLES LENTZ & SONS
Booth A-9

Charles Lentz & Sons are proud to have contributed eighty-one years of their existence to the service of the medical profession—not only in America, but throughout the world. Their Exhibit will display fine American-made Stainless Steel surgical instruments.

THE LIEBEL-FLARSHEIM CO.
Booth J-29

The Liebel-Flarsheim Company cordially invites you to stop at Booth J-29 for examination and demonstration of their latest model diathermy and electrosurgical apparatus. Capable representatives will be on hand at all times to answer your questions about physical therapy and electrosurgical apparatus.

THE LINDE AIR PRODUCTS COMPANY
Booth H-9

Administration of oxygen to children will be emphasized at The Linde Air Products Company's exhibit. An oxygen piping system, which supplies oxygen directly to bedside outlets in nursery or ward; a new motion picture "Oxygen Therapy in Heart Disease"; and the Beckman Oxygen Analyzer will be featured. The Beckman Analyzer, which works on an entirely new principle, shows oxygen concentration on a scale at the push of a button.

THE MAICO CO., INC.
Booth B-29

The Maico exhibit will feature—along with the Maico Audiometer—the improved Maico Atomeer Hearing Aid. The Maico Company executives who will attend the Maico exhibit will welcome the opportunity of discussing hearing aid fitting with the doctors on the basis that an exchange of ideas may be mutually beneficial.

McINTOSH ELECTRICAL CORPORATION
Booth WP-11

In Space WP-11 will be shown several popular models of McIntosh apparatus for physical medicine. Foremost among such units is the Hogan Brevatherm Model ♯8890 Short-Wave Diathermy apparatus with frequency stabilization. The McIntosh ♯1521 Sinustat and the McIntosh ♯3386 Biolite Infra-Red Generator will also be shown. The McIntosh Electrical Corporation founded in 1879 is now more than sixty-eight years old.

MEDICAL QUARTZ PRODUCTS COMPANY
Booth F-3

The Medical Quartz Products Company, a division of Dallons Laboratories, will *show the actual fabrication of Quartz Ultra* Violet generators. With an expert operator daily making some of the more intricate devices, many of the properties of Quartz together with the skill required in its processing, may be seen. Also displayed will be the finished apparatus in which these products are used.

V. MUELLER & COMPANY
Booth C-10

One of the highlights of the V. Mueller exhibit, the new Mueller Electronic Tonometer, is expected to create unusual interest. An entirely new type of tonometer, it gives the physician dependably accurate tonometric readings, may be checked and recalibrated quickly before and after each test, if desired. The display will also include a complete line of standard and special surgical instruments.

THE NATIONAL ELECTRIC INSTRUMENT CO., INC.
Booth F-22

The National Electric Instrument Co., Inc., manufacturers of the famous "National" illuminated diagnostic and cautery equipment, has completed extensive plans for demonstrating the uses of various surgical and ophthalmic products of interest to all specialists and general practitioners. Convention visitors will also be shown visual proof of how "National" through volume sales, has continued to maintain highest quality without appreciable price increases.

ORTHOPEDIC FRAME COMPANY
Booth WP-9

The Orthopedic Frame Company, will exhibit the new Stryker Hip-nailing Board and Cassette Holder, a device to be used on any operating table by the orthopedic surgeon. This board in use maintains internal rotation of the femur and facilitates the use of the x-ray. Also displayed will be the Stryker Electric Cast Cutter and the Stryker Turning Frame.

PARAPHONE HEARING AID, INC.
Booth I-3 (W½)

The PARAVOX display will feature the Internal-Type Plastic Chassis, exclusive with PARAVOX. Tests made on this chassis required more than 200 pounds to cause a slight break. Also shown will be the miniature tubes, an "economizer" which enables the consumer to obtain more than 60 hours from one 10c "A" battery—and a giant size reproduction of the PARAVOX.

THE GEORGE P. PILLING & SON COMPANY
Booth I-10

Physicians are offered an opportunity to inspect the many nationally known and important Pilling-made items, including Lemmon apparatus for fractional or continuous spinal anesthesia, the Tocantins sternal transfusion needles, thoracic instruments developed in cooperation with prominent specialists and pneumothorax apparatus. Specialized instruments will include the BRUENING otoscope, a new ear syringe, Kennedy vaginal hysterectomy instruments —and the Kasper headlight.

THE PROMETHEUS ELECTRIC CORP.
Booth C-27

The Prometheus Electric Corporation will display its improved line of Instruments—Sterilizers, Food Conveyors, and Operating Lights. Its exhibit will feature many improvements that have been made on these items during the post-war period.

RITTER COMPANY, INC.
Booths F-32, G-31, G-32

On exhibition are the Ritter Ear, Nose and Throat Unit, complete with instruments, Ritter Motor Chair, the Ritter Shockproof X-Ray, Ritter Compressor, Ritter Rest and Relief Stool, Ritter Mobilrest Stool, Ritter Fluorescent Light, Ritter Sterilizer and Ritter Bone Surgery Engine.

SIEBRANDT MANUFACTURING COMPANY, INC.
Booth H-31

Displayed here is a new type Portable Fracture Table, which will serve for reduction and alignment of the various conditions required in fracture treatment. The exhibit's outstanding feature is a full length Casette Tunnel for holding all sizes of x-ray cassettes for either pelvic, spinal, or cervical examination. Also shown are the Goodwin Bone Clamp, Clayton Transfixion Splints, and a complete line of fracture equipment.

J. SKLAR MANUFACTURING CO.
Booth H-26

The Sklar exhibit features a large display of Stainless Steel Surgical Instruments. Many of these are new instruments never shown before at any A. M. A. Convention and comprise a great number of specialized instruments, developed and produced in cooperation with leading American surgeons. On display also are exclusive models of Suction and Pressure Apparatus: Imperatori, Ralks, Moorhead, Tompkins Portable, Tompkins De Luxe and Davidson Pneumothorax Apparatus.

C. M. SORENSEN CO., INC.
Booth C-32

C. M. Sorensen Co., Inc.—Will have on displa[illegible]g of the Ameri[illegible]v of their latest [illegible] Suction and [illegible]enicillin, which [illegible]mp; Ear, Nose, and Throat Treatment Outfits with *accessories; Suction and Ether Apparatus.*

WELCH ALLYN, INC.
Booth I-25 (E½)

New post war instruments developed by Welch Allyn, Inc. are to be presented at the Centennial meeting of the American Medical Association. A new instrument [illegible] Anascope, *Current* [illegible] Head Mirror, and Otoscope specula

Exhibitors

Best Foods, Inc., N.Y.C.	B-9
Bilhuber-Knoll Corp., Orange, N.J.	D-9
Bishop Platinum, J., Malvern, Pa.	H-14
Blakiston Co., The, Philadelphia	A-3
Borden Company, N.Y.C.	E-4, E-6, E-8
Borg Corp., Geo. W., Delavan, Wis.	E-27, E-29
Breon & Co., Geo. A., Kansas City, Mo.	D-10
Brewer & Co., Inc., Worcester 4, Mass.	EP-5
Bristol Laboratories, Inc., N.Y.C.	C-26
Brown's Medical Bureau, N.Y.C.	B-19
Burdick Corp., The, *Milton,* Wis.	A-11
Burns Cuboid Co., Santa Ana, Calif.	G-28
Burroughs Wellcome, Tuckahoe, N.Y.	G-14, G-16
Business Specialties Engr.Co., Chicago	W½ I-30
Cambridge Instrument Co., Inc., N.Y.C.	C-17
Camel Cigarettes, N.Y.C.	H-3, G-4
Cameron Surg. Specialty, Chicago	B-14, B-16
Camp & Company, S.H., Jackson, Mich.	G-9
Canadian Radium & Uranium, N.Y.C.	F-20
Carnation Company, Milwaukee, Wis.	K-7
Castle Co., Wilmot, Rochester, N.Y.	G-6, G-8
Cayo Co., The, San Antonio, Texas	EP-4
Cereal Institute, Inc., Chicago	J-31
Cert. Blood Donor Serv., Jamaica, N.Y.	B-10
Chicopee Sales Corp., N.Y.C.	West ½ E-30
Church & Dwight Co., Inc., N.Y.C.	I-19
Ciba Pharmaceutical Prods., Summit, N.J.	B-8
Clay-Adams Co., N.Y.C.	H-15
ClerSite Co., Chicago	EP-6
Coca-Cola Co., Atlanta, Ga.	EP-12, EP-13, EP-14
Collins, Inc., Warren E., Boston, Mass.	G-21
Colwell Publishing Co., Champaign, Ill.	G-2
Commercial Solvents Corp., N.Y.C.	E-24
Conformal Footwear Co., St. Louis 3, Mo.	D-11
Continental X-Ray Corp., *Chicago*	*G-3, G-5*

will be shown for the first time. The display also features the No 110 Ophthalmoscope and Montague Recto-Sigmoidoscope set.

WESTERN ELECTRIC COMPANY
Booth E-16

Featured at the Western Electric Booth will be a display showing the latest Western Electric Hearing Aids, Group Hearing Aids, and Diagnostic and School Type Audiometers Representatives will be in attendance at the booth to answer questions concerning the products displayed. The Western Electric Company is the manufacturing unit of the Bell Telephone System and producers of communication and electronic equipment

ZIMMER MANUFACTURING COMPANY
Booth F-15

This exhibit will feature a complete line *of improved Fracture Equipment* Among the newer items on display will be the Godoy-Moreira Hip Fracture Set, Adjustable Intertrochanteric Plate and Nail, Rizzo Retractor, Orthopedic Hammer, Orthopedic Mallet, Martin Hip Gouge, Intramedullary Fixation Set, Webb Bolt Fixation Set, Eggers Contact Splints, Hollow Mill, Improved Bone Clamp, Improved Walking Heel, and Conn Pneumatic Tourniquet.

Diagnostic Equipment

W. A. BAUM CO, INC.
Booth I-20

Booth I-20 will exhibit the four latest models of the Lifetime Baumanometer. Doctors interested in infant, child, and leg-size bloodpressure cuffs will find a complete display. The firm will welcome the *opportunity to be of every service possible* in connection with your bloodpressure measurement problems.

BECK-LEE CORPORATION
Booth D-12

Years of research and experience have brought many advances in electrocardiographs On this, the centennial year of the A. M A, the Beck-Lee Corporation announce their new Model E Electrocardiograph The application gained through 33 years experience with quartz string electrocardiographs has been incorporated into this new instrument Those attending the convention will see the Model E on display.

CAMBRIDGE INSTRUMENT COMPANY, INC.
Booth C-17

At Booth C-17 will be exhibited the Cambridge "Simpli-Trol" Portable Electrocardiograph and *Portable Electrocardio-* ci, Cam- new Cam- recording Cambridge Plethysmograph which furnishes standardized, quantitative, and reproducible records of variations in the size of human extremities as determined by the state of fullness of the blood vessels.

THE DENVER CHEMICAL MFG CO, INC
Booth C-14

Galatest, for the instantaneous determination of urine sugar, and Acetone Test (Denco), for the detection of acetone in urine, will be exhibited You are cordially invited to visit this booth for demonstration of these "spot tests" for sugar and acetone Galatest and Acetone Test (Denco) offer advantages of accuracy, simplicity, and economy in routine urinalysis.

GASTRO-PHOTOR LABORATORIES CORP.
Booth I-28

Gastro-Photor Laboratories will feature their new 500 Model GASTRO-PHOTOR—"The Camera for photographing the Interior of the Stomach." This Camera has proven its true worth as an aid in diagnosing ulcers hidden within rugal folds, or in locations inaccessible to x-ray observations. Each Camera take, provides 16 gastrophotographs. Samples of actual gastrophotographs will be available for your observation.

GOODMAN-KLEINER CO, INC
Booth EP-21

Physicians treating marital infertility are invited to witness actual demonstrations of a new, portable apparatus for use in the diagnosis and treatment of female sterility —the Weisman GYNOGRAPH The Gynograph, in the office, clinic or hospital, performs singly or simultaneously, carbon dioxide tubal insufflation, hysterosalpingography, or a combined pneumoperitoneum and pelvic viscerography, under constant manometric observation.

JONES METABOLISM EQUIPMENT CO.
Booth H-24

The Jones Metabolism Equipment Company will exhibit and demonstrate the new Jones Motor Basal and Super Motor Basal Metabolism Units A staff of trained technicians will be on hand to give any help or information needed about any phase of metabolism testing.

KEYSTONE VIEW CO.
Booth A-13 (No. ½)

The Keystone View exhibit will feature several new developments in stereoscopic orthoptic equipment. Of especial interest at this time, the Keystone Stereo-Motivator, utilizing anaglyphs in a new approach to squint demonstrated. Also a with color-corrected improvements for vision testing and training will be shown

LAMOTTE CHEMICAL PRODUCTS COMPANY
Booth B-27

Among the new equipment to be shown at the LaMotte booth will be a New Liver Function Test which does not require prior *injection of material, a New Specific Gravity* Method for serum, and a New Micro Cholesterol Unit, as well as a new development in the serodiagnosis of syphilis. Also of interest to physicians in public health work will be the New LaMotte Field Unit for inspection of foodstuffs

SANBORN COMPANY
Booth B-11

At Booth B-11 you can see a complete Sanborn direct- watch the actual which is finished tant of recording. Also on display for inspection and demonstration is the *Instomatic Cardiette*, photographic type electrocardiograph News and complete information about the new Sanborn metabolism developments are also available

TAYLOR INSTRUMENT COMPANIES
Booth F-18

In the Tycos exhibit you will be interested in seeing an actual "Break-down Test Panel" in operation On this panel are mounted 10 Tycos Manometers which are being pulsated automatically to prove the durability and permanent accuracy of the Aneroid-type Tycos The display can be stopped and instruments checked by the observer

W. A. TAYLOR & COMPANY
Booth F-5

Their complete line of Comparators for colorimetric clinical chemistry will be displayed by W A Taylor & Company. Comparators employing simple, rapid, and accurate procedures for many tests are available Blood sugar, NPN, Urea Nitrogen, Thiocyanate, sulfa, icterus index, hemoglobin, chlorides and many other constituents can be determined quickly and easily in the physician's office with these Comparators.

Dietetic Products

AMERICAN CAN COMPANY
Booth I-18

Convention delegates are cordially invited to visit the American Can Company's exhibit in Booth I-18 where information will be available concerning those aspects of commercially canned foods which are of particular interest to the medical profession.

AMERICAN INSTITUTE OF BAKING
Booth D-4

A century of baking will be dramatized in this booth. By comparing baking practices of a century ago with today's modern, *mechanized bakery, this exhibit will depict* the enormous progress made by the baking industry from the days of Sylvester Graham to today's enriched white bread made according to standards approved by the Council on Foods and Nutrition.

BEECH-NUT PACKING CO.
Booth B-4

Beech-Nut Packing Company, which will feature its twenty strained varieties of Baby Foods and fourteen of Junior Foods, invites you to visit its exhibit Members of the nutrition staff will be on hand to answer any questions you might care to ask concerning the preparation exact ingre*dients, or nutritive* value of the Beech-Nut Foods.

THE BEST FOODS, INC.
Booth B-9

At their booth, The Best Foods, Inc, is *exhibiting Nucoa, the wholesome nutritious* vegetable margarine, which contains 15,000 units of Vitamin A to the pound Also on exhibit will be the famous Best Foods Hellmann's Real Mayonnaise and other Best Food's products. Miss Elsie Stark, Director of Consumer Education, will be in charge of the booth and will welcome questions about the products.

THE BORDEN COMPANY
Booths E-4, E-6, E-8

Items in the Borden exhibit will include not only special prescription products for infant feeding, but also foods for older children and adults Several new powdered foods for well-rounded nutrition will be featured, in addition to Borden's widely-acclaimed soluble coffee, cheese, milk and ice cream. Stop at Borden's for a refreshing snack The Borden Company this year is celebrating its 90th anniversary.

CARNATION COMPANY
Booth K-7

In this exhibit you will see an attractive display on Carnation Evaporated Milk—"the milk *every doctor knows*" Some valuable information on its use for infant feeding, child feeding, and general diet,

Exhibitors

Corn Products Sales Co, N Y C	C-29
Council on White Mineral Oil, Chicago	E-12
Cream of Wheat Corp, *Minneapolis*	*H-32*
Curvlite Prods, Inc, Port Chester, N Y	WP-8
Cutter Laboratories, Berkeley, Calif	E-18, E-20
Danz Richard & Sons, N Y C	L-9
Davies, Rose & Co, Ltd, Boston, Mass.	H-28
Davis Co, F A, Philadelphia 3, Pa	H-16
Davis & Geck, Inc Brooklyn 1, N Y.	EP-1
Davol Rubber Co, Providence R I	West ½ I-29
Day's Ideal Baby Shoe, Danvers Mass	C 19
Denver Chemical Mfg Co, Inc, N Y.C	C-11
DePuy Mfg Co, Warsaw, Ind.	B-30
Devereux Schools, Devon, Pa	A-6
DeVilbiss Company, Toledo 1, Ohio	J 6
Dictograph Products Inc, N.Y C	J-4
Dietene Company, Minneapolis 15, Minn	E-5
Drug Products Co, Passaic, N J	E ½ I 3
Duke Laboratories, Inc, Stamford, Conn.	D 13
DuPont de Nem, Wilmington	D 25, D-27, D 29
Durex Products, Inc, N Y C	F 27
E & J Mfg Co, Glendale, Calif	C-12
Eastman Kodak Co, Rochester 4, N Y	H 6, H 8
Eaton Lab, Norwich, N Y	D-14, D-16
Edison, Inc, Thos A, Bloomfield, N J	I-6
Edwards & Co, J, Philadelphia 7, Pa	WP 5
Emerson Co, J H, Cambridge 40, Mass	G-24
Encyclopaedia Britannica, N Y C	E ½ L-1
Endo Products Richmond Hill, N Y	H-18
Ethicon, New Bruns, N J	WP-12, WP 13, WP-14
Evaporated Milk Assn, Chicago	I-14
Fischer & Co, H G, Chicago	H-25
Fisher-Stevens Service, N Y C	S ½ WP-15

and the method by which Carnation is generously fortified with pure Vitamin D—400 U S P units per reconstituted quart—will be explained Interesting literature will be available for distribution.

CEREAL INSTITUTE, INC
Booth J-31,

In Booth J-31 you will find an important educational message from Cereal Institute, *featuring three important facts: (1) Cereals* are suitable in every specialized diet, (2) Few foods can better the nutritional contribution of a serving of cereal and milk, (3) This nutritional value is provided by virtually all cereals, regardless of grain source Complimentary copies of an authoritative booklet, "Cereals and Their Nutritional Contribution," are offered

THE CREAM OF WHEAT CORPORATION
Booth H-32

The Cream of Wheat exhibit will be devoted to the display of both the Regular and Enriched 5 Minute CREAM OF WHEAT. They will also have for distribution, either at the booth or thru registration by the profession, interesting up-to date literature *pertaining to this product*

THE DIETENE CO
Booth E 5

Here MERITENE Accessory Feeding and DIETENE Reducing Supplement will be on display MERITENE, the new name for *Dietene's Accessory Feeding,* is a palatable high protein diet supplement It provides over 65 grams of high quality protein per quart when mixed according to directions DIETENE Reducing Supplement is used in low calorie diets to provide adequate quantities of vitamins, minerals and protein

EVAPORATED MILK ASSOCIATION
Booth I-14

A free copy of "Infant Feeding with Evaporated Milk," a manual for physicians on the use of vitamin D fortified evaporated milk in infant feeding will be offered here Discussion of the significance of vitamin D fortification in pediatrics, infant feeding formula construction, feeding of newborns and infants under special conditions supplementary *foods,* complementary feedings, are included in this booklet

GERBER PRODUCTS COMPANY
Booth H-4

Gerber's extends a cordial welcome to you to visit their booth where the new Barley Cereal for babies will be displayed Special emphasis will be placed on the use of pediatric foods in geriatrics and in adult special diets Appropriate service literature on *infant* feeding and special diets will be available A qualified nutritionist will be among those in attendance

CHR HANSEN'S LABORATORY, INC
Booth C-4

"The 'Junket' Folks," Chr Hansen's Laboratory are displaying enlarged photos showing the action of the rennet enzyme in forming softer, finer milk curds Literature describing dietary uses of rennet-custards in infant, child, convalescent, or post-operative feeding is available A complimentary package of "Junket" Rennet Powder and "Junket" Rennet Tablets will be presented to physicians who register

HAWAIIAN PINEAPPLE COMPANY
Booth WP-1

Sparkling, flavorful DOLE Pineapple Juice from Hawaii is to be served again this year at the Hawaiian Pineapple Company, Ltd booth—No WP-1.

H J HEINZ COMPANY
Booth F-7

At the H J Heinz booth will be an attractive presentation of interesting information on the uses of Heinz Strained and Junior Foods The 12th edition of their popular Nutritional Chart is available upon request While you are visiting the exhibit, be sure to register for it

KELLOGG COMPANY
Booth C-7

The place of ready-to-eat cereals in restricted and normal diets is discussed at the Kellogg exhibit These cereals contain valuable nutrients found in whole grains, or are fortified with extra vitamins to *increase their value* Special Diet Slips for bland, high-residue, low calorie, low fat diets as well as Diet Manuals and Nutritive Value Charts, are available

H W. KINNEY AND SONS, INC
Booth I-10

H W Kinney and Sons, Inc will exhibit Cartose and the Kinney line of nutritional products at Booth I-10 Representatives will be in attendance and will welcome the opportunity to talk with physicians stopping at the exhibit

LIBBY, McNEILL & LIBBY
Booth H-17

Libby's Vitamin D_3 Fortified Homogenized Evaporated Milk and Libby's Strained and Homogenized Baby Foods are featured at the Libby exhibit Physicians are invited to stop and discuss these two products

M & R DIETETIC LABORATORIES INC
Booths D-18, D 20

M & R Dietetic Laboratories, Inc, will display Similac, a food for infants deprived either partially or entirely of breast milk A portion of this display will be devoted to presenting the history of the development of the artificial feeding of infants Representatives will be happy to discuss the merit and suggested application of Similac, for both the normal and special feeding cases

MEAD JOHNSON & COMPANY
Booths K-10, K-12

The old standbys DEXTRI-MALTOSE, OLEUM PERCOMORPHUM and PABLUM may be seen at this one of Mead Johnson & Company's three exhibits, also their complete line of infant diet material Booths I-13 and I-15 will feature some new phases of protein nutrition

NATIONAL ASSOCIATION OF MARGARINE MANUFACTURERS
Booth E-2

Inform [illegible] 's ingredients and [illegible] in sound nutrition [illegible] E-2 The National Association of Margarine Manufacturers invites your questions and views on the place of margarine in the diet The Association's scientific consultants have prepared a new booklet, Fats in Therapeutic Diets Be sure to get a copy Other literature of value to the medical profession also is available gratis

NATIONAL DAIRY PRODUCTS COMPANY, INC
Booth G-29

Comparatively a newcomer in the field of inf [illegible] ombines the flexib [illegible] in formula prepa [illegible] assured by incorp [illegible] nd minerals now [illegible] presentatives will be glad to explain the properties of the product and to make it available at your hospital

NESTLE'S MILK PRODUCTS, INC
Booth I-24

As the latest of its many services to the medical profession, Nestle's Milk Products, Inc now offers to the physician a brand new booklet, "Your Baby's Formula," profusely *illustrated* and authoritatively written This booklet is designed to give complete and accurate instructions to the mother on how to prepare baby's formula The formula itself is all that needs to be supplied by the doctor

PET MILK SALES CORP.
Booths F-1, F-2, G-1

An actual working model of a milk condensing plant in miniature will be displayed here This exhibit offers an opportunity to obtain information about the production of Pet Milk, its use in infant feeding, and the time-saving Pet Milk services available to physicians Miniature Pet Milk cans will be given to the physicians who visit the Pet Milk Booth

POSTUM (GENERAL FOODS CORP.)
Booth EP-3

General Foods will serve Postum Milk Shake This *beverage is especially attractive* to youngsters not only for its own delicious flavor, but it provides a more palatable way of serving milk to children who *resist milk Hot Postum is also an* excellent beverage for adults who cannot drink coffee because of nervousness or digestive disorders

SANKA (GENERAL FOOD CORP.)
Booth E-32

General Foods will serve caffein-free Instant Sanka Coffee All doctors will be interested not only for themselves but for patients because of true coffee flavor and convenience It can be prepared in an *instant* at the office or home any hour of the day or night—a real cup of coffee without caffein effect

SWIFT & COMPANY
Booth I-7

A new *all-meat baby food, Swift's Meats* for Babies (Strained) and Swift's Meats for Juniors (Diced) are being exhibited here These high protein, bodybuilding foods which are available in six varieties—beef, lamb, veal, pork, heart, and liver—are also gaining rapid acceptance in special adult diet therapy Representatives will be pleased to have you taste and examine these new products

Medical Books

AMERICAN MEDICAL ASSN (HYGEIA)
Booth EP-9

In the HYGEIA booth, you will find a pictorial *representation of* editorial contributors the processes of editing, the methods used for screening and approving advertising and the various types of readers who benefit from this health magazine Also presented is a series of sequence lighted color transparencies showing how HYGEIA's health information is used by professional, educational, and family groups

D-APPLETON—CENTURY CO, INC
Booth I-22

Visiting physicians are cordially invited to stop at the Appleton-Century exhibit and examine at their leisure the new books

Exhibitors

Flint, Eaton & Co, Decatur, Ill	E 26
Foley Mfg Co, Minneapolis 13 Minn	B-24
Foregger Co, Inc, New York City	C-30
Gastro Photor Labs Corp, N Y C	I 28
General Elec Co (Lamp Div), Cleveland	D 22
Gen Elec X-Ray, Chic	D-17, D 19, D-21, D 23
General Foods Corp, N Y C	E 32, EP-3
General Hospital Supply, N Y C	EP-19
Gerber Products Co, Fremont, Mich	H-4
Gomco Surgical Mfg Co, Buffalo, N Y.	B 26
Goodman Kleiner Co, Inc, N Y C	EP 21
Gradwohl Laboratories, St Louis 3 Mo	K-3
Grune & Stratton, Inc, N Y C	A 4
Hamilton Mfg Co, Two Rivers Wis	L 2 L 4
Hanger, J E, Cos, Washington, D C	L 7
Hanovia Chemical & Mfg, Newark N J	D 30
Hansen's Lab, Chr, Little Falls, N Y	C 4
Harrower Laboratory Glendale 5 Calif	G 25
Hawaiian Pineapple Co, San Francisco	WP-1
Heinz Company, H J, Pittsburgh, Pa	F 7
Hoeber Inc, Paul B, N Y C	A 26
Hoffmann La Roche, Inc, Nutley, N J	C 15
Holland Rantos Co, Inc New York City	C 23
Hollister Stier Laboratories, Spokane	E-14
Hospital Liquids, Chicago	E ½ *I 30*
Hudnut, Richard N Y C	D 6, D 8
Hygeia Nursing Bottle Co, Inc, Buffalo	G 12
Hynson, Westcott & Dunning, Baltimore	D 26
Ille Electric Corp, Long Island City	H 10
Interchemical Corp, Union, N J	L-3
International Vitamin Corp, New York	C-24
Iodine Educational Bureau Inc, N Y	G 10
Jankuskas Frank J, Philadelphia	EP 17

on internal medicine, antibiotic therapy, surgery, and operative technic. The Appleton-Century representatives will also be glad to supply advance information on several other new titles in preparation for early publication.

THE BARTA PRESS

Booth G-27

Illuminated, colored enlargements of anatomical and schematic illustrations, and of kodachrome photographs feature the display of The Barta Press, Medical Division. Subjects range from the eye fundus to proctoscopic studies of internal hemorrhoids. Treatises, brochures, charts, booklets, folders, and other forms of printed literature produced for ethical medical advertisers, are also shown.

THE BLAKISTON COMPANY

Booth A-3

The unique display of new books by Blakiston will include the official American Medical Association's 1947 edition of "Standard Nomenclature of Disease and Standard Nomenclature of Operations" now published by Blakiston; Dyke's "Recent Advances in Clinical Pathology"; Merritt, Mettler and Putnam's "Fundamentals of Clinical Neurology"; Dr. Alexander Joe's "The Acute Infectious Fevers"; Alexander Fleming's "Penicillin. Its Practical Application"; and many others.

COLWELL PUBLISHING CO.

Booth G-2

Physicians and guests interested in income and expense records, or standard forms for patients' histories and accounts, may study the DAILY LOG for Physicians, and discuss their particular problems. DAILY LOG users will find the cowhide flat-opening ring binder available again for the first time in five years.

THE COOPERATIVE MEDICAL ADVERTISING BUREAU

Booth EP-11

This exhibit will have on display copies of the 35 State Medical Journals, members of the Bureau, all of which follow AMA standards in acceptance of advertising. Service as rendered in behalf of the state medical associations will be outlined. Prospective advertisers may secure sample copies, details, rates. Ask for booklet, "Advertising Service."

F. A. DAVIS COMPANY

Booth H-16

Of interest to all physicians will be the "Cyclopedia of Medicine, Surgery and Specialties" edited by Dr. George Morris Piersol and Dr. Edward L. Bortz. In addition to their standard line of texts, F. A. Davis plan to display the new Behrend "Diseases of the Gall Bladder"; Bach "Arthritis"; Greenbaum "Dermatology"; Judd "Diseases of the Chest"; Malinaic "Rhinoplasty"; May "Reconstructive Surgery"; and Troncoso "Gonioscopy."

GRUNE & STRATTON, INC.

Booth A-4

New books on display by G & S are Schindler's "Gastritis," Mandl's "Paravertebral Block," Fradkin's "Diarrheal Diseases," Rubinstein and Davis' "Neuroanatomical Atlas," and Behrman's "Dermatologic Clues." In addition to outstanding and practical monographs and reference works, the new PROGRESS volumes, Meigs and Sturgis' "Progress in Gynecology" and Speigel's "Progress in Neurology and Psychiatry" (2nd volume, 1947) are shown. In the periodical field, two monthly Abstracts have been added.

PAUL B. HOEBER, INC.

Booth A-26

Among the new books to be on display by Paul B. Hoeber, Inc., Medical Book Department of Harper and Brothers, are Mengert's "Postgraduate Obstetrics," Elman's "Parenteral Alimentation in Surgery," and Kardiner's "War Stress and Neurotic Illness." Advance proofs of New Editions of Gesell's "Developmental Diagnosis" and Bierman's "Physician Medicine in General Practice" and a new book, Beach's "Hormones and Behavior" will be available for your perusal.

LEA & FEBIGER

Booth A-18

Lea & Febiger will exhibit both new works and new editions of standard books. They will include Holmes & Robbins' "Roentgen Interpretation"; Schwartz, Tulipan & Peck's "Occupational Diseases of the Skin"; Stimson's "Common Contagious Diseases"; Bell's "Pathology"; Soffer's "Diseases of the Adrenals"; Joslin's "Diabetes Mellitus"; Cushny's "Pharmacology & Therapeutics"; Lewin's "Foot and Ankle"; Ballenger's "Nose, Throat and Ear"; Wintrobe's "Hematology."

J. B. LIPPINCOTT COMPANY

Booths A-20, A-22, A-24

J. B. Lippincott Company, Philadelphia, Montreal, London, is pleased to present at this 100th Anniversary celebration of the American Medical Association, a brilliant display of new books and new editions in the field of medicine and surgery, including items especially prepared for this Centenary meeting.

THE MACMILLAN COMPANY

Booth B-25

Anticipating the *second* hundred years of medical progress, Macmillan will present publications of interest to both the teacher and the practitioner of modern medicine. Among those books of current and future interest will be: Lewis—"Diseases of the Heart," 4th edition; Levine— "Psychotherapy in Medical Practice"; and the forthcoming Riseman—"P-Q-R-S-T, A Guide to Electrocardiogram Interpretation"; Walter—"Aseptic Treatment of Wounds"; Goldwater—"On Hospitals" and others.

THE C. V. MOSBY COMPANY

Booths J-21 and J-23

A wealth of new medical literature will be shown by Mosby this year. New titles will include Clendening-Hashinger "Methods of Diagnosis," Treiger "Atlas of Cardiovascular Diseases," Ackerman-Regato "Cancer," Rubin "Uterotubal Insufflation," Wiener "Skin Manifestations of Internal Disorders," Sadler "Mental Mischief and Emotional Conflicts," and Weinmann-Sicher "Bone and Bones." For something new and different in surgery, inquire about the forthcoming 9-volume "British Surgical Technic."

THOMAS NELSON & SONS

Booth I-21

Thomas Nelson & Sons will exhibit their Medical Books in a convenient manner. Each set of books will be encased in a modern, natural-oak bookcase. These bookcases will rest upon a wide jet-black reading ledge which is illuminated by indirect fluorescent lighting. This practical exhibit will permit easy examination and handling of the loose-leaf volumes.

OXFORD UNIVERSITY PRESS, NEW YORK, INC.

Booth C-28

The Oxford University Press extends a cordial invitation to physicians to visit booth C-28 where all Oxford publications along with the following new books will be on display; Jorpes, Heparin; Movitt, Jaundice; Jackson & Parker, Hodgkin's Disease; Wolff, Headache; Pack & Twombly, Symposium on Endocrinology; Duncum, Anesthesia; Peel, Diseases of the Heart; Hinshelwood, Chemical Kinetics of Bacterial Cell.

W. F. PRIOR, INC.

Booth C-16

When Prior launched a plan in 1918 to publish medical reference books that could be kept forever up-to-date it seemed too good to be true. But the test of time has proved their ideal has been achieved and has made them thousands of friends among doctors. You are cordially invited to visit this booth to express comments and suggestions for future publications.

W. B. SAUNDERS COMPANY

Booths A-12, A-14, A-16

Saunders—the publishers of the Centenary Volume giving the History of the American Medical Association—will display in a wall panel the progress of the making of this book from manuscript to bound copy. This unusually attractive exhibit will also include new books and interesting new editions, among them: Hyman's 5-volume "Integrated Practice of Medicine"; Rubin's "Diseases of the Chest and X-rays"; Cooke's "Allergy", Spies' "Rehabilitation through Nutrition"; Bockus' "Gastroenterology."

SURGERY, GYNECOLOGY AND OBSTETRICS

Booth D-31

An interesting exhibit, portraying the character and quality of an acknowledged leader in surgical journals, is depicted at Booth D-31. Superior printing, beautiful illustrations, and high editorial standards are graphically portrayed through "Translites" in this exhibit.

CHARLES C THOMAS, PUBLISHER

Booth B-17

Located near the main entrance, the feature of Charles C Thomas Publisher's exhibit will be forty-two new titles, editions, and printings published since the last meeting. Of particular interest will be the announcement of two new journals: "The Journal of the Neurological Sciences" and "Pediatrics." A unique innovation in medical publications, the *AMERICAN LECTURE SERIES* will be displayed for the first time.

UNIVERSITY OF CHICAGO PRESS

Booth K-5

The exhibiting of Books from University Presses is an outgrowth of the Association of American University Presses. Each press represented is a separate publishing company devoted to the production of important technical and scholarly works which might otherwise go unpublished, as well as general books of vital interest. Because of their common goals, and because some are too small to sponsor exhibits alone, these presses have combined to present their books in a single display.

THE WILLIAMS & WILKINS COMPANY

Booth B-15

The Williams & Wilkins Company will display for the first time several new books and new editions, as well as their 20 medical journals including two new ones: "Obstetrical & Gynecological Survey," and "Plastic & Reconstructive Surgery." See also the new world-wide medical abstract service, "Excerpta Medica," covering all fields of medicine and surgery.

Exhibitors

Johnson & Johnson, New Brunswick, N J..	F-25
Jones Metabolism Equipment Co , Chicago..	H-24
Kansas City Assemblage, K C	N ½ WP-15
Kelley-Koett, Covington, Ky...	J-16, K-15, K-16
Kellogg Company, Battle Creek, Mich.. ...	C-7
Keystone View, Meadville, Pa	N. ½ A-13
Kidde Mfg Co , Inc , Bloomfield, N J	H-11
Kinney, H W. & Sons, Columbus, Ind....	I-10
Lakeside Laboratories, Inc ,Milwaukee.	D-1, D-2
LaMotte Chem Prod , Baltimore..........	B-27
Lea & Febiger, Philadelphia.............	A-18
Lederle Laboratories, Inc , N Y	J-10, J-12
Lentz Charles & Sons, Philadelphia.......	A-9
Libby, McNeil & Libby, Chicago..........	H-17
Liebel-Flarsheim Co , The, Cincinnati......	J-29
Lilly, Eli & Co , Indianapolis..	G-18, G-20, G-22
Linde Air Products Co , The, New York,...	H-9
Lippincott, Philadelphia......	A-20, A-22, A-24
Luzier's, Inc , Kansas City, Mo..........	A-30
M & R Dietetic, Columbus, Ohio..	D-18, D-20
Macalaster Bicknell, Cambridge....	E ½ E-30
Machlett Labs , Inc., Springdale, Conn....	F-4
Macmillan Company, The, New York......	B-25
Maico Company, Inc., The, Minneapolis...	B-29
Mallinckrodt Chemical Works, St Louis...	A-1
Maltine Company, The, New York........	H-22
Marcelle Cosmetics, Chicago....	E-17
Mattern, F., Mfg , Co , Chicago	E-19, E-21,E-23
McFedries X-Ray Company, Chicago........	I-2
McIntosh Electrical Corp., Chicago......	WP-11

THE YEAR BOOK PUBLISHERS, INC.

Booth J-8

Spies' "Experiences with Folic Acid," Potter's "Rh," "Sulzberger & Baer's "Office Immunology (Including Allergy)," Cullen's "Anesthesia in General Practice," Caffey's "Pediatric X-ray Diagnosis," Schiff's "Jaundice," and many new editions of general-practice-manu [illegible] 1946 YEAR [illegible] numerous tim [illegible] which every physician is cordially invited to peruse in Booth J-8.

Office Furniture

W. D. ALLISON COMPANY

Booth F-17

The W. D. Allison Company's exhibit this year will be located in Booth F-17. Features of the exhibit will include a suite of "Monarch" physician's furniture; the *Allison-Hanes Rectal Table; and the Allison-Ramsey Pediatric Table.*

HAMILTON MANUFACTURING COMPANY

Booths L-2, L-4

The first booth to your left, as you enter the auditorium, is that of the Hamilton *Manufacturing Company* where is shown a complete Nu-Tone Walnut Suite and a complete Steeltone Suite. *A special feature of the exhibit will be demonstrations of the* newly designed all-purpose table. The top *of this table is adjustable to any of the* standard examining positions.

SHAMPAINE COMPANY

Booth C-25

Shampaine will display the Perfection Major Operating Table, completely head-end controlled and containing many new features. Also exhibited will be the renowned Martin All-purpose Table; the Steelux Physician's Office Furniture; and reception room furniture designed for use in doctors' offices. Factory trained representatives will be on duty and will be happy to demonstrate and discuss this equipment.

Pharmaceuticals

AMES COMPANY, INC.

Booth E-3

Representatives will demonstrate Clinitest, Albutest, and Hematest—simplified tests for the detection of urine-sugar, albumin, and occult blood—at the Technical Exposition of the 100th Anniversary of the American Medical Association. They will also be glad to discuss Decholin and Decholin Sodium.

ARMOUR LABORATORIES

Booths C-9, C-11, C-13

The Armour Laboratories will present historical data and graphic sketches of important events which lead to our present understanding of thyroid function, standardization of thyroid preparations, and dependable treatment of simple colloid goiter, myxedema, cretinism, and other dysfunctions of the gland. Do not miss the scientific exhibit display (Space 74) and the motion picture "Animated Hematology."

BILHUBER-KNOLL CORP.

Booth D-9

The Bilhuber-Knoll display carries the *fine medicinal* chemicals Bromural—sedative and mild hypnotic; Dilaudid—analgesic and cough sedative; Metrazol—analeptic and antianoxiant; Theocalcin—diuretic and myocardial stimulant; and other dependable council-accepted products. Your discussions on the latest developments in these fine prescription chemicals will be welcomed.

GEORGE A. BREON & COMPANY

Booth D-10

The George A. Breon Company exhibit will feature a lighted fountain bubbling from a vine covered wall. Busy conventioneers will find it a comfortable retreat for a moment of relaxation.

BRISTOL LABORATORIES, INC.

Booth C-26

The Bristol Laboratories' exhibit will be devoted to the display of penicillin and pharmaceutical products. *Qualified representatives will be on hand to assist the medical profession with any inquiries.* Literature describing Bristol products will be available.

BURROUGHS WELLCOME & CO., INC.

Booths G-14, G-16

Burroughs Wellcome & Co., Inc., will present a series of interesting panels depicting the background and development of two of its most important products—Digoxin and Globin Insulin. A hearty invitation is extended to all to visit this exhibit.

CHURCH & DWIGHT CO., INC.

Booth I-19

Church & Dwight Co., Inc., in booth I-19 will pay tribute to the 100th Anniversary of the A. M. A. This firm with one hundred and one years of service to the medical profession was an industrial infant of 1 year of age when the A. M. A. was born in 1847; and throughout a century of growth, development, and experience, have continuously supplied the medical profession with Pure Bicarbonate of Soda.

CIBA PHARMACEUTICAL PRODUCTS INCORPORATED

Booth B-8

Ciba Pharmaceutical Products, Inc., invite physicians to visit their exhibit for the latest information on PYRIBENZAMINE, the new antihistaminic compound. Also displayed will be PRIVINE HCl, the effective, *long-lasting nasal vasoconstrictor.* Representatives in attendance will be glad to answer any questions which you may have concerning these products and to furnish you with literature and samples.

COMMERCIAL SOLVENTS CORP.

Booth E-24

The modern-day penicillin armamentarium is to be featured: Crystalline Penicillin G Potassium Salt, Crystalline Penicillin G Sodium Salt, Crystalline Penicillin G Potassium in Oil and Wax, and Tablets Buffered Penicillin. Descriptive literature covering these preparations will be available, outlining the principal uses and dosages.

COUNCIL ON WHITE MINERAL OIL

Booth E-12

The doctor's home medicine chest will benefit by his souvenir from the booth of the Council on White Mineral Oil. He may take his pocket-size sample with him, or the Council will mail it to his address. The background of the booth will highspot 8 advantages of mineral oil, with supporting quotations from well-known physicians.

CUTTER LABORATORIES

Booths E-18, E-20

Paralleling the hundredth anniversary of the A. M. A. is the historical exhibit of Cutter Laboratories, which depicts the progress made in the last century in pediatric immunology and in the utilization of human blood. Successive pages in an eight-foot book which dominates the Cutter display show significant advances against diphtheria, pertussis and tetanus; the final section is devoted to the fractionation of human blood, one of the highlights of the past decade.

DAVIES, ROSE & COMPANY, LIMITED

Booth H-28

Visit booth H-28 for the latest word on the Quinidine Sulfate situation. The availability of Quinidine Sulfate Tablets has been a perplexing problem for physicians and cardiac clinics, as the Government had to restrict the purchase of the salt and the sale of the tablets during the war because of enemy occupation of Java, which is the principal source of Cinchona Bark from which natural Quinidine is derived.

THE DRUGS PRODUCTS CO., INC.

Booth I-3 (E ½)

This year Drug Products which enters its 35th year of service to the medical profession will have on hand trained representatives to discuss the many Council-accepted products in their line. You and your guests *are cordially invited to stop in.*

DUREX PRODUCTS, INCORPORATED

Booth F-27

Durex which this year celebrates its 20th anniversary will exhibit it's contraceptive products—Lactikol Jelly and Lactikol Creme, which have been developed during this period. Coupled with these are the usual type of plunger applicator and the recently developed Metri-Dose applicator, which is a new syringe type applicator for measured dosages, adjustable from 5 to 8 cc.

EATON LABORATORIES, INC.

Booths D-14, D-16

Eaton Laboratories, Inc., will exhibit *several pharmaceutical preparations of interest to the physician.* Furacin Soluble Dressing containing a new chemotherapeutic agent, Furacin (brand of nitrofurazone), will be displayed. This compound is a new antibacterial agent for the treatment of wound and surface *infections.* Clinical evaluation throughout the past two and one-half years indicates a wide field of use.

ENDO PRODUCTS, INC.

Booth H-18

In keeping with the historical significance of the A. M. A. centennial meeting, the Endo booth will depict an early American pharmacy. [illegible] will be on hand to [illegible] acquaintances and to [illegible] their products. [illegible] selective [illegible] *d Estro-* [illegible] *be dis-*tributed.

HOFFMANN-LA ROCHE, INC.

Booth C-15

Prostigmin has assumed a very important role in the practice of medicine and surgery *today. For this reason Roche will feature* it at their unusually attractive Centennial Convention booth. To their medical friends, they extend a cordial welcome to visit the

Exhibitors

McKesson Appliance Company, Toledo.....E-25
McKesson & Robbins, Inc., New York.....D-15
McNeil Laboratories, Philadelphia...E-9, E-11
Mead Johnson.....A-8, K-10, K-12, I-13, I-15
Medical Bureau, The, Chicago............C-22
Medical Case History Bureau, New York...B-5
Medical Fabrics Inc., Paterson, N. J.......D-3
Medical Film Guild, New York..WP-7 & WP-7A
Medical Mailing Service, The, Inc.,Chicago WP-4
Medical Protective Co., The, Ft. Wayne, Ind. I-12
Medical Quartz Products Co., Los Angeles..F-3

Mennen Company, The, Newark, N. J.......I-17
Merck & Company, Rahway, N. J.....C-18, C-20
Merrell Co., The Wm. S., Cincinnati.......I-26
Meyer Company, The Wm., Chicago........H-1
Mosby Co., C. V., St. Louis......J-21- & J-23
Mueller, V., & Company, Chicago........C-10

Natl. Assn. Margarine Mfrs., Washington..E-2
National Dairy Products Co., Inc., N.Y.C..G-29
National Drug Company, Philadelphia.....I-23
Natl. Electric Instrument, Elmhurst, N.Y...F-22

National Institute Diaper Serv., Phila.....D-32
Natl. Live Stock and Meat Board, Chicago..I-5
Nelson, Thomas & Sons, New York........I-21
Nestle's Milk Products, Inc., New York....I-24
New York Medical Exchange, New York..B-12
North American Philips, N.Y.C...F-28 and F-30
Norocol Chemical, Brooklyn.....upper ½ F-29

Obrig Laboratories, Inc., New York........K-2
Ohio Chemical & Mfg. Co., The, New York..I-4
Oldsmobile Div., Gen. Mot. Corp., Lansing.LO-1

Roche booth where competent members of their convention staff will be in attendance to discuss Prostigmin and other specialties.

HOLLAND-RANTOS COMPANY, INC.

Booth C-23

At the Holland-Rantos Booth will be displayed the nationally known and universally used Koromex contraceptive specialties. Be sure to see the new Koromex Set Complete, which is a package combining the necessary items for complete contraceptive technic. Samples of Koromex Jelly will be available, as will be copies of the new physician's patient instruction chart.

HOLLISTER-STIER LABORATORIES

Booth E-14

100 years ago allergy was practically unknown. Today it is an important part of medical practice. A visit to the Hollister-Stier Laboratories' booth will acquaint you with what is new, and explain how much a laboratory specializing exclusively in the field of allergy can aid you in your practice.

HYNSON, WESTCOTT & DUNNING, INC.

Booth D-26

Hynson, Westcott & Dunning, Inc., will feature their pharmaceutical specialties. There will also be a display of diagnostic apparatus and ampule solutions which have been developed in cooperation with physicians. Representatives of the company will be present to demonstrate and to provide information regarding these products. Literature will be available to physicians who are not already familiar with products exhibited.

INTERCHEMICAL CORPORATION

Booth L-3

The Biochemical Division of Interchemical Corporation will display AMINO ACIDS—I. C. Representatives of the scientific staff will be available at Booth L-3 for discussion of laboratory and clinical amino acid research. Physicians are cordially invited to meet them and exchange views on the potential usage of amino acids in nutrition.

INTERNATIONAL VITAMIN CORPORATION

Booth C-24

At the I. V. C. Booth there will be a full array of Council-accepted vitamin products. An especially interesting Vitamin "A" configuration will be shown in color transparency. Well-trained representatives and an M.D. will be in attendance at all times to describe and explain the uses of I. V. C. products.

LAKESIDE LABORATORIES, INC.

Booths D-1, D-2

The Lakeside exhibit will feature Mercuhydrin, well tolerated mercurial diuretic; Estrogens, Lakeside; and Emulgen, emulsifying vehicle for penicillin. Representatives will be on hand to describe the applications of these medications.

LEDERLE LABORATORIES, INC.

Booths J-10, J-12

Therapy through Research will be the theme of the Lederle exhibit. This will be illustrated by the development of folic acid and its uses in the treatment of macrocytic anemias. Across the center front of this large exhibit will be a series of illustrations and photographs so arranged that physicians can most easily examine the new products of research.

ELI LILLY AND COMPANY

Booths G-18, G-20, G-22

Exhibits on diabetes and the anemias are presented to conform to the historical keynote of the Centennial meeting. These displays present a series of translite panels telling the story of diabetes and the anemias through the ages and the modern conquest of these disorders.

MALLINCKRODT CHEMICAL WORKS

Booth A-1

The Mallinckrodt Chemical Works cordially invites all members of the American Medical Association and their friends to visit Booth A-1. The representatives in attendance will be glad to answer questions concerning the chemicals on display or any problems relative to the medicinal line of chemicals as supplied by the Mallinckrodt Chemical Works.

THE MALTINE COMPANY

Booth H-22

Thromboplastin, a new product from the Research Laboratories of The Maltine Company, is featured at the Maltine exhibit. This product is an improved and standardized thromboplastin for diagnostic purposes and its use makes possible prothrombin determinations of greater accuracy. Prothrombin determinations aid in detecting an increased tendency to hemorrhage or to thrombosis.

McKESSON & ROBBINS, INC.

Booth D-15

A display of accepted vitamin products and of historical data showing development of the House of McKesson since 1833 will be featured here. Some of the modern laboratory procedures will be demonstrated.

MEAD JOHNSON & COMPANY

Booth A-8

Don't miss the outstanding display of Famous Medical Caricatures at Mead Johnson & Company's Booth A-8. "Medical caricatures show us medicine, its evolution, its discoveries, and its failures from the standpoint of the patient, medicine as seen by the sick."

MERCK & CO., INC.

Booths C-18 and C-20

The Merck exhibit will feature important developments in medical progress, including such products as Quinine, Arsenicals, Vitamins, Sulfonamides, Penicillin, and Streptomycin. Pay a visit to the Merck display—Booths C-18 and C-20. The representatives in attendance will be at your service.

THE WM. S. MERRELL COMPANY

Booth I-26

This "pioneer pharmaceutical house," closely identified with progress in prescription medicines since 1828, presents its exhibit as a salute to the A. M. A. Centennial and to the frontier "Saddle Bag Doctor" of 100 years ago. Special attention is called to several of the many contributions to medical science which the Merrell Company has made since the birth of the American Medical Association.

THE NATIONAL DRUG COMPANY

Booth I-23

Products on display at the National Drug exhibit will be their time-tested, Council-accepted biologicals, together with the newest developments of their research laboratories in both the biological and pharmaceutical fields. Of special interest will be the series of multiple antigens for simultaneous immunization. Trained representatives will be available for discussion.

NOVOCOL CHEMICAL MFG. CO., INC.

Booth F-29 (E ½)

Your visit through the exhibits would hardly be complete if you did not stop at Booth F-29. Here will be displayed the new, safe, potent local anesthetics, MONOCAINE HCl and MONOCAINE FORMATE—the latter for spinal anesthesia and caudal analgesia. There will also be a complete exhibit of the popular cartridge known as the ANESTUBE. You are cordially invited.

ORTHO PHARMACEUTICAL CORPORATION

Booths I-31, I-32

The Ortho Pharmaceutical Corporation cordially invite physicians to visit its exhibit where their complete, well-known line of conception control products will be shown. Complete information and literature will be available. Special requests will be given prompt attention.

PARKE, DAVIS & COMPANY

Booths F-9, F-11, and F-13

The 1947 Parke, Davis & Company exhibit will highlight the technical aspects of BENADRYL. Demonstrations of the fundamental uses of radioactive isotopes in medical research and their applicability to the study of the pharmacodynamic action of BENADRYL will be depicted. Photographs in color will illustrate the use of BENADRYL in urticaria, hay fever, eczema, and smooth muscle spasm associated with allergies.

THE E. L. PATCH CO.

Booth C-5

To any physician concerned with the treatment of functional constipation, The E. L. Patch booth, C-5, will hold a special attraction. On display will be the Three Types of Kondremul—Plain; with Cascara; and with Phenolphthalein. You won't want to miss this interesting exhibit.

PERM-ASEPTIC CORPORATION

Booth H-2

An exhibit of particular interest will be that of PERM-ASEPTIC, the new antifungal and antibacterial chemical developed during the war and used by many laundries. Superintendents and heads of hospitals especially will want to learn more about this colorless, odorless, preservative which gives service and protection to linens, diapers, etc. You are cordially invited to stop by and become acquainted with PERM-ASEPTIC'S many other uses.

PREMO PHARMACEUTICAL LABORATORIES

Booth K-1

Introducing a refinement in the application of penicillin in oil and wax, the modernistic exhibit of Premo Pharmaceutical Laboratories graphically underlines Premo's contemporary contributions to the administration of penicillin. Medical service representatives are in attendance to demonstrate Premo's adaptations and methods. Literature is available on Premo's latest laboratory research and developments.

RARE CHEMICALS, INC.

Booth J-25

The male hormone—testosterone propionate for parenteral use—will be the main feature of Rare's exhibit. Other products to be included are the new skin detergents, Acidolate (nonlathering liquid) and Dermolate (lathering cake); Gitalin, digitalis glycoside; and Salysal, the salicylate which requires no alkali.

WM. H. RORER, INC.

Booth I-27

This year, the exhibit of William H. Rorer, Inc., offers a display of "Rorer" Council-accepted products. These include Mannitol Hexanitrate "Rorer," vasodilatory agent widely used in cardiovascular therapy, as well as other preparations of current therapeutic interest, notably Thiouracil "Rorer," Sulfadiazine "Rorer," and Diethylstilbestrol "Rorer." Full professional data on these products will be gladly supplied by the Rorer representative.

Exhibitors

Orthopedic Frame Co., Kalamazoo, Mich..WP-9
Ortho Pharm. Corp., Raritan, N. J.....I-31, 32
Oxford University Press, New York........C-28

Packwood Mfg. Co., G. H., St.Louis 10,Mo. WP-10
Paraphone Hearing Aid, Cleveland...W. ½ I-3
Parke, Davis, Detroit..........F-9, F-11, F-13
Patch Company, The E. L., Boston........C-5
Peerless Labs., N.Y.C....................EP-20
Perm-Aseptic Co., Mamaroneck, N.Y.......H-2
Pet Milk Sales Corp., St. Louis...G-1, F-1, F-2

Philip Morris, N.Y.C..A-15 (Lounge), B-21, B-23
Picker X-Ray, New York.........J-3, J-5, J-7
Pilling Company, Geo. P. & Son, Phila...A-10
Pitman-Moore, Indianapolis........J-1 and J-2
Premo Pharmaceutical Labs., N.Y.C........K-1
Prior Company, W. F., Hagerstown, Md....C-16
Procter & Gamble Co., The, Cincinnati....J-14
Professional Equipment Co., Chicago......E-10
Prometheus Electric Corp., New York.....C-27
Pyramid Rubber, Ravenna, Ohio..........G-26

Radium Chemical Co., Inc., New York....G-19
Radium Emanation Corp., New York......WP-6
Rare Chemicals, Inc., Harrison, N. J.......J-25
Ritter Company, Rochester....F-32, G-31, G-32
Rorer, William H., Inc., Philadelphia......I-27

Safety Gas Machine Co., Chicago....½ of G-23
Sandoz Chemical Works, Inc., New York...F-26
Sanborn Company, Cambridge, Mass......B-11
Sanit-All Products Corp., Greenwich, Ohio..C-21
Saunders Co., W. B., Phila......A-12, 14, 16

SANDOZ CHEMICAL WORKS, INC.

Booth F-26

For the non-narcotic relief of migraine, physicians will be interested in Gynergen (Ergotamine tartrate); also featured are: Digilanid, a combination of the pure crystalline Lanatosides A, B & C; Scillaren and Scillaren B, containing the cardiodiuretic principles of squill—these cardioactive glycosides are standardized gravimetrically; and Sandoptal, an effective hypnotic and sedative.

SCHERING CORPORATION

Booth I-16

In endocrinology, progress has been recorded since the time of Aristotle's empiric observations of the effects of castration. Within the past century many important scientific contributions in rapid succession have added to the history of the sex hormones. At the Schering booth is shown "The Genealogy of the Sex Hormones," the family tree, and history of the isolation and synthesis of the potent sex hormones.

SCHIEFFELIN & CO.

Booth H-13

Schieffelin Benzestrol, a non-stilbene synthetic estrogen, developed in the research laboratories of Schieffelin & Co., will be featured. A qualified staff will be in attendance to explain the advantages of this product, and to answer questions with regard to other Schieffelin specialties.

JULIUS SCHMID, INC.

Booth G-17

Visitors to the new exhibit of Julius Schmid, Inc., will see the RAMSES Prescription Packet No. 501 displayed for the first time at any convention of the American Medical Association. Recently made color photographs which established the barrier value of RAMSES Vaginal Jelly will also be shown, as will other reproductions in color of special interest to physicians.

G. D. SEARLE & CO.

Booths E-13, E-15

The Searle exhibit will display many Council-accepted products of Searle Research. Featured will be Searle Aminophyllin including Aminophyllin Supposicones, the Searle brand of Aminophyllin Suppositories which remain stable at temperatures up to 130 F., but which liquefy readily under conditions of use; Metamucil, a modern concept in the treatment of constipation; and Diodoquin, the effective amebacide.

SHARP & DOHME, INC.

Booths B-18, B-20, B-22

This year's display of Sharp & Dohme features a demonstration of the production steps involved in the manufacture of virus vaccines. The antibiotic, tyrothricin, and the sedative and hypnotic, 'Delvinal,' are featured also along with the sulfa drugs—'Sulfasuxidine' and Sulfamerazine. Capable informed representatives including members of Sharp & Dohme's research staff are present at all times.

CARROLL DUNHAM SMITH PHARMACAL COMPANY

Booth A-13 (S ½)

This exhibit will present the new drug, BISTRIMATE (Smith), which is orally effective and well tolerated in systemic bismuth therapy. Detailed information on chemical structure, bismuth excretion studies, and clinical histories, will be portrayed.

SMITH, KLINE & FRENCH LABORATORIES

Booths EP-7, EP-7A, EP-8

S. K. F.'s antique drug store, an authentic 1793 apothecary's shop—complete with botanicals and galenicals, patent medicines and nostrums—is exhibited by Smith, Kline & French Laboratories. On workbench and counter are numerous 18th century pharmacist's tools, including a tooth extractor and a bleeder. Despite its obsolete equipment, visitors will quickly note the family resemblance to the prescription department of a modern drug store.

E. R. SQUIBB & SONS

Booths F-10, F-12, F-14, F-16

Nutrition in the Sick—A series of panels depicting the daily nutritional requirements of a typical hospitalized patient, daily deficits in nutritional intake, daily protein and vitamin losses by excretion, certain pathological results of such deprivation, and suggestions for prompt restoration of nutritional balance will be dramatized in the Squibb exhibit.

FREDERICK STEARNS & COMPANY

Booths F-6, F-8

Frederick Stearns & Company Division is featuring their Parenamine (Amino Acids, Stearns) which is a mixture of amino acids derived from the acid hydrolysate of casein fortified with pure dl-tryptophane *to the extent of 1% of the total amino* acids, also Neo-Synephrine Hydrochloride products, Appella Apple Powder, and Gastric Mucin. The professional staff will be in attendance to discuss these products.

MARVIN R. THOMPSON, INC.

Booth EP-15

Marvin R. Thompson, Inc., in accordance with their established policy of rendering useful "Service to Medicine" will provide the latest news bulletins as they come off the direct associated press wire in the comfortable MRT lounge, located in the far eastern section of the Technical Exhibit. A. M. A. members and guests are cordially invited to drop by for a rest, a smoke, and the latest news.

U. S. VITAMIN CORPORATION

Booth L-6

Highlighting this exhibit will be enlarged color photographs of common signs of nutritional deficiency including Bitot's spots, follicular hyperkeratosis, beriberi heart, pitted edema, glossitis, cheilosis, pellagrous dermatitis, gingivitis, rickets, pyridoxine anemia and others. Complimentary copies of the illustrated brochures "Diagnosing Vitamin Deficiencies," "Vitamin Manual for Physicians," and other educational material will be distributed.

THE UPJOHN COMPANY

Booths J-17, J-19

The Upjohn Company exhibit outlines in [illegible] d unusual manner the [illegible] clotting. It deals with [illegible] as a sort of biologic [illegible] Gelfoam (a tissue absorbable sponge) as a hemostatic agent, and the clinical use of the natural anticoagulant, Heparin.

VARICK PHARMACAL CO., INC.

Booth F-24

[illegible] ıanufactur- [illegible] s an inter- [illegible] it at the [illegible] full-color [illegible] diac specimens and photomicrographs of cardiac pathology will be displayed, as well as interesting electrocardiograms. Arrangements are also being made to reproduce phonographically heart sounds of various valvular lesions.

WALKER VITAMIN PRODUCTS, INC.

Booth B-7

This firm is using a new modern exhibit which enables it to effectively present its line of Council-accepted Vitamin Tablets, Capsules, and Injectable Solutions. Experienced representatives in attendance will be qualified to discuss all phases of vitamin therapy.

WALLACE LABORATORIES, INC.

Booth H-12

New treatment for acne vulgaris, Intra*derm Sulfur Skin Penetrant Solution* will be presented by Wallace Laboratories, Inc. This new treatment for acne vulgaris incorporates the intraderm principle of follicle penetration which will be demonstrated at the Wallace exhibit.

WALLACE & TIERNAN PRODUCTS, INC.

Booth B-3

W & T is exhibiting AZOCHLORAMID, a stable and highly bactericidal chloramine for wet dressings, hot soaks and irrigations; MONOMESTROL, a synthetic estrogen, orally effective and comfortably tolerated by the patient; and DESENEX, a potent, yet non-irritating fungicide. You are cordially invited to visit our exhibit. We will welcome inquiries about our products.

WILLIAM R. WARNER & CO., INC.

Booth D-24

In view of medical interest in histamine and antihistaminics, the research laboratories of William R. Warner & Co., Inc., have been investigating their action and effects. A series of photographs and charts have been prepared which depict the physiologic effects of these preparations on the animal body. The presentation includes studies on the alimentary tract, circulatory and respiratory systems.

THE WARREN-TEED PRODUCTS COMPANY

Booth E-22

"Warren-Teed" in eight inch, red Lucite letters tops a five unit display in gleaming white, trimmed in red. The entire display is illuminated by indirect lighting and two of the units contain translite pictures of scenes in the Warren-Teed laboratories and manufacturing departments. Council-accepted products will be on display.

WHITE LABORATORIES, INC.

Booths G-11, G-13, G-15, L-10, L-12, L-14

White Laboratories, Inc., presents ethically promoted pharmaceutical specialties for your consideration and discussion. White's Cod Liver Oil Concentrate Products and other Council-accepted vitamin products are on display. This company pioneered in vitamin research, and the same progressive scientific spirit has been maintained in the manufacture of all White's products. Your visit to White's Exhibit will meet a cordial welcome.

WINTHROP CHEMICAL COMPANY, INC.

Booths A-17, A-32, B-31, B-32

Winthrop's main display consists of colored models by Dr. Justus F. Mueller showing causative agents of all principal tropical diseases. Of particular interest are models of various forms of malarial parasites. The complete malarial cycle is reproduced, including the recently discovered exoerythrocytic (tissue) phase of the cycle. A part of the exhibit devoted to anesthesia and continuous caudal analgesia is illustrated by full color transparencies of paintings by Leon Schlossberg. Complimentary prints of "Anesthesia 100 Years Ago" are offered to physicians.

Exhibitors

Schering Corporation, Bloomfield, N. J.	I-16
Schieffelin & Co., New York	H-13
Schmid, Julius, Inc., New York	G-17
Searle & Co., G. D., Chicago	E-13, and E-15
Shampaine Company, St. Louis	C-25
Sharp & Dohme, Inc., Phila.	B-18, B-20, B-22
Shay Medical Agency, Chicago 2,	L-5
Shellmar Prods., Mt. Vernon	W. ½ of L-1
Siebrandt Mfg. Co., Kansas City, Mo.	H-31
Sklar, J., Mfg. Co., Long Island City	H-26
Smith, Carroll Dunham, New Bruns.	A-13
Smith, Kline & French, Phila.	EP-7, EP-7A, EP-8
Sorensen, C. M., Company, Inc., New York	C-32
Spencer, Inc., New Haven, Conn.	E-7
Spindler & Sauppe, Los Angeles	W. ½ F-29
Spirella, The Co., Inc., Niagara Falls, N.Y.	H-30
Squibb, E. R., N.Y.C.	F-10, F-12, F-14, F-16
Standard X-Ray, Chicago	J-4
Stearns, Frederick, Detroit	F-6, F-8
Surgical Publishing Company, Chicago	D-31
Surgitube Prods., Bronx, N.Y.	W. ½ I-25
Swift & Company, Chicago	I-7
Tampax Inc., New York	I-8
Taylor Instrument Co., Rochester, N.Y.	F-18
Taylor, W. A., & Company, Baltimore	F-5
Technicon Company, The, New York	K-9 & K-11
Thomas, Charles C, Springfield, Ill.	B-17
Thompson, Marvin R., Stamford, Conn.	EP-15
Toidey Company, The, Fort Wayne, Ind.	A-2
Tower Company Inc., The, Seattle	D-5, D-7
U. M. A., Inc., New York	D-28
U. S. Vitamin Corp., N.Y.C.	L-6

Surgical Supplies

BAUER & BLACK
Booth K-13

This exhibit will feature the use of KERLIX cloth, an interesting new gauze which contains a permanent crinkle and has softness, fluffiness, and resiliency not possible with regular gauze. The company will show how its mild elasticity makes it particularly suitable for head, knee, elbow, stump and compression dressings.

DAVIS & GECK, INC.
Booth EP-1

Davis & Geck, Inc., manufacturers of sterile surgical sutures will, through the facilities of the D & G Surgical Film Library conduct a program of surgical motion pictures. The Library, founded in 1928, presented its first showing at the A. M. A. Convention in Atlantic City in 1929. It now includes over three hundred subjects including films on nearly every phase of surgical procedure.

DAVOL RUBBER COMPANY
Booth 129 (W ½)

Davol Rubber Company will display samples of many of the surgical and essential health items which presently are being supplied. They will display and demonstrate also the Constant Traction Dressing, the new type suture that has been favorably received by the profession.

ETHICON SUTURE LABORATORIES
Booths WP-12, WP-13, WP-14

Ethicon Suture Laboratories will show the motion picture "Anomalies of the Bile Ducts and Blood Vessels; Strictures of the Common Duct"—Warren H. Coles, M.D., Chicago, Professor of Surgery and Head of the Department, University of Illinois Medical College, and Associates—produced by the American College of Surgeons.

MEDICAL FABRICS, INC.
Booth D-3

Medical Fabrics, Inc., exhibiting at Booth [illegible] ation bandage [illegible] e Elastic Ad- [illegible] suggested for [illegible] application of Elastic Adhesive. You are cordially invited to visit this exhibit.

SURGITUBE PRODUCTS CORP.
Booth I-25 (W ½)

New kodachrome transparencies showing SURGITUBE in 12 various positions will highlight this exhibit. SURGITUBE, a new seamless gauze fabric in tubular form, makes a neat, comfortable, flexible bandage; and because of its ease of application and removal, it may be economically used on all extremities with a great saving of time.

Special Apparel

S. H. CAMP & COMPANY
Booth G-9

A s[illegible] nsparencies depict[illegible] before and after [illegible] entific supports [illegible] l available throug[illegible] mp Institute for Better Posture will be displayed. Experts in attendance will answer questions pertaining to the scientific application of anatomical supports and advise regarding the availability of them in Authorized Service departments of stores throughout the country.

CONFORMAL SHOE COMPANY
Booth D-11

The Conformal Shoe Co., a division of the International Shoe Company, St. Louis, is sponsoring a special exhibit. The display illustrates how the Conformal shoe achieves snug custom fit and balanced support for each individual foot with its special patented plastic insole.

J. EDWARDS & COMPANY
Booth WP-5

You won't want to miss the very interesting display of children's shoes by J. Edwards & Company. The exhibit will show shoes for children of all ages from babies to "teen agers" and will include pre-walking, first steps, dress, and school shoes. Edwards' shoes for children have been made in Philadelphia since 1900. A special group of shoes for weak ankles, pronations, etc., will also be on display.

SPENCER, INCORPORATED
Booth E-7

The Spencerflex for Men—a new functional support design [illegible] est; like all Spencer [illegible] vidually designed. [illegible] Spencer Breast Forms. [illegible] mastectomy to improv[illegible] ance and mental attit[illegible] used by physicians to aid sacroiliac disturbances, visceroptosis, hernia, and many other conditions are also featured.

THE SPIRELLA COMPANY, INC.
Booth H-30

Spirella Foundation Garments present an entirely new and different method of corsetry designing. The unique Spirella method includes the use of exclusive Modeling Garments which are adjusted to the patient to give just the degree of support desired. Then measurements are taken of the supported figure and the patient's Spirella is individually made to exact specifications.

THE VANTA COMPANY
Booth WP-16

VANTA garments for infants offer layette items without pins or buttons and for toddlers, Self-Help garments, all of which will be exhibited in Booth WP-16. Originator oth the Tie Vest, Sun Suit, K-band, Baby Bess hose and other important features, VANTA will show No-Fas-Ning shirts and the latest developments in proper clothing.

Toilet Preparations

ALMAY, INC.
Booth F-23

Almay will present at Booth F-23 their new "Super-Milled" Face Powder in a feast of exciting new shades. By the elimination of aniline colors, Almay has succeeded in lowering to an irreducible minimum the sensitizing index of this new and [illegible] Powder (available [illegible] Visit the Almay Booth for other interesting developments.

DUKE LABORATORIES, INC.
Booth D-13

Duke Laboratories, Inc., will have on display Elastoplast, cotton-woven, adhesive surfaced, stretchable bandage; Mediplast compresses (sterilized and individually wrapped); Nivea Creme; Nivea Skin Oil; and Basis Soap—The Prescribers' Cosmetics.

LUZIERS, INC.
Booth A-30

Luzier's Fine Cosmetics and Perfumes, as advertised in publications of the American Medical Association, will be on exhibit in Booth A-30. The Luzier formulas are selected to suit individual cosmetic requirements and preferences and may be modified to suit allergies. Luzier officials will be in attendance to explain in detail the nature of this service.

MARCELLE COSMETICS, INC.
Booth E-17

The Marcelle booth will feature hypoallergenic cosmetics, formulated scientifically for those with sensitive skin and for the allergic person. Mr. Philip L. Blazer, President, and members of the organization, welcome discussions with physicians on the cosmetic needs of the medical profession. Available to allergists, dermatologists, and all physicians interested in allergy, are formularies, brochures and cosmetics.

G. H. PACKWOOD MFG. CO.
Booth WP-10

Paxlanosav Heavy Duty Granulated Skin Cleanser for industrial use will be presented in booth WP-10. Here it will be shown how this Heavy Duty cleanser has been a successful factor in helping to protect worker's hands against infections nad irritations that impair efficiency. Its bounteous lather, exceptional cleansing speed, economical bulk, and other desirable qualities will be of particular interest.

THE PROCTER & GAMBLE COMPANY
Booth J-14

Proctor & Gamble offers the first four of a series of time-saving leaflet pads for doctors.—"Instructions for Routine Care of Acne"; "Instructions for Bathing a Patient in Bed"; "Instructions for Bathing Your Baby"; and "The Hygiene of Pregnancy." Additional pads designed to save doctors' time in answering patients' questions on routine home care and other service material will be displayed.

WESTWOOD PHARMACAL CORP.
Booth H-20

Lowila Liquid and Lowila Cake, soapless detergents, are exhibited here. If your Atlantic City hotel offers you ocean water in your room, you might want to try a surprisingly pleasurable bubble bath with LOWILA LIQUID. Both the cake and liquid lather profusely in salt water. While LOWILA preparations are suggested for the soap sensitive, we believe you will enjoy this unique application.

X-Ray & Radium

X-RAY & RADIUM
ANSCO
Booth L-8

The Ansco exhibit will feature color transparencies and prints of medical and general photographic subjects, also radiographs made with screen and non-screen types of X-ray film. The medical transparencies and prints will include gross specimens as well as photomicrographs. A precision-built semi-automatic 12—2¼x2¼ square format Reflex camera equipped with f3.5 coated lens will also be on display.

(Continued and advertising page 106)

Exhibitors

Universal Products Corp., Norristown, Pa..WP-3
University of Chicago Press, The, Chicago..K-5
Upjohn, Kalamazoo, Mich.......J-17 and J-19
Vanta Company, The, Newton, Mass.....WP-16
Varick Pharmacal Co., Inc., New York....F-24
Vernon-Benshoff, Pittsburgh......S. ½ EP-18

Walker Vitamin Prods., Mt. Vernon, N.Y...B-7
Wallace Labs., New Bruns., N.J..........H-12
Wallace & Tiernan, Belleville, N.J.........B-3
Walton Laboratories, Inc., Irvington, N.J...G-30
Wander Company, The, Chicago..........H-29
Warner, William R., New York...........D-24
Warren-Teed Prods. Co., Columbus, Ohio..E-22
Wee Modern Furn., Independence, Mo....EP-18
Welch Allyn, Inc., Auburn, N. Y..East ½ of I-25
Western Electric Co., N.Y.C.................E-16
Westinghouse Electric, Pittsburgh....A-5, A-7
Westwood Pharmacal Corp., Buffalo......H-20
White Labs., Newark..G-11, 13, 15, L-10, 12, 14
Williams & Wilkins Co., The, Baltimore...B-15
Winthrop Chm., N.Y.C..A-17, A-32, B-31 & B-32
Wisconsin Alum. Res. Found., N.Y.C.......B-6
Wolf X-Ray Prods., Inc., N.Y.C..WP-17, WP-18
Wyeth, Inc., Philadelphia........K-4, K-6, K-8

Year Book Publishers Inc., Chicago........J-8

Zimmer Mfg. Co., Warsaw, Ind...........F-15

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 26, 1947.

President Lauds Pharmacists for Contribution to Public Health

In a letter to the American Pharmaceutical Association President Truman congratulated the pharmacists of the United States on their contribution to the health of the American people. His message was a prelude to the twenty-first National Pharmacy Week, April 20 to 26. He expressed confidence that the pharmacists would "continue to extend their efforts to improve public health" He pointed out that "many of our citizens go to the neighborhood pharmacy for help in time of sickness. The fact that pharmacists there employed are in a position to advise patrons where to go for diagnosis and treatment adds materially to the service available to the sick" This year National Pharmacy Week will be dedicated to public education on control of cancer in a cooperative program with the American Cancer Society.

Favorable Reports on Improved Artificial Hand

Favorable reports have been issued on a new artificial hand, with a mechanism perfected at the Naval Ordnance Laboratory at White Oak, Md, and a "cosmetic glove" almost indistinguishable from human flesh, developed at the Naval Dental School at Bethesda. The new hand was created after Lieut. Comdr. Russell G. DeLany, chief of plastics division, Naval Ordnance Laboratory, became a patient at Bethesda Naval Hospital. He asked to see the "glove" and found it "excellent," but when the old bulky artificial hand was shown to him he decided to send it to the laboratory for examination. Now there are ten of the experimental hands in use. The "glove" is attributed largely to work of Lieut. Comdr. Herbert J. Towle.

Army Nurse Chief to Retire

Col. Florence A. Blanchfield will retire May 21 as superintendent of the Army Nurse Corps after forty-one years of service in nursing. She was credited with helping to secure full military rank for nurses. Colonel Blanchfield had been with the Army Nurse Corps for twenty-nine years and in the Surgeon General's office since 1935. The American Red Cross has presented her with its national award for "exceptional service in behalf of humanity."

Public Health Service Training for Filipinos

Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, has awarded to 25 Philippine citizens public health fellowships which entitle them to a year's study of public health administration and methods in the United States. The fellowships are offered under the Philippine Rehabilitation Act of 1945.

Official Notes

TELEVISION BROADCASTS

The following programs have been arranged by the Bureau of Health Education for presentation over television station WBKB, Chicago, on the indicated dates:

May 22. Centennial of A. M. A. Endocrinology. Drs. Willard O Thompson and Austin Smith

June 5. Fitness in Girls and Women Drs Dean F. Smiley and Fred V. Hein.

June 19. Centennial of A. M. A.: Orthopedic Surgery. Dr Fremont A. Chandler.

Health education telecasts will be discontinued for the remainder of the summer season. Notice will be given in these columns on their resumption.

Medical Legislation

STATE LEGISLATION*

California

Bills Passed.—A. 796, which passed the senate April 18, to amend the **health and safety code**, proposes to authorize a person, by will, to direct that the whole or any part of his remains be given to a teaching institution, university, college or legally licensed hospital, or to the state director of public health. A. 797, which passed the senate April 18, proposes that every person of sound mind over the age of 18 years may by will **dispose of** the whole or any part **of his or her body** to a teaching institution, university, college or legally licensed hospital, either for use as such institution, university, college or hospital may see fit or for use as expressly designated in the will S. 808, which passed the senate April 10, to amend the health and safety code, proposes to require every licensed physician and surgeon or other person engaged in prenatal care of a pregnant woman, or attending such woman at the time of delivery, to obtain a **blood specimen** of such woman at the time of the first professional visit or within ten days thereafter and to submit such sample to an approved laboratory for a laboratory test for syphilis. S. 1070, which passed the senate April 16, to amend the business and professions code, proposes that conviction of a violation of the **narcotics or dangerous** drugs statutes of the state shall constitute unprofessional conduct. S 1071, which passed the senate April 16, to amend the business and professions code, proposes that the use or prescribing for or administering to himself of cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, chloral hydrate, paraldehyde or barbituric acid, **any of the narcotics, or alcoholic beverages** to an extent which is injurious to his practice by any person licensed under the provisions of the business and professions code shall constitute unprofessional conduct.

Delaware

Bill Enacted.—H 42, which was approved April 18, requires all persons desiring to obtain a **marriage license** to obtain a certificate from a duly licensed physician showing that the applicant has undergone a standard serologic test for syphilis and is not infected with such disease in a communicable stage According to the last report received by this Bureau, the law also contains a house amendment which defines the term "physician" as meaning any duly licensed medical, osteopathic or chiropractic practitioner.

Florida

Bills Introduced.—H 12 proposes the creation and establishment of a **college of medicine** and dentistry as a part of the University of Florida. S 151, to amend the law relating to the practice of massage, proposes to redefine the meaning of the practice so as to include the use of electrical apparatus

Illinois

Bill Introduced.—H. 373 proposes that no person who has been convicted of a **penitentiary offense** or who has been convicted in connection with the illegal sale of drugs or narcotics under the laws of any state or of the federal government shall be eligible for appointment or shall be employed as a physician in any state institution.

Iowa

Bills Enacted.—H. 314, which was approved April 17, is a hospital survey and construction act requiring a survey of existing hospital facilities throughout the state and the development of a program for the construction of additional facilities The law also requires the appointment of a **hospital advisory council** and designates the commissioner of public health as the agent to apply for and receive federal funds to be used for assistance in the state survey or construction program. H. 465, which was approved April 22, is a law for the licensing and regulating of hospitals. S. 381, which was approved April 17, provides for the licensing and inspecting of **nursing homes or boarding homes** for the aged

Kansas

Bills Enacted.—H 102, which was approved April 9, requires all persons applying for a **marriage license** to present a certificate signed by a physician legally qualified under the laws of the state of Kansas or of the state in which he is practicing that the applicant is not infected with syphilis in a stage making it communicable to a marital partner. H. 103, which was approved April 8, 1947, provides for the establishment of an **advisory laboratory commission** to formulate procedures and qualifications for the registering and approving of laboratories performing serologic examinations, to formulate procedures and methods of examination and approval of persons performing serologic tests in approved laboratories and to recommend to the state board of health the adoption of the procedures and qualifications so approved

Maryland

Bill Passed.—H. 69, which passed the senate March 28, proposes the creation of a state **board of physical therapy examiners** and defines physical therapy as "the treatment of human injuries, diseases or disabilities by means of the healing properties of massage, ultraviolet rays, mechanical devices, heat, cold, air, light, water and electricity, but not by means of roentgen rays radium surgery or drugs" Among other things the proposal also states that a physical therapist is one who treats only patients diagnosed and referred by licensed medical doctors

Bills Enacted—H J R 16, which has become chapter J R 11 of the Laws of 1947 provides for the appointment of a commission to study **medicolegal psychiatry** in the state S 358, which has become chapter 185 of the Laws of 1947 exempts from the medical practice act **Christian science practitioners** duly registered in the *Christian Science Journal* of the Christian Science Publishing Society, Boston, who treat human ills in accordance with the tenets of Christian science

Massachusetts

Bill Introduced—H 1921 proposes to require every school superintendent, principal, director, teacher, etc whose duties bring him into direct contact with school children to undergo an **x ray examination** of his chest to determine the presence of tuberculosis

Michigan

Bill Passed—S 201, which passed the senate April 18, proposes to authorize the state commissioner of health to regulate and promulgate rules and regulations controlling the **humane use of animals** for the diagnosis and treatment of human and animal diseases the advancement of veterinary, dental, medical and biologic sciences, and the testing and diagnosis improvement and standardization of laboratory specimens, biologic products pharmaceuticals and drugs The proposal would further require that no person, firm or corporation shall keep or use animals for experimental purposes unless registered to do so by the state commissioner of health

Rhode Island

Bill Introduced—H 830, to amend the administrative act of 1939, proposes, among other things, that the board of examiners in the **basic sciences** shall be selected as follows Two members shall be selected from the combined faculties of Brown University, Providence College and Rhode Island State College, who shall be full time professors or associate or assistant professors in the basic science subjects and the third member of the said board shall be a pathologist of training and experience sufficient to give him a broad knowledge of the subject

Texas

Bill Introduced—H. 786 proposes the creation of a **board of eugenics** and proposes further to authorize the superintendent of state institutions for the insane to perform sexual sterilization operations on inmates after having complied with the provisions of the proposal

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Coming Medical Meetings

American Medical Association, Atlantic City, June 9 13. Dr. George F. Lull, 535 N Dearborn St., Chicago 10, Secretary

Aero Medical Association of the United States Atlantic City, Ritz Carlton Hotel, June 1 6 Dr. David S Brachman, 1016 Dime Bldg, Detroit 26, Secretary

American Association for Thoracic Surgery, St Louis, May 28 30 Dr. Richard H. Meade Jr, 55 E Washington St, Chicago 2, Secretary

American Association of Genito-Urinary Surgeons, Absecon, N J, June 4 6 Dr. Charles C Higgins, 2020 E 93d St, Cleveland 6, Secretary

American Association of Pathologists and Bacteriologists, Chicago, May 16 17 Dr Howard T Karsner, 2085 Adelbert Road, Cleveland 6, Secretary.

American Association of Plastic Surgeons, Nashville, Tenn May 5 6 and Memphis, Tenn, May 7 8 Dr Frederick A. Figi, 102 Second Ave S W, Rochester, Minn, Secretary

American Association of the History of Medicine, Cleveland, May 25 26 Dr. Howard Dittrick, 2020 E 93d St, Cleveland 6, Secretary

American Association on Mental Deficiency, St Paul, Minn, May 28 31. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn, Secretary

American College of Allergists, Atlantic City, Hotel Senator, June 6 8. Dr Fred W. Wittich, 401 LaSalle Medical Bldg, Minneapolis 2, Secretary

American College of Chest Physicians Atlantic City, Ambassador Hotel, June 5 8 Mr Murray Kornfeld, 500 N Dearborn St, Chicago 10, Executive Secretary

American College of Radiology, Atlantic City, Haddon Hall, June 7 8 Mr Mac F. Cahal, 20 N Wacker Drive, Chicago 6, Executive Secretary

American Dermatological Association, Murray Bay, Quebec, Can, June 1 5 Dr Harry R Foerster, 208 E Wisconsin Ave, Milwaukee, Wis, Secretary

American Diabetes Association Atlantic City, Chalfonte Haddon Hall, June 7 8 Dr. Cecil Striker, 1019 Provident Bank Bldg, Cincinnati 2, Secretary

American Geriatrics Society, Atlantic City, *Hotel Brighton*, June 5 7. Dr Malford W. Thewlis, 25 Mechanic St, Wakefield, R I, Secretary

American Heart Association Atlantic City, Hotel President, June 6 7. Dr Howard B Sprague, 50 W 50th St, New York, Secretary

American Medical Women's Association, Atlantic City, June 7 8 Dr. Helen F Schrack, 216 N Fifth St, Camden, N. J, Secretary

American Neisserian Medical Society, Atlantic City, Marlborough Blenheim Hotel, June 8 Dr William L Fleming, 750 Harrison Ave, Boston, Secretary

American Neurological Association Atlantic City, Ambassador Hotel, June 16 18 Dr Walter O Klingman, *195 Ft* Washington Ave, New York 32, Secretary

American Ophthalmological Society, Hot Springs, Va, June 5 7 Dr. Walter S *Atkinson, 129 Clinton* St, Watertown, N Y, Secretary.

American Pediatric Society, Stockbridge, Mass, May 13 15 Dr Henry G Poncher, 1819 W. Polk St, Chicago 12, Secretary

American Physiological Society, Chicago May 18 22 *Dr* Maurice Visscher, University of Minnesota, Minneapolis, Secretary

American Proctologic Society, Atlantic City, June 7 8 Dr. Harry E Bacon, 2031 Locust St, Philadelphia 3, Secretary

American Psychiatric Association New York, Hotel Pennsylvania, May 19 23 Dr Leo H Bartemeier, General Motors Bldg, Detroit, Secretary.

American Radium Society, Atlantic City, June 8 Dr. Hugh F. Hare, 605 Commonwealth Ave, Boston 15, Secretary

American Rheumatism Association, Atlantic City, Ritz Carlton Hotel, June 7 Dr Richard H Freyberg, 321 E 42d St, New York 17, Secretary

American Society for Clinical Investigation, Atlantic City, Chalfonte Haddon Hall May 5 Dr Eugene A. Stead Jr, Grady Hospital, Atlanta 3, Georgia, Secretary

American Society for Experimental Pathology, Chicago, May 19 23 Dr Frieda S Robscheit Robbins, 260 Crittenden Blvd, Rochester, N Y, Secretary

American Society for Pharmacology and Experimental Therapeutics, Chicago, May 18 *22* Dr Harvey B Haag, Medical College of Virginia, Richmond 19, Va, Secretary.

American Society for the Study of Sterility Atlantic City, Hotel Strand, June 7 8 Dr John O Haman, 490 Post St, San Francisco 2, Secretary

American Society of Biological Chemists, Chicago, May 18 22 Dr Otto A Bessey, Public Health Research Institute, New York 9, Secretary.

American Society of Clinical Pathologists Atlantic City, June 4 8 Dr. Alfred S Giordano, 531 N Main St., South Bend, Ind, Secretary

American Society of Electroencephalography, Atlantic City, Marlborough *Blenheim Hotel, June 13 14 Dr Robert S Schwab, Massachusetts* General Hospital, Boston 14, Secretary

American Therapeutic Society, *Atlantic* City, Chalfonte Hotel, June 6 7. Dr Oscar B Hunter, 1835 I St, N W, Washington 6, D C, Secretary

Arizona State Medical Association, Tucson, May 7 10 Dr. Frank J. Milloy, 112 N Central Ave Phoenix, Secretary

Association for the Study of *Internal Secretions, Atlantic* City, June 6 7. Dr Henry H Turner, 1200 N Walker St, Oklahoma City 3, Secretary.

Association of American Physicians, Atlantic City, May 6 7 Dr Joseph T Wearn, Lakeside Hospital, Cleveland 6, Secretary

Federation of American Societies for Experimental Biology, Chicago May 18 22 Dr William H Chambers, 1300 York Ave, New York 21, Secretary.

Idaho State Medical Association, Sun Valley, June 16 19 Dr William B Handford, Caldwell, Secretary

Illinois State Medical Society, Chicago, Palmer House, May 12 14 Dr. Harold M Camp, 224 S Main St, Monmouth, Secretary.

Kansas Medical Society, *Topeka* May 12 15 *Dr John M* Porter, *512* New England Bldg, Topeka, Secretary.

Louisiana Mississippi Ophthalmological and Otolaryngological Society Biloxi, Miss, Buena Vista Hotel, May 5 Dr Edley H Jones, 1301 Washington St, Vicksburg, Miss, Secretary

Louisiana State Medical Society, *New Orleans* May 12 14 *Dr. P. T.* Talbot, 1430 Tulane Ave, New Orleans 13, Secretary

Maine Medical Association, York Harbor, Marshall House, June 22 24 Dr Frederick R Carter, 142 High St, Portland 3, Secretary

Massachusetts Medical Society, Boston, Hotel Statler, May 20 22 Mr Robert St B Boyd, 8 Fenway, Boston 15, Executive Secretary

Medical Library Association, Cleveland, Wade Park Manor, May 27 29 Miss Heath Babcock, New York State Medical Library, Albany 1, New York, Secretary

Mississippi State Medical Association, Biloxi, May 6 8 Dr T M Dye, Box 295, Clarksdale, Secretary.

Montana, Medical Association of, Missoula, *June 26 28* Dr H T Caraway, 115 N 28th St, Billings, Secretary

National Gastroenterological Association, Atlantic City, Hotel Chelsea June 4 6 Dr G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary

National Tuberculosis *Association*, San Francisco, June 16 19 Dr F D Hopkins, 1790 Broadway, New York 19, Executive Secretary

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19 20 Dr Carleton R Metcalf, 5 South State Street Concord, Secretary.

New York, Medical Society of the State of, *Buffalo*, May 5 9 Dr Walter P Anderton, 292 Madison Avenue, New York 19, Secretary

North Carolina Medical Society of the State of, Virginia Beach, Va, Cavalier Hotel May 12 14 Dr Roscoe D McMillan P O Box 232, Red Springs, Secretary

North Dakota State Medical Association, Fargo, May *25 27*. Dr. L. W. Larson, 221 Fifth St, Bismarck, Secretary

Ohio State Medical Association, Cleveland, May 6 8 Mr Charles S Nelson, 79 E State St, Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel May 14 16 Mr R H Graham 210 Plaza Court Bldg, Oklahoma City, Executive Secretary.

Rhode Island Medical Society, Providence May 14 15 Dr Morgan Cutts, 106 Francis St, *Providence* 3, Secretary

Society of American Bacteriologists, Philadelphia, May 13 16 Dr Leland W Parr, 1335 H St N W, Washington 5, D C, Secretary.

South Dakota State Medical Association, Rapid City, May 31 June 3 Dr Roland G Mayer, 22½ S Main St, Aberdeen, Secretary

Texas, State Medical Association of, Dallas Adolphus Hotel, May 5 8 Dr Holman Taylor, 1404 W El Paso St., Fort Worth 3, Secretary

United States Mexico Border Public Health Association, San Diego, California, and Tijuana, Mexico, May 6 8 Dr James A Grider Jr, 151 U S Court House, El Paso, Texas, Secretary.

West Virginia Medical Association, Charleston, May 12 14 Mr Charles Lively, 1031 Quarrier St., *Charleston* 24, Secretary

Wyoming State Medical Society, *Sheridan, June 23 25 Dr* George E Baker, 226 E 2d St, Casper, Secretary

GOVERNMENT SERVICES

ARMY

GENERAL KIRK'S PLAN FOR A MEDICAL SERVICE FOR THE ARMED FORCES

The following statement, in part, was presented before the Senate Armed Forces Committee, April 18, by Major Gen. Norman T. Kirk, the Surgeon General. It represents his personal plan and is not official:

Initially, the Armed Forces Medical Service would be formed from the medical services of the Army and Navy, including their personnel and the Medical Department facilities now operated by these services.

The Armed Forces Medical Service would be commanded by a Director General appointed from the senior medical officers of the Regular Medical Corps of the Army or Navy to serve on the staff of the Secretary of National Defense and to be responsible to him for advice on the health and medical care of all components of the armed forces.

The Director General would prepare policies, plans and directives governing the medical service and operate, command and administer all Medical Department troops and installations not attached to major forces.

Operations of the Medical Service in the Zone of the Interior and overseas theaters would be decentralized to Deputy Directors, who would supervise and command the medical services and installations in these regional areas except those attached to a major force. The regional areas or districts would correspond to those set up by the armed forces.

The Armed Forces Medical Service, under the Director General, would be charged with (*a*) operation of common hospitalization for the armed forces (all fixed hospitalization), including general, station and convalescent hospitals in the Zone of the Interior and overseas departments and in the Communication Zone in war; (*b*) the operation of a preventive medicine service, vital statistics, and common sick and wounded records; (*c*) the operation of a common research and development program, clinical and research laboratories, the Army Medical Library and the Army Institute of Pathology; (*d*) common procurement, storage and issue of medical supplies; (*e*) personnel procurement, officers and civilian employees; technical training and assignment of all commissioned, enlisted and civilian employees; (*f*) organization and technical training of all Reserve components and affiliated medical units; (*g*) preparation and defense of budgetary estimates for the requirements of its operations; the construction and repair of all required medical installations; (*h*) the coordination and direction of evacuation of sick and wounded by air and sea (medical regulator).

Each major force would have a Surgeon General, appointed from the Medical Corps of the Armed Forces Medical Service, and such additional attached medical troops and installations as the Secretary of National Defense determined necessary for the force commander to perform the medical mission assigned to him.

The Surgeon General of each of the three forces would have the staff required to carry out his mission, the attached medical personnel to each to consist of such specialized and nonspecialized personnel and such units as would be required by that force. He would be responsible for the specialized technical and tactical training of the attached medical personnel and for the research and development pertaining to his special needs; e. g.:

Surgeon General of the Army.—Tactical training of battalion and regimental detachments, medical battalions, medical groups, dispensaries, field and evacuation hospitals.

Surgeon General of the Navy.—Specialized and tactical training of attached medical personnel for duty aboard ships, including hospital ships, Naval Air Arm and research and development in connection therewith, dispensary service, evacuation of sick and wounded by ship.

Surgeon General of Air Force.—Specialized and tactical training of attached medical personnel such as flight surgeons and flight nurses, research and development as it applies to the health of flying personnel, air evacuation of the sick and wounded, and dispensary service.

The plan provides for complete unification of those phases of medical service which are common to all armed forces and at the same time provides for the Ground Forces, the Air Forces and the Navy types of organic medical service completely adequate for their special needs.

General Kirk stated that he agreed with the remarks of Senator Thomas of Utah (published in the *Congressional Record* March 14) in which the senator pointed out that the medical departments of the Army and Navy have identical primary missions, that there was in the past war an acute and serious scarcity of trained medical personnel, that parallel systems of hospitalization, evacuation, and the procurement, storage and issue of medical supplies were wasteful in terms of funds, personnel and efficiency, and that medical service during the war, no matter how good, could have been better had there been a single integrated medical service.

If integration of the two medical departments would have improved medical service in the war just past, it will be vital in any future war and likewise is vital during the peace.

There are not now nor will there ever be enough competent trained medical, dental and nursing personnel available to provide the sick, injured and wounded soldier, flier, sailor or marine with the type of medical care demanded by the people of this nation without the strictest economy in the use of that personnel. Even now the Medical Corps of both the Regular Army and the Regular Navy are far below their authorized strength, and efforts to recruit civilian doctors into these corps have not been successful. Legislation authorizing increased pay and better promotion may help solve this peacetime problem. In the event of a war of equal or greater magnitude than World War II there will not be sufficient skilled doctors in the United States to staff three separate medical services. This fact necessitates an organization capable of making the most effective and economical use of all the medical resources of the nation. Moreover, another war may involve the civilian population of the United States. Only a single unified medical service can plan for and successfully meet such an emergency.

General Kirk stated that unification of the medical services should begin now. If unification is vital to meet a national emergency, he said, it cannot be delayed until that emergency is at hand. Moreover, if no action is taken now to unify the army and navy medical services, the Air Forces will wish and may receive authorization for a complete medical service, thus spreading our weak medical resources still thinner, and this at a time when both the Army and the Navy are unable to recruit to their authorized strength.

If a plan for the unification of the medical services should be put into operation now, a certain period would be required before a complete integration could be effected smoothly. Many changes would be required in the present operating procedures of the two medical departments as well as enabling legislation. However, General Kirk believes that a completion date two to three years hence should be specified.

"I am sure," he said, "that American medicine including its leaders and the thousands of its members who served so well in the military forces during the past war, if asked, would demand a unified medical service for the armed forces."

Any plan for unification of the medical services, General Kirk said, will undoubtedly meet with opposition from some force commanders who will desire complete medical services under their command. Also there will be some opposition on the part of officers of the two medical services in which tradition and *esprit de corps* have naturally developed during many years. "However, after many years' association with medical officers of both the Army and the Navy I am convinced that in most instances their common training, their similar points of view and their singleness of purpose will eventually outweigh any prejudices they may have.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Annual State Medical Meeting.—The fifty-sixth annual meeting of the Arizona State Medical Association will be held at the Hotel Pioneer, Tucson, May 7-10 under the presidency of Dr. George O. Bassett, Prescott. The out of state speakers will be Dr. George T. Pack, New York, "Radical Surgical Treatment of Cancer of the Stomach," and Dr. Emil Novak, Baltimore, "Indications, Limitations and Hazards of Endocrine Therapy in Gynecology." Numerous members of the association will present papers, some of the subjects being recent advances in the treatment of heart disease, use of potassium chloride in treatment of dehydration and diarrhea in infants, management and mechanism of functional uterine bleeding and epidemic hepatitis. The president's dinner and dance will be May 8 at 7:30. The Woman's Auxiliary will meet during the sessions. The Arizona chapter of the American College of Chest Physicians will hold afternoon and evening sessions May 6.

CALIFORNIA

Society News.—The Los Angeles Society of Allergy, organized as a section of the Los Angeles County Medical Association, elected Dr. George Piness, Los Angeles, president; Dr. Willard S. Small, Pasadena, vice president, and Dr. Frank G. Crandall Jr., Los Angeles, secretary and treasurer.

Five Year Study of Poliomyelitis Virus.—A five year study, financed with $200,000 March of Dimes funds from the National Foundation for Infantile Paralysis, will be conducted at the California Institute of Technology, Pasadena, under the direction of Linus Pauling, Ph.D., and George W. Beadle, heads of the chemistry and biology divisions, respectively. The study will attempt to determine the complex structure and organization of the poliomyelitis virus by a study of the fundamental structure and organization of proteins and related compounds.

Course in Nuclear Physics.—The University of California Medical School, Berkeley-San Francisco, in association with University Extension, University of California, announces a course in the application of nuclear physics to the biologic and medical sciences, to be given at the medical center, San Francisco, from June 30 through July 18. It will consist of didactic lectures, laboratory demonstrations and seminars for round table discussions and will be open to workers in the fields of medical and biologic research. For information address Dr. Stacy R. Mettier, Head of Postgraduate Instruction, Medical Extension; University of California Medical Center, San Francisco 22.

CONNECTICUT

Graduate Course in Hospital Administration.—Yale University School of Medicine, New Haven, will establish next September a graduate course in hospital administration in its department of public health, made possible by a grant from the W. K. Kellogg Foundation. Dr. Clement C. Clay, New Haven, assistant professor of hospital administration, will act as director. Facilities of Grace-New Haven Community Hospital, university departments and schools, and hospitals and other agencies in the New England area will be utilized. Nine months of the total twenty-one month training period will be spent in residence at the university before the student becomes an administrative intern or resident in an approved hospital, after which he is a candidate for a master's degree. Three classes of students will be eligible for admission to the new course: doctors of medicine, graduate nurses who have a bachelor's degree and persons who have a bachelor's degree without special training in medicine or nursing. Some practical experience in hospitals or medical care agencies is a prerequisite. Dr. Clay received his degree of doctor of medicine and master of surgery at McGill University Faculty of Medicine, Montreal, Que., in 1932.

GEORGIA

Columbus Selected for Long Range BCG Study.—In cooperation with the state and local health authorities the U. S. Public Health Service has selected the city of Columbus, Ga., for a long range study of BCG vaccination for tuberculosis. It is planned to start this study, which will require several years, with school children, especially those highly subject to exposure to tuberculosis; only children, however, who show through tests that they have not previously been infected with tuberculosis will be vaccinated. The first vaccination program is expected to continue until about May 17; then the testing and vaccination teams will return to Columbus next fall to determine whether revaccination is necessary in some cases. The permission of parents will be obtained prior to vaccinations. According to the New York *Times* the vaccine for this experiment will come from the BCG laboratory at Cook County Hospital, Chicago, where it is produced jointly by the Public Health Service, the College of Medicine of the University of Illinois, Chicago, and the City of Chicago Municipal Tuberculosis Sanitarium.

ILLINOIS

The Tenth Cancer Diagnostic Clinic.—The tenth state aided cancer diagnostic clinic, opened April 10 at Herrin Hospital, Herrin, will hold clinic sessions every second and fourth Thursday of each month at 1 p. m., patients being admitted only through referral from their family physician.

Smallpox Vaccination Advisable.—Pointing to the current flare-up of virulent smallpox in New York City, Dr. Roland R. Cross, state director of public health, advised vaccination of every one who has not been vaccinated within three years. Although the disease is at low incidence in Illinois at this time, he said, it is quite prevalent in many other countries, and the present swiftness of travel means that persons can reach this country within a few hours after being exposed to the disease elsewhere.

Annual State Medical Meeting.—The Illinois State Medical Society will hold its annual meeting at the Palmer House, Chicago, May 12-14 under the presidency of Dr. Robert S. Berghoff, Chicago. The Oration in Surgery will be given Monday morning by Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore, on "Surgical Treatment of Congenital Cardiovascular Defects." On Wednesday afternoon the Oration in Medicine will be delivered by Dr. Herman Hilleboe, Assistant Surgeon General, Washington, D. C., on "The United States Public Health Service and the Private Practice of Medicine." Other speakers at the sessions will be:

Dr. Abe B. Baker, Minneapolis, Diagnosis and Treatment of Bulbar Poliomyelitis.
Dr. D. W. Gordon Murray, Toronto, Ont., Anticoagulants in the Treatment of Thrombophlebitis and Phlebothrombosis.
Dr. F. Bayard Carter, Durham, N. C., Mycotic Infections.
Dr. Roscoe L. Sensenich, South Bend, Ind., Are We Tending to Overemphasize Specialization?
Dr. Fred J. Hodges, Ann Arbor, Mich., X-Ray Demonstrable Lesions of the Colon.
Dr. Franklin H. Top, Detroit, subject to be announced.
Dr. Elexious T. Bell, Minneapolis, Pathologic Anatomy of Diabetes.
Dr. F. Bruce Fralick, Ann Arbor, Mich., subject to be announced.

For the first time each section of the society has the privilege of inviting an out of state physician in each specialty represented. At the annual dinner Tuesday evening the main address will be given by Father Alphonse M. Schwitalla, S. J., Ph.D., dean of the St. Louis University School of Medicine, St. Louis. A veterans' service dinner is planned for Monday evening. Numerous societies have planned meetings and luncheons, including the alumni associations of the University of Illinois College of Medicine and Loyola University School of Medicine, both of Chicago. The Woman's Auxiliary will meet May 12 and 13 at the Congress Hotel.

Chicago

Dinner to Honor Dr. Dogliotti.—The Chicago chapter of the International College of Surgeons will give a dinner and reception in honor of Professor A. Mario Dogliotti, head of the department of surgery of the University of Turin, Italy, May 5 at 6:30 in the Gold Coast Room of the Drake Hotel. Professor Dogliotti, who is president of the Italian chapter of the college, is visiting in the United States at the invitation of the Lahey Clinic and the Massachusetts General Hospital, Boston.

Jessie Horton Koessler Fellowship.—The Jessie Horton Koessler Fellowship of the Institute of Medicine of Chicago for the aid of research in biochemistry, physiology, bacteriology or pathology will be available September 1. The stipend is $500 a year, with the possibility of renewal for one or two years. Only such applications will be considered as are approved by the head of a department in the fields mentioned or by the director of a research institute or laboratory in Chicago and which stipulate that the recipient of the fellowship shall be given adequate facilities for carrying out the proposed research. Applications will be received up to July 1, and they should be sent in quadruplicate to Dr. Paul R. Cannon, Chairman of the Committee, 950 East 59th Street, Chicago 37. Since there are no formal blanks, applications should be made by letter.

LOUISIANA

Annual State Medical Meeting.—The annual meeting of the Louisiana State Medical Society will be held at the Roosevelt Hotel, New Orleans, May 12-14 under the presidency of Rhett G. McMahon, Baton Rouge. A clinicopathologic conference will be a part of the opening meeting. Two symposiums, one on antibiotics and one on hypertension, have been scheduled for Tuesday. Out of state speakers at the sessions will be:

Dr. Harry S. Gold, New York, Drugs Used in Treatment of Heart Diseases.
Dr. Maxwell Finland, Boston, Present Day Chemotherapy on Antibiotics.
Dr. George Salmon, Houston, Texas, Use of Antibiotics in Pediatrics.
Dr. Joseph G. Molner, Detroit, Epidemiology and Recent Developments in Poliomyelitis.
Dr. Robert D. Mussey, Rochester, Minn., Circumvallate Placenta: Symptoms and Management.

The president's reception and dinner dance will be given Tuesday evening at 8 o'clock. Dinners have been arranged for members of the Louisiana Pediatric Society and the American Board of Obstetrics and Gynecology.

MASSACHUSETTS

Annual State Medical Meeting. — The Massachusetts Medical Society will hold its one hundred and sixty-sixth annual meeting at the Hotel Statler, Boston, May 20-22 under the presidency of Dr. Dwight O'Hara, Boston. Three symposiums are scheduled for the general sessions, one on industrial medicine Tuesday morning, one on the distribution of medical care for the people of Massachusetts Tuesday afternoon and one on bronchiectasis Wednesday afternoon. Among general session speakers will be:

Dr. Frederick D. Weidman, Philadelphia, Ramifications of the Xanthomas.
Dr. Perrin H. Long, Baltimore, The Uses and Abuses of Chemotherapy.
Dr. Perry P. Volpitto, Augusta, Ga., Use of Anesthetic Drugs in Medical Practice.
Dr. Michael E. DeBakey, New Orleans, Thrombophlebitis and Phlebothrombosis.
Dr. Hans Selye, Montreal, Canada, Diseases of Adaptation in Their Application to Practical Psychosomatic Medicine.

Section meetings, to be addressed by some general session speakers, will be Wednesday and Thursday from noon to 2 p. m. Other subjects to be discussed at the meetings include "Diarrhea of the Newborn: Its Cause and Prevention," "Review of Some Recently Defined Virus Diseases," "Management of Diabetes and Its Complications" and "Thiouracil and Allied Drugs in Hyperthyroidism." The annual oration, will be delivered Tuesday morning by Dr. Leland S. McKittrick, Boston, on "Medical Care in Our Free Society." The Shattuck Lecture will be given Tuesday evening by Dr. William Dock, Brooklyn, on "Clinical Significance of Circulatory Peculiarities of Some of the Vital Organs." Dr. Harrison H. Shoulders, Nashville, Tenn., President of the American Medical Association, will give the dinner address Wednesday evening on "The Responsibilities of the Medical Profession."

NEW YORK

Annual State Medical Meeting.—The annual meeting of the Medical Society of the State of New York will be at the Memorial Auditorium, Buffalo, May 5-9 under the presidency of Dr. Louis H. Bauer, Hempstead. The first scientific program will be presented Wednesday at the general session. An extensive program of sectional meetings has been arranged at which the following out of state physicians will speak:

Heber H. Ryan Jr. and Curtiss B. Hickcox, Philadelphia, Complications with Pentothal Anesthesia.
Donald H. Stubbs, Alexandria, Va., Treatment of Intractable Pain.
Charles M. Barbour and Ralph M. Tovell, Hartford, Conn., Experiences with the Use of Intravenous Procaine.
Francis D. Moore, Boston, Treatment of Peptic Ulcer.
George Berkett, New Orleans, Effect of Drilling Through Neck of Femur in Perthes' Disease.
Bronson Crothers, Boston, Neurologic Procedures in Pediatric Practice.
Louis Schwartz, Bethesda, Md., Ringworm of the Scalp.
Samuel Brown, Cincinnati, Differential Diagnosis of Abdominal Tumors.
Andrew C. Ivy, Chicago, Peptic Ulcer.
Harry E. Bacon and Robert J. Rowe, Philadelphia, Primary Resection for Cancer of the Lower Bowel.
Sidney H. Licht, Cambridge, Mass., The Prescription of Occupational Therapy.

A Teaching Day has been arranged by the Council Committee on Public Health and Education for Tuesday. Obstetrics and gynecology, pediatrics, medicine and surgery will be the subjects discussed by members of the society. The annual banquet will be Wednesday at the Hotel Statler. The Woman's Auxiliary will meet May 4-7 at the Hotel Statler, and the Women's Medical Society of New York State will hold its annual meeting at the Hotel Statler May 4-5. Both technical and scientific exhibits will be on display.

New York City

License Revoked.—The Board of Regents voted Oct. 18, 1946 that the medical license issued to Dr. Frank Celano, Westbury, through indorsement of his Maryland medical license, be revoked, annulled and canceled and that his registration or registrations as a physician be ordered annulled and canceled of record.

Expand Industrial Hygiene Program. — To meet the growing demand for trained personnel the Columbia University School of Public Health is developing courses of study for physicians, nurses, engineers and chemists whose chief interest lies in the field of industrial hygiene or occupational medicine. For the academic year starting in September properly qualified students will be accepted as candidates for the degree of Master of Public Health or Master of Science in Industrial Hygiene. The curriculum will include lectures, seminars, demonstrations, laboratory exercises and field work appropriate to the interests of the students. Students working toward the Master of Public Health degree will be required to take, in addition to their industrial hygiene work, courses in other public health subjects such as biostatistics, epidemiology, administration, sanitary science and health education. Those enrolled for the Master of Science degree will be permitted to concentrate to a greater extent on industrial hygiene subjects. Information may be obtained from the Director, Columbia University School of Public Health, 600 West 168th Street, New York 32.

Institute for Cancer Research.—The cornerstone of the Sloan-Kettering Institute for Cancer Research, central unit of the $15,000,000 Memorial Cancer Center that will occupy the first block between New York and First avenues and 67th and 68th streets, was laid April 7. Alfred P. Sloan Jr., chairman of the board of directors; Charles F. Kettering, vice president and director of research of General Motors, and Dr. Lewis H. Weed, chairman, division of medical sciences, National Research Council, were among the speakers. Three hundred guests of honor attended exercises at the Memorial Hospital for the Treatment of Cancer and Allied Diseases. The institute, which will be ready for occupancy late this year, was provided for through the Alfred P. Sloan Foundation, which has given $2,000,000 for its construction and $2,000,000 to assist in operating it for ten years. The American Cancer Society, through the New York City Cancer Committee, has granted $250,000 for research and will expand its funds after the current drive. The fifteen story building will provide space to carry on a growing program of research which will include studies now in progress in Memorial Hospital laboratories as well as new ones. Units now in operation include laboratories for pathology, research and clinical investigation, pharmacology, biophysics, physics, antibiotics and hormone chemistry as well as departments of chemotherapy, protein chemistry and organic chemistry. The block where the center stands was given by John D. Rockefeller Jr. in 1936 together with $3,000,000 to erect the present hospital. The 68th Street façade of the institute will be marked by an unadorned panel extending to the top of the building and bearing the inscription "In This Institute a Few Labor Unceasingly That Many May Live."

OHIO

Ohio State Medical Alumni Dinner.—A dinner of graduates of the Ohio State College of Medicine, Columbus, attending the Centennial Celebration in Atlantic City will be held June 11 at the Claridge Hotel. They will be given a first hand description of Ohio's new nine million dollar medical center and will be shown a film, the "University in Transition." Those desiring reservations are asked to mail checks for $6 to Dr. Alfred H. Whittaker, 1427 East Jefferson Avenue, Detroit.

PENNSYLVANIA

Four Professors Appointed.—Four members of the faculty of the University of Pennsylvania School of Medicine, Philadelphia, have been appointed to fill professorships in the school. They are Drs. T. Grier Miller, Truman G. Schnabel, Charles C. Wolferth and Francis C. Wood, all of Philadelphia. The three first-named men now hold full professorships in clinical medicine, while Dr. Wood's appointment marks an advancement from an assistant professorship in medicine. When the new appointments become effective at the beginning of the university's fiscal year, July 1, Dr. Wood will also become chairman of the department of medicine, succeeding Dr. O. H. Perry Pepper. After forty years of service Dr. Pepper asked to be relieved of his administrative duties but will continue as professor of medicine and will teach and practice in the university hospital until he reaches the age of retirement.

TEXAS

Medical Aid in the Texas City Disaster.—The John Sealy and other affiliated hospitals of the University of Texas Medical Branch, Galveston, handled 408 casualties resulting from the Texas City disaster of April 16. Two emergency first aid and clearing station teams were at the scene of the explosion within forty minutes. These teams were formed of orthopedic surgeons, residents and senior medical students. They assisted in the efficient work of Texas City physicians and the industrial first aid groups in the prompt care and clearance of the injured to the various hospitals. Casualties began to arrive at the receiving station in the outpatient clinic within an hour. Three hundred and sixty-two casualties were classified, given preliminary treatment and hospitalized within the first five hours. Volunteer medical and nursing personnel and teams sent by the army and navy enabled ten operating groups to function during the following night and day. Some 40 additional casualties were admitted. By April 20 twelve deaths had occurred, two from gas gangrene, 120 patients had been discharged, 90 convalescents had been transferred to the army hospital at Fort Crockett, and the remainder were on routine hospital care. Few burns were encountered. Multiple puncture wounds, serious contusions and compound fractures, together with head, ear and eye injuries were frequent. Impressive were the results of close team work between skilled specialists. The large pool of medical and nursing students aided greatly in furnishing special technical help at all times. The anatomy staff and freshmen medical students assisted in the classification and identification of the dead. The blood bank and emergency supplies of whole blood furnished by Dr. Joel M. Hill of the Dallas Blood Bank of the Baylor University Hospital, Dallas, were major factors in the successful handling of the seriously injured. The American Red Cross responded promptly with large amounts of emergency supplies and with clerical personnel. A detailed report of the medical management of the casualties in the disaster will be prepared for publication in *Texas Reports on Biology and Medicine.*

WEST VIRGINIA

Diabetic Survey.—The Committee on Diabetes of the West Virginia State Medical Association at the initial meeting in Charleston April 3 decided to make an immediate study of the feasibility of establishing diabetic clinics in various sections of the state. A subcommittee was appointed to devise a method for a census of persons with diabetes on both a county and a state basis. It is proposed to obtain the bulk of the information from doctors, but information would also be obtained from diabetic patients by means of coupons printed in county and state papers. Another subcommittee was appointed to obtain from hospitals over the state information concerning the number of diabetic patients admitted for treatment during 1946. The committee is composed of Drs. William M. Sheppe, Wheeling, chairman; L. Rush Lambert, Fairmont; William A. Thornehill Jr., Charleston; Richard C. Neale, Bluefield, and Frederick Q. Whittlesey, Morgantown.

Health Conference.—The Annual Health Conference, which is a joint meeting of the West Virginia Public Health Association and the Health Officers Conference, will be held at the Stonewall Jackson Hotel, Clarksburg, May 16-17. The conference will open at 9 a. m. Friday, May 16. The first address will be by Ross Techemeyer, executive secretary, Public Employees' Retirement Fund, Indianapolis, on "Retirement Systems in the State of Indiana." He will be followed by Ralph Barnes, Atlanta, Ga., on "Rodent Control." The morning session will end with an address by Dr. Bruno Gebhard, director, Cleveland Health Museum, whose subject is "Seeing is Believing and Relieving." The remainder of the program follows:

Film "Clean Water."
Dr. Richard K. Anderson, New York, "Recent Studies in Nutrition as Applied to Public Health."
Dr. Oswald F. Hedley, Richmond, Va., "Newer Drugs in the Control of Tuberculosis."
Gertrude M. Church, Washington, D. C., "The Influence of the Public Health Nurse in the Community."
Dr. William F. McAnally, Pittsburgh, "Medicine and Hygiene in Industry."
Dr. Andrew P. Sackett, Charleston, "Method and Administration of Rapid Treatment."
Dr. Isabel Morgan, Charleston, "The Need for Prenatal and Well Baby Clinics in West Virginia."

Section group meetings will be held as follows: health officers, Dr. Leon A. Dickerson, Madison, W. Va., presiding; public health nurses, Miss Hattie Samples presiding; sanitary engineers and sanitarians, C. O. Snyder presiding and clerks, Paul Shanks presiding. The annual banquet will be held at the Stonewall Jackson Hotel Saturday evening.

GENERAL

Meeting of Bacteriologists.—The Society of American Bacteriologists will meet May 13-16 at the Bellevue-Stratford Hotel, Philadelphia. Six sessions will be devoted to medical bacteriology, pathogenesis on Tuesday afternoon, viruses on Wednesday morning, tuberculosis Wednesday afternoon, laboratory diagnosis and viruses Thursday afternoon, and immunology Friday afternoon.

International Congress of Nurses.—The 1947 congress of the International Council of Nurses will meet in Convention Hall, Atlantic City, N. J., May 11-16. Nurses from more than thirty countries are expected to attend to discuss such problems as the shortage of nurses and methods of meeting it, nurses' employment conditions and the place of the nurse in socialized medicine. Edith M. Beattie, executive secretary, Graduate Nurses' Association of the District of Columbia, Washington, D. C., is secretary of local arrangements.

New Society of Maxillofacial Surgeons.—At a meeting Feb. 13 in Chicago the newly organized American Society of Maxillo-Facial Surgeons elected Dr. Carl W. Waldron, Minneapolis, president, Dr. John W. Kemper, Ann Arbor, Mich., vice president, and Dr. Casper M. Epsteen, Chicago, secretary-treasurer. Membership in the society may be secured by invitation only for doctors of both medicine and dental surgery. The society will hold its first annual meeting in conjunction with the annual session of the American Medical Association in Atlantic City.

Study of Nursing Education.—The National Nursing Council, representing fourteen professional organizations, is undertaking an intensive study of the registered nurse's real job and the changes in education that she requires for it. The study is being financed by a grant from the Carnegie Corporation of New York under Esther Brown, director, department of studies in the professions, Russell Sage Foundation. The study will focus on how a basic professional nursing school should be organized, administered, controlled and financially supported to prepare its graduates adequately to meet community needs.

Aids in European Relief.—Dr. Abraham U. Neuwirth, Floral Park, N. Y., former medical adviser to the Iranian government, left April 17 for Europe, where he will assume the position of regional medical officer in the Joint Distribution Committee's public health program in behalf of the Jews of Europe. The committee has established a series of medical and health programs in Europe including the maintenance of more than 155 hospitals, clinics, dispensaries and maternity centers on the continent. Dr. Neuwirth, a graduate of Bellevue Medical College, New York, serving with the U. S. Army Medical Corps during the war, was attached to the Iranian government, where he supervised the vaccination of the army and civilians against typhus in 1942.

Annual Meeting of American Psychiatric Association.—This association will hold its annual meeting May 19-23 at the Pennsylvania Hotel, New York. Among the 120 papers to be presented are reports on advances in child psychiatry, brain surgery, convulsive disorders, shock therapy, alcoholism and forensic psychiatry. Among the speakers will be:

Dr. G. Brock Chisholm, Ottawa, Canada, The Future of Psychiatry.
Dr. Paul R. Hawley, Washington, Role of Motivation in Recovery from Medical, Surgical and Psychiatric Illnesses.
Pierre S. du Pont 3d, Wilmington, Del., The Psychiatric Foundation and Its Role in Public Education.
Dr. Robert H. Felix, Washington, D. C., The U. S. Public Health Service Program for the Development of Training, Research and Community Service in Mental Health.
Dr. William C. Menninger, Topeka, Kan., The Role of Psychiatry in the World Today.

Other speakers include Dr. Karl M. Bowman, head of the Langley Porter Clinic, San Francisco; Dr. Alan Gregg, director of the Division of Medical Science, Rockefeller Foundation, New York, and Major Gen. Howard McC. Snyder, Washington, D. C.

Marriages

Raymond Merchant, Crown Point, Ind., to Miss Shirley Irene Hambidge of Lafayette February 1.

William Vincent Rucker, Bedford, Va., to Mrs. Emilie McClain Warnock of Philadelphia in November 1946.

Marlin H. Poindexter Jr., Chillicothe, Ohio, to Miss Margaret Coughlin in Detroit Oct. 19, 1946.

Dale S. Raines to Miss Sarah Siebenmorgan, both of Terre Haute, Ind., January 11.

Deaths

Thomas Hall Shastid ⊕ Duluth, Minn., born in Pittsfield, Ill., July 19, 1866; University of Vermont College of Medicine, Burlington, 1888; specialist certified by the American Board of Ophthalmology; fellow of the American Academy of Ophthalmology and Otolaryngology, American Academy of Medicine, American Medico-Legal and Toxicologic Society, American College of Surgeons and the American College of Physicians; associate member of the American Museum of Natural History; member of the American Association for the Advancement of Science, World Calendar Association, National Society for Prevention of Blindness, History of Science Society and many others, including honorary memberships; in 1922 member of the International Congress of Ophthalmology in Washington; served as professor of history of medicine and later honorary professor at the American Medical College in St. Louis; visiting ophthalmologist at St. Luke's Hospital; consulting ophthalmologist, St. Mary's and Miller Memorial Hospital in Duluth and St. Mary's Hospital in Superior, Wis.; author of "Country Doctor," collaborator with Dr. Howard A. Kelly on Cyclopedia of American Medical Biography and American Medical Biographies, with Dr. James Moores Ball on Modern Ophthalmology, third, fourth, fifth and sixth editions, and with Dr. Conrad Berens, The Eye and Its Diseases; formerly editorial secretary of the *Ophthalmic Record;* at one time associate editor of the *Michigan Law Review;* collaborator, *American Journal of Ophthalmology;* member of the editorial staff of *Eugenics;* awarded honorary Doctor of Science degree by the University of Wisconsin; died February 15, aged 80, of uremia.

Bertram Harrington Buxton ⊕ Providence, R. I.; born in Worcester, Mass., in 1883; Harvard Medical School, Boston, 1908; professor of clinical obstetrics at the Tufts College Medical School; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member and past president of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; served as a first lieutenant in the Rhode Island National Guard, on the Mexican Border and with the American Expeditionary Forces overseas during World War I; received the Purple Heart and the Silver Star with Palm for gallantry in action; lieutenant colonel, medical reserve corps, not on active duty; for many years chief of staff, Providence Lying-In Hospital; at various times on the staffs of the Rhode Island, Charles V. Chapin and Butler hospitals; died February 9, aged 63, of coronary thrombosis.

Luis B. de la Vega, San Juan, Puerto Rico; College of Physicians and Surgeons, Baltimore, 1914; member of the American Medical Association; served as secretary of the Insular Board of Health and as president of the Puerto Rico Medical Association; formerly director of the Women's Hospital of Arecibo and the Maternity and Children's Hospital; a major in the medical corps of the Puerto Rico National Guard; on May 3, 1941 became lieutenant colonel in the Army of the United States, serving as assistant director of the U. S. Selective Service Board for Puerto Rico during World War II; died at Fort Brooke Hospital February 9, aged 58, of cerebral hemorrhage.

Harlan Page Abbott ⊕ Providence, R. I.; Harvard Medical School, Boston, 1889; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; past president of the Rhode Island Ophthalmological and Otological Society and vice president of the New England Otological and Laryngological Society; veteran of the Spanish-American War; for many years affiliated with the Memorial Hospital in Pawtucket and the Rhode Island Hospital, where he died February 2, aged 86, of carcinoma of the prostate.

Henry Victor Adix Sr., Gresham, Ore.; University of Oregon Medical School, Portland, 1907; member of the American Medical Association; died February 8, aged 73, of coronary thrombosis.

Otto Walter Aichele, Philadelphia; Jefferson Medical College of Philadelphia, 1911; died February 7, aged 59, of pulmonary carcinoma.

Howard Wilson Barker, New York; National University Medical Department, Washington, D. C., 1901; member of the American Medical Association and the Medical Society of the District of Columbia; served during World War I; formerly surgeon in the U. S. Public Health Service reserve; colonel, medical reserve corps, not on active duty; died in the Roosevelt Hospital February 19, aged 72, of acute appendicitis.

Chancey Lee Brittell ⊕ Chariton, Iowa; State University of Iowa College of Medicine, Iowa City, 1907; served as county physician and county coroner; on the staff of St. Joseph's Hospital, Ottumwa; died February 15, aged 64, of coronary sclerosis.

Elizabeth Viola B. Burns, Fort Wayne, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the American Medical Association; died February 23, aged 78, of arteriosclerosis.

Joseph Calvary, Chicago; Ludwig-Maximilians-Universität Medizinische Fakultät, Munich, Bavaria, Germany, 1905; member of the American Medical Association; died in February, aged 66.

Charles Samuel Campbell ⊕ Coffeyville, Kan.; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; surgeon, Southeast Kansas Hospital; died February 8, aged 68, of coronary occlusion.

Joseph Dessauer, Newark, N. J.; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1914; member of the American Medical Association; died recently, aged 59.

Charles Justice Ellis, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1901; member of the American Medical Association; for many years county jail physician; died February 16, aged 69, of coronary thrombosis.

William D. Freeman, Mount Ida, Ark.; University of Arkansas School of Medicine, Little Rock, 1899; served on the Selective Service Board during World War I; served as county health officer; member of the American Medical Association; died in the Methodist Hospital, Hot Springs, February 3, aged 83, of pneumonia.

Daniel S. Goble, Indianapolis; Kentucky School of Medicine, Louisville, 1892; died in the Methodist Hospital February 6, aged 77, of bronchogenic carcinoma.

Eugene Oscar Koeneman ⊕ Eldora, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; affiliated with the Eldora Memorial Hospital; died in Amboy, Calif., January 8, aged 77, when an automobile in which he was driving was struck by a train.

Henry Bennett Lavery ⊕ Lieutenant Colonel, U. S. Army, retired, Dubuque, Iowa; St. Louis University School of Medicine, 1926; U. S. Army Medical School and Medical Field Service School in 1928; School of Aviation Medicine in 1932; member of the Louisiana State Medical Society; entered the medical corps of the U. S. Army as a first lieutenant in August 1927; promoted through the various ranks to that of lieutenant colonel; retired Oct. 31, 1945 for disability in line of duty; died Dec. 3, 1946, aged 46.

Robert Lawrence Mason, Roanoke, Va.; Medical College of Virginia, Richmond, 1915; member of the American Medical Association; served on the staff of the Shenandoah Hospital; died January 15, aged 60, of chronic nephritis with arteriosclerosis.

James Thomas Nichols ⊕ Muskogee, Okla.; Denver and Gross College of Medicine, 1903; served during World War I; formerly city physician; on the staffs of the Oklahoma Baptist Hospital and the Muskogee General Hospital, where he died January 26, aged 68, of cerebral hemorrhage.

Ora Frank Parish ⊕ Grinnell, Iowa; Rush Medical College, Chicago, 1903; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; served during World War I; on the staff of the Community Hospital, where he died February 16, aged 73, of carcinoma of the spleen.

William Henry Rogers ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1905; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; on the staff of the Brooklyn Eye and Ear Hospital; died January 15, aged 72, of heart disease.

Arthur Marion Sparling, Sailor Springs, Ill.; Washington University School of Medicine, St. Louis, 1907; member of the American Medical Association; died in St. Anthony's Hospital, Effingham, February 7, aged 70, of cerebral hemorrhage.

Ray Henry Thomas ⊕ South Bend, Ind.; Indiana University School of Medicine, Indianapolis, 1914; at one time a past assistant surgeon in the U. S. Public Health Service reserve; died in Warsaw, Ind., recently, aged 58, of coronary thrombosis.

John Henry Thomsen ⊕ Omaha; John A. Creighton Medical College, Omaha, 1914; died in the Frederick Hospital January 21, aged 62, of cerebral hemorrhage due to hypertension.

Lucian N. Yost, Fairmont, W. Va.; Eclectic Medical Institute, Cincinnati, 1895; served as county health officer and county physician; died in the Fairmont Emergency Hospital February 4, aged 75, of cerebral hemorrhage.

Foreign Letters

BRAZIL

(From Our Regular Correspondent)

São Paulo, April 5, 1947.

The Effects of Curare

In 1944 Dr. Ettore Biocca was present when curare was being prepared by the Makú Indians (a primitive tribe of hunters); the ceremony took place in a *maloca* (Indian house) near a small affluent on the right margin of the Tiquié River adjacent to the Brazil-Colombia border. Samples of the various plants used by the Makú Indians were collected and brought by Biocca to São Paulo, where Hoehne of the Instituto de Botânica identified them. The Makú curare collected by Dr. Biocca in five different places (rivers Tiquié, Papori and Uaupés) had an average biologic activity per gram of about 7,000 minimum lethal doses for mice, inoculated intramuscularly. No curarizing effect could be demonstrated in the residue of the ethereal extract of the same curare (corresponding to 0.29 per cent of dry curare weight). The curarizing activity of chloroformic residue (0.45 per cent of dry curare weight) was about three times weaker than that of dry curare, while the curarizing activity of nonextractable bases, by ether or chloroform (11.41 per cent) was about four times stronger than that of dry curare.

Preliminary experiments were conducted with H. Stammreich of the Instituto de Fisica of St. Paul University subjecting curare solutions to radiation and controlling the curarizing activity of these solutions before and after irradiation. The curare solutions were practically inactivated only by the short ultraviolet region of the spectrum. For this reason a glass filter of Pyrex, which absorbs this region and transmits only waves above 3,200 angstroms, prevented the whole photochemical reaction. Waves between 2,500 and 3,000 angstroms roused a series of photochemical reactions which began apparently by small molecular alterations followed by a large decrease or total loss of curarizing power. Repeated intravenous injection of solution of Makú curare in rabbits did not cause either precipitins or specific antibodies to appear in the serum of these animals capable of complement fixation or of neutralizing the curarizing power of the solutions. In the same manner it was impossible to demonstrate in the rabbits subjected to these experiments any increase of resistance to curare poisoning. Makú curare seems therefore to lack any immunizing activity.

Blindness Caused by Intracranial Cysticercosis

Cysticercosis of the brain, like most intracranial lesions, may cause focal or general symptoms; nevertheless it often goes unrecognized. Only when focal symptoms are clearcut and the general ones point strongly to visual disturbance is its presence really suspected. In massive infection of a few weeks or months duration the complement fixation test for cysticercosis gives a strongly positive reaction. In a series of 312 necropsies done by Dr. João Montenegro in the Faculdade de Medicina de São Paulo between 1923 and 1927 cysticerci of the brain and meninges were found in 2.54 per cent of the cases. Dr. Montenegro also presented the clinical observations in 4 cases of endocranial cysticercosis with lesions of the optic chambers. The diagnosis was made by x-rays, by the complement fixation test for cysticercosis in the spinal fluid, by the cell count and by the albumin content. The Wassermann reaction for syphilis was negative in all. One patient was operated on and eight cysticerci were removed; one was examined post mortem. Two brothers of 1 of the patients probably had the same disease because the symptoms were the same. That would make a total of 6 clinical cases. The treatment consists in brain decompression, when there is intracranial hypertension, in order to save sight and sometimes life, according to Dr. Montenegro's account. Well localized cysticerci may be removed. Conservative treatment consists mainly in the administration of sedatives. Vermicides as well as radiotherapy have not proved to be of any value; improvement in a few patients thus treated might have been spontaneous.

TURKEY

(From Our Regular Correspondent)

Ankara, Feb. 15, 1947.

The Health of the Worker in Turkey

So far the Ministry of Health and Social Assistance has been responsible for maintaining the health of the worker. The public health law of 1929 called for the enactment of a worker's health and insurance law. The labor law was enacted in 1936. A labor office was then established at the Ministry of Economics, and all matters pertaining to industry and workers came under the administration of the government. With the establishment of the Ministry of Labor in 1945 the labor office at the ministry of economics became part of the Ministry of Labor, which like all other ministries has its own budget, a council, an under secretary of state, general directors and district inspectors. Under present conditions labor departments can be established in only fifteen localities. The responsibility for the health of the worker is now in the hands of the labor minister, Prof. Dr. Sadi Irmak. The new minister made an inspection tour to ascertain under what condition the workers work and live. Statistics show that from 70 to 75 per cent of Turkey's population is engaged in agriculture. Handicrafts and trades followed are those of goldsmith and silversmith, cloth and carpet weaving, cocoon and silk production, soapmaking, tanning and horseshoeing. The republic has added mineral mining, iron smelting, the making of railway rails, spinning, cloth mills and sugar refineries, thus making a beginning at industrialization. Most of these industries are in the hands of the government, employing about 100,000 workers, the majority unskilled. The old established military factories are still in operation.

The workers' health and compensation law contains 148 paragraphs, of which twelve relate to matters of health and safety precautions, eighteen to strikes and lockouts, which are unlawful, and to disagreements between employer and employed. There are regulations to safeguard the right of the workers in regard to industrial diseases, maternity and old age insurance, unemployment, illness and death compensation.

Establishments employing more than fifty workers must have a physician on the staff, those employing more than a hundred must have an infirmary and those employing more than five hundred must have their own hospital.

Handicrafts and trades are mostly found in small townships, heavy industry away from towns. There are not more than 100,000 skilled workers in Turkey. They are working in coal, chrome, copper, iron, mineral, lead and sulfur mines, in steel works, sugar refineries, tanneries, glass factories and spinning and cotton mills. Carpet and rug weaving is mostly done on handlooms in the homes of villagers. Munition production and military repair work are carried out in military factories, which are under the administration of the Ministry of National Defense. Workmen in railway repairshops and shipyards and dockworkers come under the same administration.

Correspondence

USE OF TESTOSTERONE IN ELDERLY MEN

To the Editor:—The following facts are well known and recognized: (1) Orchiectomy, by diminishing the amount of androgen, inhibits the growth of carcinoma of the prostate; (2) the administration of estrogen, by counteracting the action of androgen, inhibits the growth of carcinoma of the prostate; (3) the diagnosis of early carcinoma of the prostate is difficult and unreliable and cannot depend on rectal palpation alone, and (4) competent pathologists have found lesions which they believe to be carcinoma of the prostate in as high as 46 per cent of all autopsies performed on men of advanced years.

The following assumption is fully justified in the present state of our knowledge: The administration of androgen would probably stimulate and hasten the growth of carcinoma of the prostate.

The following hypothesis is an obvious one, and its implications are so serious that they cannot be disregarded: The administration of testosterone may bring about the onset of cancer in precancerous lesions of the prostate or even cause the development of carcinoma of the prostate de novo.

In view of these considerations, the most emphatic warning should be voiced concerning the current recommended and extensively used procedure of administering large doses of testosterone over long periods of time to elderly men, for a wide range of complaints, without any objective evidence of androgen deficiency or any real certainty that carcinoma of the prostate is not present.

I am informed that similar warnings are being put forward as to the use of estrogen in women. The principle is the same, and the dangers are similar in the two sexes.

David M. Davis, M.D., Philadelphia.

EUPHEMISMS IN MEDICAL PRACTICE

To the Editor:—The article on "Euphemisms and Equivalents in Teaching Practice," page 183, January 18, gently and thoughtfully points to certain weaknesses in clinical teaching. The author has presented helpful suggestions, but one wonders if he may not be too optimistic in his suggested treatment. He has advocated the use of euphemisms in discussing a patient's illness, although he apparently has in mind not so much euphemisms as synonyms, so chosen as to be unintelligible to the patient. Were such a treatment to succeed it would presuppose two capacities in the attending physician: (1) a remarkable acquaintance with the language in order to have a wide selection of synonyms at his disposal and (2) a rare intuitive insight into the patient's education and understanding, for without that he would not be able to select a synonym unintelligible to the patient.

From the author's article I am inclined to believe that he himself could make such an approach work, but I think he is sanguine in his assumption that students could be readily taught to make it work. Would not his laudable purposes be more surely realized by the following changes: 1. The patient's history and the discussion of his diagnosis and prognosis should be presented in the absence of the patient. Such a procedure would involve but little additional time on the part of the teaching physician, and the respect that it would show for the patient's personality would have significant pedagogic value. Under such a system the student would be less likely to refer to older and chronically ill charity patients as "old crocks," a term not infrequently heard in charity hospitals and one which best serves to indict the student for the inadequacy of his educational experience. This inadequacy can be corrected only by men with broader humanitarian interests. Such interests in the attending physicians would have greater effect if the teaching routine were arranged in a manner better calculated to reveal them. 2. All comments and observations at the bedside should be confined purely to a description of the sensible findings. Even in that description the use of synonyms, as the author of the article recommended, would be helpful. The average patient is probably less disturbed to hear he has a tachycardia than to be informed he has a fast heart. Such a teaching method would give the patient the impression that the student was primarily interested in how he felt and in what evidences of illness he had. The student would be rewarded by a better cooperation from the patient when he wished to carry out his examination. The system just outlined is rarely practiced, partly, no doubt, because the type of patient it would help does not publish his views in the scientific journals.

Were a well trained reporter to question some of these patients concerning their views on teaching methods, student treatment and the like he would not only be able to create a story of exceptional human interest but thereby would at once help these patients and contribute to the education of future physicians.

Bradford N. Craver, M.D., Summit, N. J.

TREATMENT OF POSTHERPETIC PAIN

To the Editor:—In Queries and Minor Notes in The Journal, March 8, page 733, there was an answer to an inquiry on the treatment of postherpetic pain. To the five measures of medical therapy recommended in the answer "before radical therapy is advised," the following are worthy of being added: (1) intravenous injections of Endoarsan of Endo Products Inc., Richmond Hill 18, New York, (2) Gynergen, (3) autoserum injections, (4) smallpox vaccine and (5) high voltage x-ray irradiation of the corresponding segments. Further information about treatment of postherpetic pain can be found in the following articles, which contain extensive bibliographies:

Baird, P. C., Jr.: Herpes Zoster, *New England J. Med.* **228:** 568 (May 6) 1943.
Edgerton, A. E.: Herpes Zoster Ophthalmicus, *Arch. Ophth.* **34:** 40 (July), 114 (Aug.) 1945.

The answer concludes "If these measures fail, the patient should be referred to a neurologic surgeon, who may do a root resection on the side of the involved area." Though many textbooks take the same attitude, it must be stressed that, when medical measures fail, the treatment of herpes zoster with paravertebral procaine injection should be tried before operations such as posterior root resection or chordotomy are considered. The following articles give information about the technic of these injections:

Freude, E.: Zur Behandlung des Herpes zoster, *München. med. Wchnschr.* **78:** 1617, 1931.
Rosenak, S.: Procaine Injection Treatment of Herpes Zoster, *Lancet* **2:** 1056 (Nov. 5) 1938.
Street, A.: Use of Sympathetic Nerve Block in Herpes Zoster, Bell's Palsy, *Mississippi Doctor* **20:** 480 (April) 1943.
Findlay, Thomas, and Patzer, Reynold: The Treatment of Herpes Zoster by Paravertebral Procaine Block, The Journal, Aug. 25, 1945, p. 1217.

In the latest publication on the subject of the treatment of herpes zoster (Reeves, R. J., and Waters, L. B.: Herpes Zoster, *Texas State J. Med.* **42:**490 [Dec.] 1946) the authors conclude that "roentgen therapy is an effective method of treatment in herpes zoster. . . . The combination of procaine injection and irradiation sounds feasible." Paravertebral injections with procaine give such good results that it is hardly necessary to resort to alcohol injections as recommended by F. Mandl (*Wien. klin. Wchnschr.* **48:**490, 1935) and others.

Robert Wartenberg, M.D., San Francisco.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, April 26, page 1302.

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 24-26. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

Arkansas: * *Medical. Examination.* June 5-6. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 5. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Written.* San Francisco, July 7-10. *Oral.* San Francisco, May 10-11. *Oral Clinical Examination for Foreign Medical Graduates.* San Francisco, June 21. Sec., Dr. Frederick N. Scatena, 1020 N. St., Sacramento 14.

Connecticut: *Examination.* Hartford, July 8-9. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 8. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 8-10. *Endorsement.* Dover, July 15. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia: * *Reciprocity.* Washington, June 9. Sec., Commission on Licensure, Dr. George C. Ruhland, 6012 E. Municipal Bldg., Washington 1.

Florida: * *Examination.* Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

Georgia: Atlanta, Oct. 14-16. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

Hawaii: *Examination.* Honolulu, July 8-11. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

Idaho: Boise, July 14-16. Sec., Bureau of Occupational Licenses, Dr. S. M. Poindexter, Eastman Bldg., Boise.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 627 K. of P. Bldg., Indianapolis.

Kansas: *Endorsement.* Kansas City, June 26. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

Kentucky: *Examination.* Louisville, Sept. 22-24. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Augusta, July 1-2. Sec., Board of Registration in Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Medical Examination.* Baltimore, June 17-20. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 10-11. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

Massachusetts: *Examination.* Boston, July 8-11. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 E State House, Boston.

Michigan: * *Examination.* Detroit, June 9-11. Semi-Annual meeting, Lansing, June 24. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Mississippi: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

Missouri: *Examination.* St. Louis, May 26-28 and June 9-11. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Building, Jefferson City.

Nebraska: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Capitol Bldg., Lincoln.

Nevada: *Written Examination.* Carson City, May 5. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

New Hampshire: *Examination.* Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: Trenton, June 17-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, June 23-26. Sec., Dr. Jacob L. Lochner Jr., State Education Bldg., Albany.

North Carolina: *Endorsement.* Raleigh, June 24. *Examination.* Raleigh, June 23-26. Acting Sec., Mrs. L. McNeill, 226 Hillsboro St., Raleigh.

North Dakota: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

Ohio: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oregon: * *Examination.* Portland, May 21-23. Application must be on file on or before May 12. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

Pennsylvania: Philadelphia and Pittsburgh, July. Acting Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

South Carolina: Columbia, June 23-25. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * Pierre, July 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

Tennessee: Memphis and Nashville, June 11-12. Sec., Dr. Harley W. Qualls, 1635 Exchange Bldg., 130 Madison Ave., Memphis 3.

Texas: Austin, June 5-7. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Building, Dallas 2.

Virginia: Richmond, June 18-21. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., 30½ Franklin Rd., Roanoke.

Wyoming: *Examination.* Cheyenne, June 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: June 17. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Arkansas: Little Rock, May 7. Sec., Mr. L. E. Gebauer, 701 Main Street, Little Rock.

Colorado: Denver, June 4-5. Sec., Dr. Esther B. Starks, 1459 Ogden Street, Denver.

Connecticut: June 14. Exec. Asst., State Board of Healing Arts, Mr. W. G. Reynolds, 250 Church St., New Haven 10.

Florida: May 31. Final date for filing application is May 16. Sec., Dr. M. W. Emmel, University of Florida, Gainesville.

Iowa: Des Moines, July 8. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: Ann Arbor and Detroit, May 9-10. Sec., Miss Eloise Lebeau, 101 N. Walnut St., Lansing.

Nebraska: Omaha, May 6-7. Dir., Bureau of Examining Boards, State Department of Health, Mr. O. F. Humble, 1009 State Capitol Bldg., Lincoln 9.

New Mexico: *Examination.* Santa Fe, May 4. Sec., Miss Marion M. Rhea, 114 E. Marcy St., Santa Fe.

Oregon: June 7. Final date for filing application is May 21. Sec., Mr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island: *Examination.* Providence, May 14. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Dakota: Vermillion, June 6-7. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Nashville and Memphis, June 13-14. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Council on Medical Education and Hospitals

HOSPITAL STAFF APPOINTMENTS

At the direction of the House of Delegates of the American Medical Association some years ago the Council on Medical Education and Hospitals formulated standards for the establishment of American boards for the certification of specialists and for the conduct of hospital residencies providing training in the various special fields of medicine. The aim was to improve the quality of training at this level of medical education. The physician responsible for directing such hospital training should himself have had training and experience approximately equivalent to that required of certification applicants, whether or not he is actually certified. But it was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians, as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients, as judged by the professional staff of the hospital, and not on certification or special society memberships.

In this opinion the Council has the full concurrence of the Advisory Board for Medical Specialties, which represents all the American boards in the specialties. At the February 1947 meetings of the Advisory Board it was unanimously voted to adopt as the sentiment and policy of the Advisory Board the recent resolution passed by the American Board of Surgery, which reads:

> The American Board of Surgery is not concerned with measures that might gain special privileges or recognition for its certificants in the practice of surgery. It is neither the intent nor has it been the purpose of the Board to define requirements for membership on the staffs of hospitals. The prime object of the Board is to pass judgment on the education and training of broadly competent and responsible surgeons—not who shall or shall not perform surgical operations. The Board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.

Since February, several separate American boards in the various specialties have taken similar action. The Council on Medical Education and Hospitals of the American Medical Association is completely in accord with this principle.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Food, Drug and Cosmetic Act: Right of Government To Seize Misbranded Device.—The claimant purchased a Spectro-Chrome for the use of himself and his mother. In proceedings against the manufacturer, the government had obtained a judgment that the machine was fraudulent and, because this machine was shipped in interstate commerce, the government now claims the right to take it from the claimant even though he bought and paid for it and is using it in his home. The case was heard in the United States district court, D., Oregon.

It was stipulated that the device was shipped in interstate commerce, labeled with false and misleading statements as to its therapeutic capabilities. Regardless of this, however, the owner testified that he was satisfied with the machine and wanted to keep it, and that he and his mother had both obtained help by using it. He testified further that he did not intend to make commercial use of the machine, did not intend to permit it to be used outside his home or by others than his immediate family, which consisted of his parents and two brothers, both over 21 years of age and both having received a grammar and high school education similar to that of the defendant. The government relied on the words of the statute, that an article introduced into interstate commerce, with fraudulent representations as to its therapeutic value, may be seized and condemned "while in interstate commerce, or at any time thereafter. . . ." The government contended that the words "or at any time thereafter" permitted it to pursue and seize the article in a private home. The court quoted from the book of Constitutional Limitations, ed. 7, page 425, as follows:

> Near in importance to exemption from any arbitrary control of the person is that maxim of the common law which secures to the citizen immunity in his home against the prying eyes of the government, and protection in person, property, and papers against even the process of the law, except in a few specified cases. . . .

This case, said the court, is not one of such exceptions. It is nothing more than a well intentioned effort by high-minded and zealous officials to protect a man from what they deem to be folly, to the extent of following him into his home and family and there divesting him of property. This, insisted the court, cannot be done. The government admitted that the Spectro-Chrome is not inherently dangerous, but it said in its brief:

> It is claimed to be indirecly dangerous because the ailment of the user is aggravated by reason of the failure to consult competent medical authority.

This statement is not supported by any legal authority. The question, said the court, is not whether false and misleading statements were made to the claimant. The question is what does the claimant want to do about it? He says "Nothing. I am satisfied. I am being helped." But the government answers "We won't allow you to be satisfied. We won't allow you to help yourself. We know that you *may* be led into doing yourself harm, through relying too heavily on this machine, and thus not obtaining proper (by our standards) medical treatment." Without intending to give offense, the court concluded, I think no such proposition of paternal right in the field of public health has been advanced in modern times. At least I have been unable to find it in encyclopedias, treatises or law books. The judgment was therefore in favor of the claimant, and the government was denied the right to seize and condemn the machine.—*United States v. One Article of Device Labeled Spectro-Chrome, 66 F. Supp. 754 (Ore., 1946).*

Malpractice: Physician's Liability for Burns Received During Operation.—The plaintiff sued for damages caused by the alleged malpractice of the defendant physician. From a directed verdict in favor of the defendant, the plaintiff appealed to the Supreme Judicial Court of Massachusetts.

The plaintiff engaged the defendant, an obstetrician, to treat her before, during and after childbirth. About 11 p. m. on December 20 the plaintiff, who was in mild labor and three weeks overdue, entered a lying-in hospital in Boston, where the defendant had arranged for her room. The baby, her first and a large one, was born about 2: 10 a. m. on December 22. It was a difficult labor of thirty-five hours, and delivery was by the use of forceps after the defendant had performed an operation known as an episiotomy. About twelve minutes after anesthesia had started, in order to sterilize the field of operation, the defendant applied Scott's solution (mercurochrome, distilled water, 95 per cent alcohol and a chemical known as acetone [a solvent which has a tendency to dry up]) to the legs, to the perineum and to an area extending half way from the pubic bone to the umbilicus. During the delivery and operation the plaintiff "was lying on a rubber sheet at the time of delivery; the rubber sheet was put just under her buttocks." The following afternoon the plaintiff told the defendant that her back was sore and burned but the defendant said that was natural and would leave in a few days. There was a similar conversation the following day. On December 24 she told the defendant her back was worse and burning. The defendant then made an examination, which disclosed on each buttock a second degree burn covering in each case an area of approximately 2 by 3 inches. He said "My God, what a mess; my God, what happened here. . . . It is a darn shame to have this happen." He also said that "she had a very hard delivery, and it was a burning shame to get that on top of it, and it was because of negligence when they were upstairs." He thought that apparently it was from the solution being allowed to stay in the part of the "mat" which was recessed from the pressure; and that "the closest he could figure was that the solution was on the rubber mat and exposed her skin for too long a period." At the trial the defendant testified: "She got these burns while in the delivery room. . . . He thought she got the burns at the time of the delivery." In answer to interrogatories the defendant stated that "the plaintiff did receive burns on both her buttocks while she was under his care and treatment" and that there were "no negligent acts or omissions on the part of the plaintiff or by others than the defendant which caused the injuries suffered by the plaintiff."

The plaintiff was not required, said the court, to show the exact cause of her injuries or to exclude all possibility that they resulted without fault on the part of the defendant. It was enough that she showed that the harm which befell her was more likely due to negligence of the defendant than to some other cause for which he was not liable. The jury could have found, continued the court, in accordance with the defendant's admissions, that the plaintiff's injuries were due to negligence; that there was no negligence on the part of the plaintiff or of any one other than the defendant; that, by the process of elimination, this negligence was that of the defendant; and that, in particular, this negligence of the defendant related to the exposure of the plaintiff in the delivery room, while under his direction and care, to a solution on the delivery table which he himself had administered. It is no answer, said the court, to say that the admissions were merely statements of regret, sympathy and benevolence evoked by human suffering. This is, of course, true of the statements that it was a "shame" and "unfortunate." But it is in no way true of the references to "negligence" and to the definite declaration that the burns were attributable to the solution being on the "mat" and to the plaintiff's skin being exposed to the solution "for too long a period."

On the basis of all the evidence the court was of the opinion that the trial court erred in directing a verdict for the defendant. Accordingly the plaintiff's exceptions were sustained.—*Woronka v. Sewall, 69 N. E. (2d) 581 (Mass., 1946).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

14:47-82 (Feb.) 1947

Geography of Salmonella. O. Felsenfeld and Viola Mae Young.—p. 47.
Clinical Consideration of Malfunctioning Noncalculous Gallbladder. M. Feldman.—p. 53.
*Attempt to Prevent Histamine Induced Ulcers in Guinea Pigs with Benadryl (Beta Dimethylaminoethylbenzhydryl Ether Hydrochloride). J. T. Crane, S. Lindsay and M. E. Dailey.—p. 56.
Some Effects of High Lipid Diets on Intestinal Elimination: IV. Saturated Fatty Acids. Helen L. Wikoff, B. H. Marks, Jean F. Caul and W. F. Hoffman.—p. 58.
*Formation of Concretions of Aluminum Salts of Fatty Acids After Use of Aluminum Hydroxide. G. P. Child, W. K. Hall and S. H. Auerbach.—p. 63.
Management of Constipation with Refined Psyllium Combined with Dextrose. L. H. Block.—p. 64.
Cause and Pathogenetic Mechanism of Hypertrophic Cirrhosis of Liver of Hanot Type. A. O. Wilensky.—p. 74.

Benadryl and Histamine Induced Ulcers.—Crane and his associates describe experiments on 16 guinea pigs, which had the aim to determine whether benadryl would prevent the formation of gastric and duodenal ulceration induced by prolonged administration of histamine. Treatment with benadryl did not prevent histamine induced ulcers in guinea pigs.

Concretions of Aluminum Salts of Fatty Acids.—Child and his associates report the history of a man aged 36 who had had chronic duodenal ulcer for fifteen years. Following a severe hemorrhage in March 1945 the patient made an uneventful recovery on a bland diet with atropine and aluminum hydroxide medication. Three months after this hemorrhage and while still taking the antacid and maximum doses of tincture of belladonna he suffered another acute episode of severe pain culminating in hemorrhage. His stools were found to contain small formed white masses. Their passage was accompanied with intermittent periods of constipation and diarrhea, cramps and pain suggesting intestinal irritation. Chemical analysis of these concretions showed them to be composed of fatty acid salts of aluminum, with a small amount of neutral fat and traces of cholesterol and protein. The patient recalled a similar sequence of events with about the same interval between hemorrhages in 1941. At that time the white concretions were not analyzed.

American Journal of Medicine, New York

2:131-228 (Feb.) 1947

Potassium Deficiency in Case of Lymphosarcoma with Sprue Syndrome. H. E. Harrison, Helen C. Harrison, R. R. Tompsett and D. P. Barr. —p. 131.
*Clinical Comparison of Effectiveness of 6-n-Propylthiouracil and 2-Thiouracil as Antithyrotoxic Agents. T. H. McGavack, A. J. Gerl, Mildred Vogel and S. Schutzer.—p. 144.
*Thiouracil: Remission or Relapse of Hyperthyroidism After Discontinuing Its Use. E. C. Bartels.—p. 150.
Brucellosis and Infection Caused by Three Species of Brucella: Clinical, Laboratory and Epidemiological Observations. C. F. Jordan and I. H. Borts.—p. 156.
Relationship of Streptococcal Infections to Rheumatic Fever. H. F. Swift.—p. 168.
Heredity and Rheumatic Disease. May G. Wilson.—p. 190.

Propylthiouracil and Thiouracil as Antithyrotoxic Agents.—McGavack and his associates, in reporting the results of administering propylthiouracil to 100 patients, observe that too little of the drug was given to some of these patients, so that they were subjected to operation or returned to the use of thiouracil. In the 75 patients whose symptoms of toxic goiter were brought fully under control by the drug the symptoms and qualitative therapeutic responses were similar in eve[illegible] thiouracil. The initial doses of [illegible] varied between 75 and 250 mg. and maintenance doses from 25 to 75 mg. One severe febrile reaction was encountered in a patient who had previously developed a similar response to thiouracil. Ten of the 75 patients have had no recurrence of thyrotoxic symptoms four months after discontinuing 6-n-propylthiouracil. The drug is safe and effective for the management of all forms of hyperthyroidism.

Hyperthyroidism After Discontinuing Use of Thiouracil.—The basis of this report by Bartels is experience with 21 patients having primary hyperthyroidism, observed for as long as two and a half years from the standpoint of remission or relapse after withdrawal of thiouracil. Eight patients remained in remission and 13 had a relapse. The duration of thiouracil administration after restoration of the basal metabolic rate to normal was not a factor in the duration of remission, since prolonged remissions occurred after short therapy and prompt relapse was observed after long treatment. Clinical experience indicates that patients with mild primary hyperthyroidism may occasionally have a prolonged remission either spontaneously or following brief iodine therapy. Therefore thiouracil might be classified with iodine in its power to cause a remission in mild hyperthyroidism. If the 8 patients now in remission are observed long enough, all can be expected to have a relapse. Patients having large thyroid glands or large recurrent remnants, in whom the basal metabolic rate is in the higher range, can be expected to have a relapse not later than six months after withdrawal of the thiouracil.

American J. Obstetrics and Gynecology, St. Louis

53:1-180 (Jan.) 1947

Office Study of Infertility. I. M. Procter and K. Dickinson.—p. 65.
Coexisting Cancer of Ovary and Fundus. C. J. Andrews and R. B. Nicholls.—p. 75.
Physiology of Labor. R. Torpin.—p. 78.
Use of Penicillin in Repair of Complete Perineal Lacerations. G. Johnson.—p. 82.
Late Postpartum Hemorrhage. S. A. Wolfe and P. Pedowitz.—p. 84.
Extraperitoneal Cesarean Section; Intraperitoneal Approach: Presentation of the Author's Technic. R. A. Cacciarelli.—p. 100.
*Surgical Treatment of Phlebothrombosis in Obstetric and Gynecologic Patients. F. W. Bancroft.—p. 109.
Advantages of Surgical Treatment in Phlebothrombosis. R. S. Millen. —p. 117.
Psychosomatic Aspect of Dysmenorrhea: Sensory Conditioning Process. W. E. Hunter and B. R. Rolf.—p. 123.
*Positive Diagnosis of Hydatidiform Mole Without Evidence of Mole Cysts. H. Acosta-Sison.—p. 132.
*Carcinoma of Cervix During First Two Decades of Life. R. S. Pollack and H. C. Taylor Jr.—p. 135.
Acute Leukemia and Pregnancy: Report of Fatal Case Treated with Penicillin. R. Harris, I. G. Tchertkoff and L. Greenwald.—p. 142.
Endocrine Influences on Blood Pressure of Normal and Hypertensive Rats. E. W. Page and E. Ogden.—p. 150.

Surgical Treatment of Phlebothrombosis.—Bancroft is impressed with the fact that many of the thrombotic processes originate in the veins of the broad ligament and that to treat a gynecologic or obstetric case successfully a bilateral approach is the best procedure. When the complication occurs as the result of some general surgical process, the treatment of the involved side is probably sufficient. There is a certain risk in the bilateral approach because in sucking out the thrombus from a vein one is likely to suck out more blood than one realizes, and a bilateral approach might tend toward exsanguinating the patient. Where phlebothrombosis is present and there is danger of pulmonary emboli, the operative approach and ligation of the vein is safer than relying on the use of anticoagulants or lumbar sympathetic block. While excellent results have been reported from the use of anticoagulants without operative intervention, convalescence is safer and is shortened by either proximal ligation or thrombectomy. Emboli have occurred shortly after the cessation of heparin therapy.

Diagnosis of Hydatidiform Mole.—The method of diagnosing hydatidiform mole presented by Acosta-Sison is based on the fulness of part or the whole of the lower uterine segment in conjunction with undue uterine enlargement as related to the number of months of amenorrhea, uterine bleeding, absence of a fetus as revealed by palpation auscultation and of fetal movements, and absence of amniotic fluid.

Carcinoma of Cervix During First Two Decades of Life.—In a chronologic table beginning with 1880, Pollack and Taylor list 30 true carcinomas of the cervix in females less than 20 years of age. They themselves observed one in a woman aged 18. The histologic type in 22 patients was adenocarcinoma. In the majority the clinical course was progressively downward. Four patients survived five years. The apparent tendency of cancer to manifest itself to an increasing degree during the earlier decades is a fact calling for more emphasis.

American Journal of Pathology, Ann Arbor, Mich.

23:1-166 (Jan.) 1947

Adnexal Carcinoma of Skin. N. C. Foot.—p. 1.
Mummified Epidermal Cysts: (So-Called "Calcified Epitheliomas"). L. S. King.—p. 29.
Ewing's Sarcoma of Bone. L. Lichtenstein and H. L. Jaffe.—p. 43.
Fatty Infiltration of Liver in Patients with Mongolism and in Children with Hydrocephaly and Microcephaly. E. C. Roosen-Runge.—p. 79.
*Histopathology of Monocytic Leukemia. P. A. Herbut and F. R. Miller.—p. 93.
Drainage of Pulmonary Veins into Ductus Venosus Arantii: Report of Case. W. H. Mehn and F. E. Hirsch.—p. 125.
Gross Cerebral Hemorrhage and Vascular Lesions in Acute Tuberculous Meningitis and Meningoencephalitis. J. W. Goldzieher and J. R. Lisa.—p. 133.
Studies on Periarteritis Nodosa: II. Role of Various Factors in Etiology of Periarteritis Nodosa in Experimental Animals. C. C. Smith and Pearl M. Zeek.—p. 147.
Nonportal Distribution of Trabeculae in Dietary Cirrhosis of Rats and Carbon Tetrachloride Cirrhosis of Rats and Guinea Pigs. L. L. Ashburn, K. M. Endicott, F. S. Daft and R. D. Lillie.—p. 159.

Histopathology of Monocytic Leukemia.—By a detailed study of the histopathologic changes in 8 cases of monocytic leukemia, Herbut and Miller have shown that reticuloendothelial cells are unquestionably the precursors of monocytes. Proliferation and transitions to the freely circulating cell appear to depend on the age of the patient and the degree of stimulation. A fulminating course in a young person will produce extensive reticulum hyperplasia because the maturation of the cells cannot keep pace with proliferation. In an older person a similarly acute course will produce less hyperplasia because the tissues are less adaptable to proliferation. In the latter, as well as in protracted cases, there is a more subtle and complete transformation of the reticuloendothelial cells into monocytes, and the transitions are more difficult to demonstrate. Like all reticuloendothelial cells, the Kupffer cells of the liver were seen to participate in the formation of monocytes in some cases. All transitions from initial swelling to complete extrusion into the sinusoidal lumens were encountered. A heterogeneous accumulation of leukocytic elements, producing a picture resembling Hodgkin's disease, was found in acute cases. The brain was examined in 3 cases. In each of these there were leukemic infiltrates and hemorrhages. The latter were of sufficient degree to be a contributory or immediate cause of death in 2 cases.

Annals of Otol., Rhin. and Laryngology, St. Louis

55:719-990 (Dec.) 1946. Partial Index

Chronic Proliferative Osteomyelitis of Skull. J. H. Maxwell.—p. 719.
*Effect of Penicillin Lozenges on Clinical and Bacteriologic Findings of Patients. D. Taylor, Elaine Culver and W. J. Nungester.—p. 743.
Tonsillectomy in Early Convalescence from Acute Tonsillitis, with Prophylactic Use of Sulfonamides. J. E. Bordley and T. McP. Brown.—p. 751.
Maxillary Sinus Drainage. O. E. Van Alyea.—p. 754.
General Factors in Irradiation Therapy. C. F. Burnam.—p. 764.
Irradiation of Nasopharynx. S. J. Crowe.—p. 779.
Chemical Burns of Esophagus. G. I. Uhde.—p. 795.
Aural Rehabilitation Program of U. S. Army for Deaf and Hard of Hearing. L. E. Morrissett.—p. 821.
Evaluation of Allergen Diagnosis. J. C. Healy.—p. 871.
Blood Allergy Method in Otolaryngology. V. J. Kelley.—p. 878.
Subdural Empyema of Frontal Sinus Origin. E. C. Schultz.—p. 882.
*Clinical Observations on Diagnosis and Treatment of Headache with Histamine. O. J. Dixon.—p. 891.

Penicillin Lozenge Therapy.—Observations reported by Taylor and his associates indicate that patients given penicillin lozenges after tonsillectomy appeared to have less membrane formation in the tonsillar fossae. They also complained less of pain than patients not so treated. Similar findings were made in patients following dental extractions. *Penicillin lozenge* therapy seemed to be of little value in deep-seated tonsillitis or pharyngitis but appeared to have definite value in early cases of pharyngitis. Bacteriologic findings support the clinical observations. The total, and more particularly the Streptococcus viridans, counts of mouth and throat flora were lowered by penicillin lozenge therapy. The persistence of penicillin in mouth washings was of short duration after the disappearance of the lozenges.

Histamine Headache.—Dixon reports observations on a series of patients with various types of headache who were given histamine as a diagnostic or a therapeutic measure. The routine course of treatment usually began with 0.35 cc. of histamine diphosphate, given subcutaneously, with the daily dosage increased by 0.05 cc. until a maximum of 1 cc. was reached. The patient was sometimes aware of a slight headache, temporal throbbing and flushing, which lasted for a few minutes. When relief from the complaint was obtained, it was no effort to have the patient continue on a routine schedule. The injections should continue for about twenty-one days. Complete relief was obtained in 55 per cent of the cases, intermittent relief in 35 per cent, slight relief in 5 per cent and no relief in 5 per cent. Patients with typical histamine headache will continue to be rare, and borderline cases will respond in a highly satisfactory manner. Any diagnosis which can be made and proved only by some form of therapy always involves many errors.

Archives of Internal Medicine, Chicago

79:1-128 (Jan.) 1947

Subacute Bacterial Endocarditis: Experiences During Past Decade. J. H. Seabury.—p. 1.
Edema or Herniations of Fat Lobules as Cause of Lumbar and Gluteal "Fibrositis." W. S. C. Copeman and W. L. Ackerman.—p. 22.
*Schistosomiasis Japonica with Cerebral Manifestations: Report of 7 Cases. A. J. B. Tillman.—p. 36.
Tests of Liver Function in Schistosomiasis Japonica, with Particular Reference to Antimony Treatment and with Report of 2 Autopsies. S. W. Lippincott, F. K. Paddock, M. C. Rhees, W. B. Hesselbrock and L. D. Ellerbrook.—p. 62.
*Immersion Hypothermia. E. Wayburn.—p. 77.
Syphilis: Review of Recent Literature (concluded). F. W. Reynolds and J. E. Moore.—p. 92.
Review of Neuropsychiatry for 1946. S. Cobb.—p. 113.

Cerebral Manifestations in Schistosomiasis Japonica.—Tillman says that among 181 patients admitted to his hospital during the peak of the Philippine campaign 6 were observed with cerebral manifestations. An additional patient observed at another hospital is included in this report. The first patient was a soldier who was admitted with a diagnosis of encephalitis from two to three months after exposure. There were quadriplegia, confusion, disorientation, pupillary changes, paresis of the abducens nerve and incontinence. Recovery was slow and incomplete one and a half months later. Leukocytosis and eosinophilia were evident. Ova of hookworm and Schistosoma japonicum were demonstrated. The effects of fuadin and antimony and potassium tartrate were beneficial. Residua involving the pyramidal and extrapyramidal tract and the cortex were present three months after the onset of disturbances of the central nervous system. Cases identical with those reported may arise in the United States either if a person comes from endemic areas by rapid air transportation or if the disease has been asymptomatic, undiagnosed or not entirely cured by treatment.

Immersion Hypothermia.—Wayburn describes observations on 6 patients who had been immersed in the North Sea on their return from long combat flying missions. Immersion hypothermia is a progressive clinical syndrome. The clinical picture is the resultant of the coldness of the water, the length of the exposure, the emotional factors affecting the patient before and during exposure and the specific response of the person to cold. The chief effects are those on the cardiovascular system. Among the transient conditions observed were auricular fibrillation and flutter, ventricular extrasystoles, slight prolongation of the PR interval and falling arterial blood pressure, with narrowing of the pulse pressure. Involvement of the nervous system was indicated by partial to complete loss of consciousness and irrational behavior. Hemoconcentration and notable hyperglycemia were found in 1 case. Treatment consists in rapid restoration of normal body temperature by external heat, minimal activity, administration of warm fluids by mouth and, in severe conditions, use of blood plasma. No drugs were used in this series. Use of epinephrine is contraindicated.

Archives of Pathology, Chicago

43:1-116 (Jan.) 1947

*Effects of Radioactive Phosphorus (P^{32}) on Normal Tissues: Histologic Study of Changes Induced in Organs of Patients with Malignant Lymphomas. W. R. Platt.—p. 1.
Brain Repair: II. Role of Lipids of Brain in Genesis of Gliosis. S. P. Hicks.—p. 15.
Experimental Study of Purpuric Meningococcemia in Relation to the Shwartzman Phenomenon, with Discussion of Meningococcic Purpura, Waterhouse-Friderichsen Syndrome and Bilateral Renal Cortical Necrosis. B. Black-Schaffer, T. G. Hiebert and G. P. Kerby.—p. 28.
Marble Bone Disease: Study of Osteogenesis. Carla Zawisch.—p. 55.
Effects of Estradiol Benzoate and Their Modification by Bleeding: Studies on Skeleton and Blood Calcium of the Cockerel. K. Salomon, Beverly W. Gabrio, E. Reinhard and Ruth Silberberg.—p. 76.

Effects of Radioactive Phosphorus (P^{32}) on Normal Tissues.—Platt reports 43 cases in which tissue changes produced by radiophosphorus were studied microscopically including cases of various forms of leukemia, Hodgkin's disease, multiple myeloma, lymphosarcoma and melanoma. In almost every therapeutic application of radiation, normal tissues are affected as well as the intentionally irradiated focus of disease. The beta emanations of radioactive phosphorus produce characteristic changes in many body tissues, which vary in intensity but are similar to those produced by other types of radiation. Prominent specific features are varying degrees of cellular death, abnormal mitoses producing giant irregular nuclei, fibrosis, hyalinization of collagen and a vascular alteration characterized by thickening and hyalinization of small blood vessels. There is selective localization of larger quantities of radioactive phosphorus and greater injury in the tissues most often involved by the neoplastic cells of malignant lymphomatoses and myelomatoses, i. e. marrow, liver, spleen and lymph nodes. Changes were also demonstrated in the lungs, kidneys, gastrointestinal tract, ovaries and testes. The author thinks that serious consideration must be given to the changes in the testes and the ovaries of patients who are in the reproductive period of life because observation of these organs confirms the possibility that spermatogenesis and oogenesis may decrease or disappear, with development of sterility, in young persons given radiophosphorus.

Archives of Surgery, Chicago

54:1-116 (Jan.) 1947

*Effect of Estrogenic Hormone on Advanced Carcinoma of Female Breast. J. B. Herrmann, F. E. Adair and Helen Q. Woodard.—p. 1.
Patent Omphalomesenteric Duct and Its Relation to Diverticulum of Meckel. C. F. Kittle, H. P. Jenkins and L. R. Dragstedt.—p. 10.
*Granulomas Caused by Surgical Silk and Cotton Sutures. T. G. Orr.—p. 37.
Strangulated Inguinal Hernia: Observations in 50 Cases. M. V. Bhajekar.—p. 41.
Gastric Ulcers Produced Experimentally by Vascular Ligation. B. N. Berg.—p. 58.
Tuberculous Dactylitis in Adult. A. L. Umansky, P. T. Schlesinger and B. B. Greenberg.—p. 67.
Method of Correction of Ectopia Cordis. J. F. Burton.—p. 79.
I. Diseases of Growing and Adult Bone. J. A. Siegling.—p. 85.
II. Congenital Deformities. J. H. Kite.—p. 91.
III. Tumors of Bone and of Synovial Membrane. H. W. Meyerding assisted by F. L. Flashman, F. L. Padilla, A. R. Pils and J. H. Varney.—p. 102.

Estrogenic Substance in Advanced Mammary Carcinoma.—The favorable results obtained by some English investigators with estrogenic substance in women with advanced carcinoma induced Herrmann and his associates to try this procedure in 17 selected patients, who were treated exclusively with a synthetic estrogen (ethinyl estradiol) administered orally. The dose of ethinyl estradiol varied from 0.15 to 0.7 mg. daily. There was a favorable response in 7 of the patients, 5 with superficial lesions of the soft parts and 2 with pulmonary metastases. The authors stress that their experiences with the estrogenic treatment does not differ greatly from that reported by British authors in about 100 cases. An important point of agreement is that the favorable results are obtained predominantly in women above the age of 60. Estrogens seem to have a decidedly deleterious effect on women in the younger age group. This appeared to be most striking in a 40 year old patient who was menstruating regularly. When first seen her general condition was good despite the mass in the right breast and right axilla. Soon after the institution of the estrogenic therapy her condition deteriorated. Within threee months she was bedridden, and she died one month later.

Granulomas Caused by Surgical Sutures.—Orr reports 5 instances of granulomatous lesions which developed after the use of surgical silk and cotton in clean wounds. He stresses that late infection caused by nonabsorbable sutures usually develops slowly. Pain is not severe, and the patient may complain only of discomfort. A firm indurated mass forms beneath the scar of operation, which is usually slightly tender. There may be a slight rise in temperature and leukocyte count. Incision reveals a relatively small abscess surrounded by a firm wall of fibrous tissue 1 cm. or more in thickness. Granulomas caused by surgical silk and cotton must be uncommon, since they occurred but four times in several hundred clean operations in the University of Kansas Hospitals.

Arizona Medicine, Phoenix

4:1-72 (Jan.) 1947

The Acute Abdomen. P. Thorek.—p. 25.
Craniocerebral Trauma. J. Greenwood Jr.—p. 31.
Bilateral Hypoplasia of Kidneys, with Report of Case. J. Kruglick and S. Minnick.—p. 34.
Effect of Altering the Ionic Content of Serums in Vivo on Syphilis Serology. E. L. Breazeale, L. F. Pierce and T. R. Reusser.—p. 36.
"National Enrolment." J. L. Redheffer.—p. 38.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

7:1-158 (Jan.) 1947

*Treatment of Acute Attacks of Vivax and Falciparum Malaria: Comparison of Atabrine and Quinine. F. B. Bang, N. G. Hairston, W. Trager and J. Maier.—p. 75.
*Infectious Hepatitis in Relation to Blood Transfusion. P. E. Sartwell.—p. 90.
Streptomycin Therapy in Typhoid Infections. E. J. Pulaski and W. H. Amspacher.—p. 101.
Arteriovenous Fistulae of Cervical Portion of Vertebral Vessels.—p. 109.
Aid in Training of Neuropsychiatric Ward Officers. H. R. Blank.—p. 116.
Chronic Diarrhea in Military Personnel Returning from Tropics. B. Kenamore.—p. 121.
Neuropsychiatric Appraisal in Induction Station. H. C. Leavitt.—p. 125.

Acute Attacks of Malaria.—Bang and his associates present a comparison between atabrine and quinine in the treatment of acute attacks of malaria in white soldiers infected during the campaigns in Australian New Guinea. Atabrine was superior to quinine in the treatment of acute vivax malaria. No significant differences in response to therapy were noted in 104 cases of falciparum malaria treated with quinine as compared with 99 cases treated with atabrine. Both fever and parasites disappeared rapidly under treatment. Heavy infections responded as rapidly as light infections.

Infectious Hepatitis and Blood Transfusion.—A hepatitis survey was carried out on the first day of June 1945 in all army general hospitals in the United States. Of 1,762 patients with hepatitis under treatment 500 gave a history of receiving transfusions of blood or blood products prior to the onset of hepatitis. There had been 15 deaths from hepatitis in the thirty days immediately preceding the date of survey, including 9 among the transfused patients. In the group who had received transfusions prior to the onset of hepatitis the intervals between wounding (or onset of initial illness) and the development of hepatitis formed a striking pattern. This interval was between eight and sixteen weeks in 63 per cent. The peak interval was from ten to twelve weeks. The pattern in the transfused group did show a close resemblance to the incubation periods of jaundice resulting from vaccination with icterogenic lots of yellow fever vaccine in 1942. Sartwell concludes that a large proportion of the cases of hepatitis in transfused individuals probably resulted from transmission of an icterogenic agent in the transfused blood or plasma.

Canadian Medical Association Journal, Montreal

56:129-248 (Feb.) 1947

Application of Biochemistry to: Medicine: D. L. Thomson.—p. 129.
Some Physiologic Principles in Surgery of Stomach. L. R. Dragstedt. p. 133.
*Effect of Quinine and Atabrine on Gastric Secretion: Preliminary Communication. B. P. Babkin and Dorothy Karp.—p. 137.
Geographic Study of Hay Fever Plants in Manitoba. C. H. A. Walton and Margaret G. Dudley.—p. 142.
Diagnosis and Treatment of Paraesophageal Hiatus Hernia. K. R. Trueman.—p. 149.
Psychiatric Objectives of Our Time. R. R. Grinker.—p. 153.
Antihistamine Drugs. C. H. A. Walton and J. A. Kristjansson-MacDonell.—p. 162.
Cesarean Section. A. W. Andison.—p. 170.
Sarcoidosis. A. Anglin.—p. 177.
Evaluation of X-Ray Evidences of Sinus Disease. A. W. Proetz. —p. 183.
Importance of Correct Diagnosis in Superficial Radiation Therapy of Benign Skin Disease. J. Sommers.—p. 185.
Nutrition Survey Among School Children in British Columbia and Saskatchewan. L. B. Pett and F. W. Hanley.—p. 187.
Treatment of Urethritis. C. M. Spooner.—p. 193.
Recent Advances in Pentothal Anesthesia. G. A. F. Wainwright. —p. 198.

Effect of Quinine and Atabrine on Gastric Secretion.—Babkin and Karp studied the effect of quinine and atabrine (quinacrine) on gastric secretion in dogs evoked by faradization of the vagus nerves or by subcutaneous administration of histamine dihydrochloride. Intravenous administration or moderate doses of quinine bisulfate or atabrine diminished the gastric secretion produced by rhythmic vagal stimulation. Small or moderate doses of quinine or atabrine did not affect gastric secretion evoked by the subcutaneous administration of histamine. The amount of pepsin discharged from the peptic cells (pepsin output) under the influence of vagal stimulation was diminished after intravenous administration of quinine or atabrine. The effect of quinine on gastric secretion during oral therapy in a normal dog with an esophagotomy and a gastric fistula was rather weak. Atabrine will act on gastric secretion mildly and will diminish to a certain extent the nervous or cephalic phase of secretion, which is so much exaggerated in ulcer patients. The doses of atabrine which can be used in ulcer patients will have to be determined. Special cases of peptic ulcer will have to be selected in which a moderate inhibition of vagal gastric secretion would be beneficial. Harm may be done by employing atabrine in cases with a tendency to hemorrhage, owing to the vasodilatory action of this drug.

Cancer Research, Baltimore

7:65-128 (Feb.) 1947. **Partial Index**

Sex Hormone Effects on Chromosome Size in Leukemic and Normal Lymphocytes of C58 Mice. J. J. Biesele and G. Gasic.—p. 65.
Stromal Malignancy in Mouse-Grown Transplants of Egg-Cultivated Mouse Mammary Carcinoma. A. Taylor and Nell Carmichael.—p. 78.
Production of Tumors in Rats by 2-Aminofluorene and 2-Acetylaminofluorene: Failure of Liver Extract and of Dietary Protein Level to Influence Liver Tumor Production. P. N. Harris.—p. 88.
Metabolism of N,N-Dimethyl-p-Aminoazobenzene and Related Compounds. C. J. Kensler, J. W. Magill and K. Sugiura.—p. 95.
Study of Three New Duck Variants of Rous Chicken Sarcoma. F. Duran-Reynals.—p. 99.
Carcinogenic Action of Ethyl Urethane on Rats. W. G. Jaffé and R. Jaffé.—p. 107.

Connecticut State Medical Journal, Hartford

11:1-84 (Jan.) 1947

Early Experiences with Penicillin Therapy. H. Florey.—p. 5.
Some Problems of Protein Deficiency. I. S. Ravdin.—p. 7.
Anomalies of Urogenital Tract in Soldiers. H. R. Newman.—p. 16.
Adequate Care of Chronically Ill. F. Goldmann.—p. 22.
Commentator's View of Medical Dilemma. U. Close.—p. 28.

11:85-160 (Feb.) 1947

Recent Advances in Medical and Surgical Management of Hypertension. W. Goldring.—p. 87.
Rheumatic Heart Disease. E. B. Prout.—p. 98.
Thyroid Lumps. O. Cope.—p. 100.
Use of Thiourea in Control of Hyperthyroidism. T. S. Danowski, Evelyn B. Man and A. W. Winkler.—p. 105.
Health—First Objective of Education. F. S. Stafford.—p. 108.
Penicillin in Treatment of Tetanus: Case Report. L. A. Chotkowski. —p. 111.
Address by the President. C. B. Gibson.—p. 113.

Diseases of Chest, Chicago

13:1-90 (Jan.-Feb.) 1947

Fifteen Years' Experience with Carbon Dioxide in the Management of Cough. A. L. Banyai.—p. 1.
Surveys, BCG, Social Insurance and Health Card as Part of Tuberculosis Control in Asuncion, Paraguay. A. R. Gines.—p. 20.
*Diasone Therapy in Pulmonary Tuberculosis. G. D. Kettelkamp and B. Friedman.—p. 23.
Bronchiectasis: Neglected Disease. W. M. Kinney.—p. 33.
Proposed State Tuberculosis Control Program. H. Mark.—p. 48.
Medical Management of Bronchiectatic Patient. E. Mendenhall.—p. 59.
Subdiaphragmatic Aberrant Pulmonary Tissue (Case Report). A. R. Valle and M. L. White Jr.—p. 63.

Diasone Therapy in Pulmonary Tuberculosis.—Kettelkamp and Friedman point out that the sulfonamides have been disappointing in the chemotherapy of tuberculosis but that related compounds, called sulfones, have been found more effective. One of these is diasone. Seventeen patients were selected for diasone therapy. They were mainly those in which ordinary therapy had failed. Five of the 17 cases showed some improvement. None of these changes were remarkable or spectacular. In 3 of the cases other procedures may have played a part. In 1 case, although improvement has occurred in one area, in another area a cavity has increased in size. In the last case, after initial improvement the clinical course has remained stationary.

Endocrinology, Springfield, Ill.

40:1-64 (Jan.) 1947

Induction of Ovulation in Diestrous Mouse by Gonadotropins. F. J. Saunders.—p. 1.
Action of Human Prostate Slices on Alpha-Estradiol and Estrone. A. L. Lehninger and W. W. Scott.—p. 9.
Mechanism of Diestrum During Lactation in Albino Rat. L. Desclin. —p. 14.
Mobilization of Alkaline Phosphatase in Uterus of Mouse by Estrogen. W. B. Atkinson and H. Elftman.—p. 30.
Early Mating and Pregnancy in Monkey. G. Van Wagenen.—p. 37.
"Sparing" Effect of Progesterone on Hepatic Inactivation of Alpha-Estradiol. A. Segaloff.—p. 44.
Metabolic Significance of Protein Bound Iodine of Plasma: Study of Its Concentration Under Various Conditions and of Its Rate of Formation as Measured with Radioactive Iodine. I. L. Chaikoff, A. Taurogg and W. O. Reinhardt.—p. 47.
Incidence of Delayed Ovulations Following Abdominal Operations in Domestic Hen. I. Rothchild and R. M. Fraps.—p. 55.

Florida Medical Association Journal, Jacksonville

33:347-408 (Jan.) 1947

Dislocated Intervertebral Disk of Lumbar Region. J. G. Lyerly.—p. 377.
History of Civilian Medical Care in Key West up to 1945. A. W. Diddle.—p. 383.

33:409-460 (Feb.) 1947

Role of Rh Factors in Clinical Medicine. J. N. Patterson.—p. 439.
Ligation of Inferior Vena Cava for Prevention of Pulmonary Embolism: Report of Case. F. H. Bowen, H. M. Anderson and R. W. Starbuck. —p. 443.
Combined Pregnancy: Report of Case. M. A. Collier.—p. 446.

Gastroenterology, Baltimore

8:1-122 (Jan.) 1947

Postbulbar Duodenal Ulcers. L. Falla Alvarez and P. L. Fariñas. —p. 1.
Observations on Occurrence of Nausea Among Combat Soldiers. S. Wolf. —p. 15.
Pathogenesis of Cytosiderosis (Hemochromatosis) as Evidenced in Malnourished Africans. J. Gillman and T. Gillman.—p. 19.
Pancreas: Contributions of Clinical Interest Made in 1945. R. Elman and H. Schwarz.—p. 24.
*Restoration of Gastric Motility by Urethane of B-Methyl Choline After Section of Vagus Nerves for Peptic Ulcer. T. E. Machella, H. H. Hodges and S. H. Lorber.—p. 36.
Further Advances in Liver Function Tests and Value of Therapeutic Test in Facilitating Earlier Diagnosis and Treatment of Liver Impairment. J. G. Mateer, J. I. Baltz, P. D. Comanduras, H. H. Steele and S. W. Brouwer.—p. 52.
*Gastroileostomy, Rare Surgical Error: Symptoms and X-Ray Findings. C. H. Brown, J. R. Colvert and B. E. Brush.—p. 71.
Comparative Study of Anesthetic Agents on Propulsive Motility of Small Intestine. E. J. Van Liere, J. C. Stickney and D. W. Northup. —p. 82.

Urethane of B-Methyl Choline and Gastric Motility.—According to Machella and his associates great changes occur in the secretory and motor functions of the stomach following section of the vagus nerve. The retention may lead to gastric distress, anorexia, nausea, vomiting and malnutrition.

Acc·Mo· 59

The authors show that motility may be restored by the administration of a parasympathicomimetic drug. The subcutaneous administration of urethane or B-methyl choline to a postvagotomy patient who had gastric retention led to restoration of gastric peristalsis and motility and relieved him of his epigastric distress, anorexia and nausea. Subsequently its oral and sublingual administration had a similar effect. A placebo was not equally effective. In another vagotomized patient the parenteral administration of the drug induced sufficient tonus and peristalsis, as well as pyloric relaxation, to permit duodenal intubation, a procedure which was accomplished prior to vagotomy but had been impossible during the postvagotomy period.

Gastroileostomy, a Rare Surgical Error.—Brown and his co-workers point out that a rather typical syndrome develops following supposed gastrojejunostomy in patients in whom a gastroileostomy has been done by mistake. The authors review the previous literature of 22 cases and present 3 new cases. The predominant symptoms are loss of weight, pain, vomiting, which may be fecal in type, and diarrhea. The stools may contain undigested food material. There may be great loss of weight due to poor assimilation. Pain may shift to the periumbilical and even to the lower abdominal area and may be quite severe. Hemorrhage occurred in 3 and ileac ulcer was present in 6 of the 22 cases previously reported. Serial barium meal films are most helpful in the diagnosis. In 2 of the cases reported a patent pylorus responded promptly and extremely well to simple disconnecting of the "gastroenterostomy."

Geriatrics, Minneapolis

2:1-68 (Jan.-Feb.) 1947

Many Factors May Influence Senescence. N. S. Davis.—p. 5.
Clinical Aspects of Intraoral Age Changes. H. B. G. Robinson.—p. 9.
Surgery of Prostate Gland. O. S. Lowsley and A. Gentile.—p. 13.
Uterine Bleeding: Menopausal and Postmenopausal. B. L. Cinberg. —p. 17.
*Vitamin D Therapy in Treatment of Scleroderma and Allied Conditions: Three Cases. C. F. Norman.—p. 24.
Wechsler-Bellevue Scale in Individuals Past Sixty. M. J. Madonick and Marian Solomon.—p. 34.
Basic Factors of Nutrition in Old Age. J. T. Freeman.—p. 41.

Vitamin D in Scleroderma.—Norman believes that vitamin D therapy, rather than parathyroidectomy, is the treatment of preference in scleroderma and the related disorders that are accompanied by hyperfunction of the parathyroid glands. He suggests that chronic overfunction of the parathyroids constitutes a common denominator in scleroderma, dermatomyositis, chronic arthritis, Raynaud's disease and arteriosclerosis. Such hyperfunction is presumably induced to maintain physiologic plasma, calcium and phosphorus levels, which in these conditions are defective owing to inadequate intake of vitamin D and calcium or to the chronic lack of irradiation of the skin, the organ for the elaboration of the vitamin. He reports 3 cases of sclerosis all with skin manifestations and apparently some muscle and tendon involvement. There was sclerosis of the arterioles and edema of the collagen fibers in the first 2 cases. In the third case there was atrophic arthritis in addition to cutaneous and subcutaneous manifestations. In all 3 the condition of the hands and feet resembled that in Raynaud's disease. In all 3 improvement to the point of complete rehabilitation occurred, with restoration of normal skin and presumably normal condition of the arterioles. Where complete ankylosis had not ensued, joint involvement was reduced; active and passive movements increased and pain subsided.

Indiana State Medical Assn. Journal, Indianapolis

40:1-94 (Jan.) 1947

Family Physician in Relation to Vocational Rehabilitation. F. M. Hall. —p. 7.
Federal Income Tax and Medical Profession. F. Shirley Wilcox.—p. 19.
State Inheritance Tax. G. F. Dickman.—p. 21.
National Foundation for Infantile Paralysis. Betty Malinka.—p. 22.
A. M. A. House of Delegates Establishes Public Relations Department. F. S. Crockett.—p. 62.

40:95-186 (Feb.) 1947

Curare in Anesthesia. R. T. Knight.—p. 125.
Office Management of Diabetes. R. E. Mitchell.—p. 128.
Management of Epileptic Patient. H. D. F[illegible]

Journal of Allergy, St. Louis

18:1-80 (Jan.) 1947

Histamine Azoprotein: Clinical Evaluation. H. D. Dundy, B. Zohn and R. Chobot.—p. 1.
Histamine Azoprotein in Treatment of Allergy. M. B. Cohen and H. J. Friedman.—p. 7.
Clinical and Serologic Study of Ragweed Hay Fever Patients Treated with Histamine Azoprotein (Hepamine): Abbreviated Report. S. Hebald, R. A. Cooke and Lillian M. Downing.—p. 13.
*Treatment of Asthma by Inhalation of Aerosol of Aminophylline. S. J. Prigal, A. M. Brooks and R. Harris.—p. 16.
Influence of Soybean Products on Iodine Number of Plasma Lipids and Course of Eczema. A. V. Stoesser.—p. 29.
Effect of Beta-Dimethylaminoethyl-Benzhydryl-Ether-Hydrochloride on Histamine Threshold of Human Skin. M. B. Cohen, H. J. Friedman, J. Zonis, M. Burke and L. W. Abram.—p. 32.
Prediction of Constitutional Reactions by Testing Ragweed Pollen Fractions. J. Zonis and N. Rubin.—p. 36.
Loeffler's Syndrome: Report of Two Cases, One with Recurrent Features, and One Associated with Hay Fever. I. M. Alpher.—p. 39.
Case of Contact Dermatitis of Eczematous Type Resulting from Sensitization to Natural Animal Hair. A. Rostenberg Jr.—p. 47.
*Allergic Parotitis. G. L. Waldbott and J. J. Shea.—p. 51.
Concerning Reliability and Unreliability of Dried Pollen from Commercial Sources. R. V. Ellis and A. O. Dahl.—p. 55.

Aerosol of Aminophylline in Asthma.—Prigal and his associates treated 40 adults who had bronchial asthma with an aerosol of aminophylline produced by a combined steam generator and aerosolizer. Thirty-two of the patients experienced various degrees of relief, ranging from slight temporary to great and prolonged. Five patients with severe asthma responded to aminophylline by inhalation after failing to respond to aminophylline intravenously. Some cases unresponsive to the aerosol did respond to the intravenous injection. Some cases responded to neither method. Vital capacity studies of 9 asthmatic patients, before and after the administration of aminophylline aerosol, showed an average increase of 20.6 per cent. The steam generated by the aerosolizer may in some instances afford some relief (5 of 9 patients responded favorably), but this is slight when compared with the relief obtained with aminophylline.

Allergic Parotitis.—Waldbott and Shea point out that cases of recurrent swelling of the parotid gland have been reported which indicate that it may occur on an allergic basis. In 3 patients with asthma parotid swellings occurred shortly before the onset of asthmatic seizures. In 1 of these patients the swellings had been present for many years before the development of asthma. Foods were identified with the production of these attacks, and their elimination produced relief. Allergy should be considered as a factor in the production of certain cases of recurrent parotitis.

J. Neuropathology & Exper. Neurology, Baltimore

5:271-384 (Oct.) 1946

Distribution of Pathologic Lesions of Central Nervous System in Scrub Typhus: (Tsutsugamushi Disease). A. Weil and W. Haymaker. —p. 271.
*Morphologic Changes in Brain of Monkeys Following Convulsions Electrically Induced. A. Ferraro, L. Roizin and M. Helfand.—p. 285.
*Spina Bifida and Cerebrospinal Fluid. G. B. Hassin and T. Harris. —p. 309.
Syphilitic Amyotrophy: Clinical Pathologic Report of Case Complicating Tabes Dorsalis. B. W. Lichtenstein and J. A. Luhan.—p. 321.
Experimental Arteriosclerosis in Nervous System. R. Altschul.—p. 333.
Atresia and Stenosis of Aqueduct of Sylvius. J. H. Globus and P. Bergman.—p. 342.
Acetylcholine Induced Depression of Cerebral Cortical Activity. F. M. Forster, W. J. Borkowski and R. H. McCarter.—p. 364.
Pyramidal Tract: Relation of Axonal Diameters to Rate of Degeneration as Revealed by Acid Phosphatase Method in Monkey. A. M. Lassek and W. L. Hard.—p. 374.

Changes in Brain of Monkeys Following Electric Shock.—Ferraro and his co-workers demonstrate that electric currents similar in type, intensity, duration of current flow and frequency with that used in human electric shock therapy may cause morphologic changes in the central nervous system of monkeys. The nerve cell alterations are mostly related to circulatory disturbances and increased permeability of the blood vessel walls. When a current of greater intensity and of longer duration is applied, occasional minute petechial hemorrhages result. This seems to support the contention that the severity of the lesions is proportional to the intensity of the electric current, the duration of the current flow and, to a lesser extent, to the number of electric shocks. The histopathologic changes are more pronounced in the areas of tissue traversed by the main

Library

path of the current. Reversible chemical or structural changes and possibly some permanent slight structural damage may be at the base of the temporary alterations in the mental processes occurring in patients in the course of electric shock therapy.

Spina Bifida and Cerebrospinal Fluid.—According to Hassin and Harris the cystic tumor-like protrusion in spina bifida is a distended subarachnoid space caused by excessive accumulation of spinal fluid. The excess is due to defective absorption, the avenues of its escape along the perineurial spaces of the roots, spinal ganglions and the postganglionic peripheral nerves being destroyed. Deprived at the affected levels of the cord of the skeletal and dural support, the constantly accumulating fluid leads to the expansion and consequent protrusion of the subarachnoid membrane and the formation of a sac. Excessive accumulation of spinal fluid in the subarachnoid space may ultimately reflect on the spinal cord where its tissue fluids become stagnant, forming cavities, cysts or so-called meningomyelocystocele. This condition is not a specific type of spina bifida but a complicated meningomyelocele. Hydrocephalus is not an integral part of spina bifida but a distant complication, mostly by so-called Arnold-Chiara malformation, itself probably secondary to traction on the medulla oblongata or cerebellum or both.

Journal of Neurosurgery, Springfield, Ill.

3:461-564 (Nov.) 1946

Cystic Cerebellar Arachnoiditis. R. K. Thompson.—p. 461.
Pain on Stimulating Distal Segment of Divided Peripheral Nerves. J. L. Pool and J. A. Brabson.—p. 468.
Spinal Extradural Cysts, Congenital and Acquired. O. R. Hyndman and W. F. Gerber.—p. 474.
Lucite Calvarium—Method for Direct Observation of Brain: II. Cranial Trauma and Brain Movement. R. H. Pudenz and C. H. Shelden. p. 487.
Surgical Treatment of Hemifacial Spasm. J. Greenwood Jr.—p. 506.
*Cystic Teratomas and Teratoid Tumors of Central Nervous System in Infancy and Childhood. F. D. Ingraham and O. T. Bailey.—p. 511.
Effects of Subarachnoid Instillations of Therapeutic Concentrations of Penicillin Solution on Central Nervous System. A. Gerber, E. Boldrey, H. J. McCorkle and Helen Warmer.—p. 533.

Teratoid Tumors of Nervous System in Childhood.—The 15 teratomas and teratoid tumors reviewed by Ingraham and Bailey were found among 231 neoplasms of the central nervous system operated on at the Children's Hospital in Boston. Eight of the tumors were intracranial and 7 were intraspinal. All contained one or more cysts. The tumors contained tissue elements in their solid portions varying from only keratinizing epithelium to mixtures derived from all germ layers. One tumor, made up of undifferentiated nerve and striated muscle cells, was highly malignant, freely invading the cerebellum and seeding the meninges. There was nothing to suggest the diagnosis preoperatively, but it could be established at operation by demonstration of hair, by finding keratinized or ciliated cells in the cyst fluids or by frozen section. The use of adrenal cortex extract proved to be a valuable adjunct in an operation at which a teratoma of the third ventricle was removed. Two of the patients are living five years or more after operation without evidence of recurrence, 5 for less than five years without evidence of recurrence, 2 have evidence of recurrence and 6 are dead. In 2 patients partial removal of intraspinal teratomas was followed by excellent return of function without recurrence of symptoms over a long period of years.

Maine Medical Association Journal, Portland

38:1-22 (Jan.) 1947

Blood Transfusion and Transfusion Reactions. W. Dameshek.—p. 1.
*Pica: Its Relationship to Lead Poisoning in Children. C. A. Stetson Jr.—p. 10.
What Is the Association of American Physicians and Surgeons (A. A. P. S.)? L. H. Berrie.—p. 13.

38:23-48 (Feb.) 1947

Abortifacient Action of Penicillin in Pregnancy. R. C. Rainie and M. A. Chapin.—p. 23.
Abdominal-Perineal Wounds. M. T. Shelton.—p. 25.
Treatment of Thermal Burns. E. P. McManamy.—p. 29.
Partial Intestinal Obstruction Due to Persistent Omphalomesenteric Duct. R. T. Munce.—p. 33.

Pica: Its Relationship to Lead Poisoning.—Stetson points out that pediatricians encounter children who eat a variety of bizarre substances, such as hair, dirt, plaster, ashes and animal excrement. The term "pica" has been used to denote this phenomenon. Evidence has been presented that a dietary deficiency of iron, resulting in a microcytic hypochromic anemia, may cause gastric anacidity in children, and that an appreciable number of these children will develop pica. Stetson reports 2 cases. Serious and even fatal lead poisoning may occur in these children following the ingestion of lead-containing paint from furniture and woodwork. He suggests that early and adequate treatment of such anemia may, by eliminating pica, result in the prevention of similar cases.

Michigan State Medical Society Journal, Lansing

46:1-144 (Jan.) 1947

Biliary Tract Surgery: Statistical Study Based on 1,070 Consecutive Cases. W. W. Babcock.—p. 65.
Clinical Study of 180 Cases of Arthritis: Use of Steroid Complex (Whittier), Orthopedic and Other Supportive Measures in Chronic Arthritis. P. B. Magnuson, R. T. McElvenny and Catherine E. Logan.—p. 71.
Neurogenic and Psychogenic Factors in Digestive Tract Disorders. B. C. Lockwood.—p. 77.
Clinical Results with Pyribenzamine, New Histamine Antagonist, in Comparison with Benadryl. S. J. Levin.—p. 85.
Clinical Significance of Hoarseness and Wheezing Respiration. L. H. Clerf.—p. 87.
Present Developments in Combined Anesthesia. R. T. Knight.—p. 90.

Missouri State Medical Assn. Journal, St. Louis

44:1-72 (Jan.) 1947

Heart Disease in Pregnancy. B. E. Hamilton.—p. 17.
Tuberculosis Case Finding Studies in St. Louis County. H. I. Spector, E. G. McGavran, Ruth I. Allen and Dorothy W. Burke.—p. 21.
*Compensation in One Trauma Cancer. M. G. Seelig.—p. 27.

44:73-160 (Feb.) 1947

Treatment of Malaria. G. M. Saunders.—p. 89.
Endocrine Problems from Pediatrician's Viewpoint. A. E. Hansen. —p. 94.
Place and Function of Tuberculosis Sanatorium in Missouri. C. A. Brasher.—p. 102.

Compensation in One Trauma Cancer.—In reported opinions of appellate courts it has been ruled that medical opinion favoring the relationship between trauma and cancer may be supported by one or more facts which, taken together with the expert's testimony that a causal relationship is possible, constitute substantial evidence of that relationship. Such facts are that: 1. The external tissues were apparently "normal" and "healthy" before the trauma. 2. The trauma occurred at the site of the subsequently discovered cancer and was immediately attended with evidence of injury. 3. Such symptoms continued until a cancer was discovered. 4. The cancer appeared within a time after the injury consistent with the known life history of such a cancer. 5. The cancer was of a type that might result from such an injury. 6. There was no other cause for the development of the cancer at that particular place. The courts have not held that it is necessary to prove all these facts. Seelig rests his conviction on personal clinical experiences, of which he cites several. The literature contains a sufficient number of contradictory statements to prompt one to doubt the dictum that no relationship exists between the infliction of a single trauma and the subsequent development of cancer at the site of injury.

New England Journal of Medicine, Boston

236:121-156 (Jan. 23) 1947

Care of Patient Before and After Operation, with Special Reference to Fluid Requirements and Importance of Weighing Scale in Evaluating Status of Hydration. O. H. Wangensteen.—p. 121.
Autopsy Service at the Mary Hitchcock Memorial Hospital. R. E. Miller.—p. 130.
*Penicillin Inhalation Therapy. M. S. Segal and Claire M. Ryder. —p. 132.
Abdominal Surgery. A. W. Allen.—p. 139.
Chondroma of Right Knee.—p. 145.
Defect of Common Bile Duct, *Postoperative; Cholangitis.—p. 148.*

Penicillin Inhalation Therapy.—Segal and Ryder report results obtained with penicillin aerosol in the treatment of 95 patients with bacterial pneumonia, suppurative bronchitis, bronchiectasis, lung abscess, infective bronchial asthma, infective laryngotracheobronchial edema, chronic pulmonary emphysema and emphysematous blebs. Generally 25,000 units of penicillin was dissolved in isotonic solution of sodium chloride and given at three hour intervals for six to eight doses daily. A nebulizer was used which produced a fine mist. Many of the patients were helped considerably and some dramatically. Determinations of the penicillin content of the blood revealed peak levels at the end of thirty minutes which in some cases persisted for as long as two hours. Streptomycin aerosol was also employed in 2 cases of bronchiectasis due to Friedlander organisms, but streptomycin resistive strains appeared rapidly and could not be eradicated despite tremendous doses. This phenomenon was not observed in the penicillin aerosol treated cases. Penicillin may be safely combined with streptomycin aerosol. It is possible that streptomycin aerosol, perhaps combined with intramuscular therapy, may prove of value in selected cases.

236:157-190 (Jan. 30) 1947

*Role of Lancefield Groups of Beta Hemolytic Streptococci in Respiratory Infections J. H. Dingle and others.—p. 157.
Triple Hemisection: Simplified Procedure for Lengthening Achilles Tendon. R. N. Hatt and T. A. Lamphier.—p. 166.
Pruritus Ani N. W. Swinton.—p. 169.
Abdominal Surgery (concluded). A. W. Allen.—p. 173.
Chronic Pulmonary Tuberculosis.—p. 179.
Actinomycosis of Lung.—p 181.

236:191-222 (Feb. 6) 1947

Role of Surgeon in Management of Peptic Ulcer. O. H. Wangensteen.—p 191.
Venous Thrombosis and Pulmonary Embolism J. Homans.—p. 196
Significance of Eosinophilia in Abdominal Complaints of American Soldiers E. Denhoff.—p. 201.
Cancer. G W. Taylor.—p. 207.
Myocardial Infarcts, Anterior, Old, and Posterior, Recent.—p. 211.
Diverticulitis, Acute and Chronic.—p. 214

Role of Lancefield Groups of Streptococci in Respiratory Infections.—Dingle and his co-workers of the Commission on Acute Respiratory Diseases undertook to determine the role of various groups of streptococci in ordinary respiratory infections A total of 3,026 patients with respiratory infections were studied In a large army camp only 6 per cent of patients admitted to the hospital from an organization of new recruits had respiratory infections due to streptococci. Bacteriologic and immunologic studies demonstrated that 90 per cent of the infections were due to group A, 4 per cent to group C and 3 per cent to group G. Clinical and epidemiologic evidence suggested that a few patients had infections due to groups B and F. The illnesses produced by the various groups of beta hemolytic streptococci were similar. Streptolysin O antibodies were demonstrated in serum specimens obtained from patients harboring organisms of groups A, C and G. Antifibrinolysin developed in patients with infections due to group A and group C streptococci The titer of antifibrinolysin in the serum specimens taken during the acute and convalescent phases from patients with infections due to groups C and G was identical when measured with fibrinolysin prepared from organisms of groups A, C and G.

New Orleans Medical and Surgical Journal

*99:313-372 (Jan) 1947

Modern Surgical Procedures for Lesions of Colon and Rectum. H Mahorner and J. Sabatier.—p 313
*Treatment of Choledocholithiasis with Intraductal Injections of Ether: Case Reports. M. L. Michel.—p. 317.
Essential Factors in Preoperative, Operative and Postoperative Care of Gynecologic Patients C M. Johnson.—p. 320.
Experience with Sodium Pentothal at Hotel Dieu. E. Souchon.—p. 327.
Intravenous Pyelography as Aid in Diagnosis. L. A. Fortier, T. T. Gately and P. A. Kibbe.—p 334
Biologically False Positive Wassermann Tests in Nonsyphilitic Patients. A L Miller Jr.—p. 335
*Bed Rest in Heart Disease J. R Black.—p 346.

Intraductal Injections of Ether in Choledocholithiasis.—Michel reports the histories of 2 women with multiple calculi in the common duct. In each case it was believed that adequate choledochotomy had been performed, but subsequent cholangiography revealed a stone lodged at the ampulla which had been missed at operation. In both instances the stones were causing only incomplete obstruction of the duct and might have been overlooked if cholangiography had not been performed Ether irrigations were successful in dislodging the calculi. Calculi causing incomplete obstruction may be entirely asymptomatic and the stools may be normal in color. However, recurrent complete obstruction of the choledochus is inevitable in such cases. Therefore cholangiography should always be performed after choledochotomy, regardless of the normal appearance of the stool, the absence of symptoms and the diminution of the degree of jaundice.

New York State Journal of Medicine, New York

47:1-96 (Jan. 1) 1947

Local Anesthesia for Cesarean Section. F. P Light.—p. 48.
Laryngectomy and Its Psychologic Implications. J. S. Greene.—p. 53.
Perennial Vasomotor Rhinitis: Modern Approach to Diagnosis and Treatment. F. H. Westcott.—p 57.
Treatment of Battle Fractures of Shaft of Femur. J. D. Godfrey.—p 60.
Divergence Insufficiency and Paralysis J. W. White.—p. 63.

47:97-208 (Jan. 15) 1947

Emergency Ophthalmic Surgery. D B Kirby.—p 143.
Intocostrin in Treatment of Acute Anterior Poliomyelitis. N. S. Ransohoff.—p. 151.
Osteochondritis of Cervical Spine and Paralysis of All Four Extremities. S. W. Boorstein.—p 154
Case of Gargoylism Lotté Strauss.—p 157.
Results of Treatment of Lymphosarcoma A. P Stout.—p. 158.

Oklahoma State Medical Assn. Jour., Oklahoma City

40:1-38 (Jan) 1947

Electroencephalograph as Aid in Neuropsychiatric Diagnosis C Leonard.—p. 3.
Sympathetic Ophthalmitis J R Reed.—p. 6
Amputation of Lower Extremities in Peripheral Vascular Disease. W. P. Fite and C K. Mengel.—p 10
Electroencephalography in Diagnosis of Epilepsy C T Steen.—p. 12.

40:39-72 (Feb) 1947

Surgery of Deafness Due to Otosclerosis W L. Bonham.—p 41.
Institutional Treatment of Syphilis A. B. Colyar.—p 44
Myopia. C. A Royer.—p 46
Epidemiologic Study of Pinworms in Patients at Oklahoma Hospital for Crippled Children. Gladys C. Smith and D L Richardson.—p. 49.

Psychosomatic Medicine, Baltimore

9:1-60 (Jan-Feb) 1947

Spontaneous Neurosis in Chimpanzees Theoretical Relations with Clinical and Experimental Phenomena D O Hebb.—p 3
Rorschach Exploration of Consecutive Hypnotic Chronologic Age Level Regressions M. S. Bergmann, H. Graham and H. C. Leavitt.—p. 20.
Autonomic Interrelations with Somatic Nervous System Margaret A. Kennard.—p 29.
Relation of Personality Disturbances to Duration of Convalescence from Acute Respiratory Infections. K. Brodman, B Mittelmann, D. Wechsler, A. Weider and H. G. Wolff, with technical assistance of Margaret D. Meixner.—p. 37.
Incidence of Personality Disturbances and Their Relation to Age, Rank and Duration of Hospitalization in Patients with Medical and Surgical Disorders in Military Hospital. K. Brodman, B Mittelmann, D. Wechsler, A. Weider and H. G. Wolff, with technical assistance of Margaret D. Meixner.—p. 45.

Public Health Reports, Washington, D. C.

62:77-112 (Jan. 17) 1947

Control of Rat Ectoparasites with DDT. R. G Ludwig and H. P. Nicholson.—p 77.
Observations on Nighttime Resting and Biting Habits of Anopheline Mosquitoes in DDT Treated and Untreated Building C. M. Tarzwell and F. W. Fisk.—p 84.
Comparative Studies of DDT Dusts, DDT-Oil Sprays and Paris Green Dusts Used Routinely in Anopheline Larvae Control W V. Mathis, F. F. Ferguson and S W. Simmons.—p 95.

62:113-148 (Jan. 24) 1947

Services and Visits in a Children's Dental Clinic. I. Altman.—p. 113.

62:149-184 (Jan 31) 1947

Extended Laboratory Investigations on Toxicity of DDT Residues to Adults of Anopheles Quadrimaculatus. R. W. Fay and J. M. Clapp.—p 149.
Comparative Residual Toxicity of DDT to Anopheles Quadrimaculatus When Applied on Different Surfaces J. M. Clapp and S. W. Simmons.—p 158.

South Carolina Medical Assn. Journal, Florence

43:1-28 (Jan.) 1947

Greenville County's Men of Medicine and World War 2. J. McLeod.—p 1.
Meningococcemia J. F. Ratney.—p 5.
Management of Urticaria. W. H. Kelley.—p. 8.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

20:45-84 (Feb.) 1947

Standardized Radiologic Pelvimetry: I. Quantitative Aspects. E. P. Allen.—p. 45.
Radiologic Diagnosis of Lipomata. E. Samuel.—p. 55.
Thickness Technic in Radiographic Examinations of Abdomen and Pelvis. G. D. Steven.—p. 58.
Tuberculous Cystitis: Notes on 3 Cases. A. S. Johnstone.—p. 61.
Effect of Gamma Radiation on Mitosis in Vitro. I. Simon-Reuss and F. G. Spear.—p. 63.
Determination of X-Ray Energy Distributions by Absorption Method. J. R. Greening.—p. 71.
Provisional Calculation of Tolerance Flux of Thermal Neutrons. J. S. Mitchell.—p. 79.

British Medical Journal, London

1:125-168 (Jan. 25) 1947

Care of Children in Hospital. J. C. Spence.—p. 125.
Changes in Hemoglobin Concentration in Acute Stage of Lobar Pneumonia. Margaret S. Ferguson.—p. 131.
*Food Utensil Bacteriology. R. Irene Hutchinson.—p. 134.
Surgical Treatment of Chronic Frontal Sinusitis. V. E. Negus.—p. 135.
Simple Method of Estimating Penicillin and Other Bacteriostatics. J. Fielding.—p. 136.

Food Utensil Bacteriology.—The survey presented by Hutchinson shows that in communal feeding centers the cleaning of eating utensils is unsatisfactory. The finding of dysentery bacilli on the cutlery in one out of only twenty-five kitchens is rather disquieting and may suggest the origin of sporadic cases of "diarrhea." The finding of pathogenic streptococci fourteen times and of pathogenic staphylococci thirty-six times may help to explain the high incidence of septic mouth lesions so common in the last few years. The prevalent method of washing and drying infected crockery and cutlery appears to do little in the way of destroying their pathogens. Great interest was shown by the proprietors of the premises visited, and they were eager to know what measures could be adopted to remedy defects.

Lancet, London

1:89-124 (Jan. 18) 1947

Outlook for Physiology. C. L. Evans.—p. 89.
*Supraspinatus Syndrome. J. R. Armstrong.—p. 94.
Muscle Relaxing Action of Myanesin. F. M. Berger and W. Bradley.—p. 97.
*New Synthetic Curarizing Agent in Anesthesia. F. B. Mallinson.—p. 98.
*Treatment of Renal Failure in Weil's Disease by Spinal Anesthesia. M. H. C. Williams.—p. 100.
Bacteriophage Classification of Shigella Sonnei. E. Hammarström.—p. 102.
Paroxysmal Hypertension. A. S. Rogen.—p. 103.

Supraspinatus Syndrome.—Armstrong says that lesions of the supraspinatus tendon and subacromial bursa are the commonest cause of pain in the shoulder. This paper is based on 89 cases collected in three years. The mechanism by which the syndrome is produced is simple. In the middle range of abduction of the humerus the supraspinatus tendon, with its covering bursa, impinges against the overlying acromion. When a lesion of tendon or bursa exists, this pressure causes pain, and reflex muscle spasm accompanies any movement that tends to bring the lesion into contact with the acromion.

The cardinal signs of supraspinatus syndrome are (1) a painful arc (between 60 and 120 degrees) on abduction of the humerus, (2) reversal of the normal scapulohumeral rhythm and (3) tenderness on deep pressure over the supraspinatus tendon. Pain may lead to disuse, adhesions and limitation of movement. Two thirds of the patients recovered spontaneously. The remaining third were cured by acromionectomy.

Myanesin, a New Synthetic Curarizing Agent.—Myanesin is a synthetic substance having the formula alpha: beta-dihydroxy-gamma (2-methylphenoxy) propane. On the basis of the use of this new curarizing agent in 112 cases Mallinson stresses that it has a wider margin of safety than curare. Doses of 5 to 20 cc. (about 7 to 28 mg. per kilogram) do not produce undesirable effects. Abdominal relaxation is obtainable even in the conscious patient, and without any distress. The drug does not cause intercostal paralysis in doses producing full relaxation of the abdominal muscles. In most cases it is much more effective with barbiturate anesthesia than is curare and apparently enhances the action of the barbiturates. So easily is abdominal relaxation obtained under pentothal-nitrous oxide-oxygen when myanesin is used that the use of the more toxic agent cyclopropane is not necessary. It is effective under the lightest possible anesthesia. A true assessment of this or any other curarizing agent must await the results of tens of thousands of cases. Myanesin must still be considered an experimental drug.

Spinal Anesthesia for Renal Failure in Weil's Disease.—Williams reports the history of a man aged 61 who had had Weil's disease for eight days. He was drowsy, deeply jaundiced and dehydrated, with blood pressure 100/70 and blood urea 321 mg. per hundred cubic centimeters. Since recovery from such a state is rare, particularly at the age of 61, it was decided to adopt active measures to increase his urinary output and remedy his hypotension before irreparable renal damage had taken place. When his blood pressure had been raised to 130/90, high spinal anesthesia was induced up to the level of the seventh dorsal vertebra. The results were dramatic, and diuresis began, with a good urea content of the urine. After a day's lag the blood urea level fell at a remarkable speed. Recovery was complete.

1:125-164 (Jan. 25) 1947

Psychosomatic Approach to Orthopedic Surgery. A. D. Le Vay.—p. 125.
Residual Defects After Sprue: Review of 26 Cases. R. Drew, K. Dixon and E. Samuel.—p. 129.
*Use of Calciferol in Tuberculous Conditions. D. E. Macrae.—p. 135.
Ascites Following Infective Hepatitis: Case Treated with Concentrated Plasma. G. R. Fearnley.—p. 137.
Allergic Reactions During Desensitization to Sulfonamides. W. J. O'Donovan and I. Klorfajn.—p. 139.

Calciferol in Tuberculous Conditions.—Macrae says that the 20 cases of lupus vulgaris in which calciferol was given a trial were some of the worst in the country. The patients were divided into three groups, 7 patients being given intramuscular injections of an oily solution and receiving 600,000 units twice weekly, 7 an oily solution in capsules and 6 an emulsion, both latter groups having 150,000 units a day by mouth. During the first two or three weeks practically every one looked decidedly worse. Improvement began after three weeks in most cases, but in some of the worst not until after five or six weeks. Lupus vulgaris is best treated institutionally. The sedimentation rate should be measured at least once a month and treatment stopped if an unusual rise is found. Calciferol is of greatest value in the treatment of lupus vulgaris, but local treatment still has a place. Calciferol has given promising results in some forms of surgical tuberculosis. Toxicity is present in 50 per cent of the cases. Other disadvantages include the occasional dissemination of tuberculosis and flaring up of a quiescent site elsewhere. Constant supervision is necessary.

Medical Journal of Australia, Sydney

1:97-128 (Jan. 25) 1947. **Partial Index**

Air Evacuation of Casualties. F. W. Kiel.—p. 97.
Preliminary Report on Use of Radioactive Phosphorus in Australia. A. G. S. Cooper.—p. 104.

1:129-160 (Feb. 1) 1947

Coronary Clotting. E. R. Trethewie.—p. 129.
Pituitary Gland and Carbohydrate Metabolism: Part I. Posterior Lobe. A. B. Corkill and J. F. Nelson.—p. 130.
Nasal Obstruction in Children and Its Relation to Dental Development and General Health. R. H. Bettington.—p. 134.
Dentofacial Deformities Associated with Nasal Obstruction. A. T. Taylor.—p. 135.
Asthma and Other Psychophysical Interrelations. C. Swanton.—p. 138.

South African Medical Journal, Cape Town

21**:37-72 (Jan. 25) 1947. **Partial Index

Pollinosis in South Africa: Study of Seasonal Hay Fever. D. Ordman.—p. 38.
Responsibilities of Practitioner in Civil Aviation in South Africa. R. W. S. Cheetham.—p. 49.
*Central Nervous System Manifestations of Glandular Fever. T. Schneider and D. A. Michelson.—p. 57.

Manifestations of Central Nervous System in Glandular Fever.—Schneider and Michelson report the case of a youth aged 18 who, when admitted to the hospital, presented symptoms of severe meningitis and encephalitis. It was only as a result of the blood count that the possibility of glandular fever was thought of. The titer of the Paul-Bunnell test varied from day to day, dropping from the enormously high ratio of 1:28,000 to negative and then again becoming positive. The patient made a rapid recovery. Diagnosis of glandular fever should be kept in mind in all cases presenting symptoms of encephalitis or acute benign lymphocytic choriomeningitis. Cases presenting these symptoms should be kept under observation for a prolonged period after discharge for the detection of possible late sequels.

Tubercle, London

28:21-40 (Feb.) 1947

Relation Between Renal Tuberculosis and Primary Infection. H. J. Ustvedt.—p. 22.
Adhesion Formation After Pneumoperitoneum. F. L. Corrigan.—p. 25.
Prognosis of Primary Tuberculosis of Lung. Dorothy Stopford Price.—p. 27.
Case of Sarcoidosis of Lung with Regional Ileitis. A. Morland.—p. 32.

Presse Médicale, Paris

54:849-880 (Dec. 25) 1946. Partial Index

Cholecystic Polyposis. H. Mondor.—p. 849.
Advantages of Tomography in Pleural Calcifications. J. Olmer, F. Santamaria and M. Lallemand.—p. 852.
Diagnostic Importance of Elementary Myography in Pediatrics. R. Turpin, J. Lefebvre and J. Lerique.—p. 856.
*Angioneurotic Edemas of Stomach. P. Chevallier and F. Moutier.—p. 860.
Blood Circulation in Bone. A. Lamas, D. Amado and J. C. da Costa.—p. 362.

Angioneurotic Edema of Stomach.—Chevallier and Moutier assert that there is no other organ which becomes edematous as often and as easily as does the stomach. They present the histories of 11 patients. The first 5 patients had pure angioneurotic edema (Quincke's disease). The edematous masses were voluminous and the visceral edema may or may not coincide with tegumentary edema. One of the patients of this group developed angioneurotic edema of the face after the ingestion of strawberries and gastroscopy revealed diffuse edema. Another patient of this group developed urticaria in response to fish, chocolate and strawberries, and gastroscopy disclosed edema. The second group, comprising 2 patients, had toxic edema; 1 of them had chronic benzene intoxication and in the other the intoxication was the result of working with glue used in the making of shoes. In these toxic cases the edema was somewhat less voluminous. In the third group of 4 patients the edema was associated with various forms of anemia or with cachectic gastritis. In all except the patients with anemia the allergic character of the edemas was indicated by various cutaneous manifestations.

55:13-28 (Jan. 11) 1947

Penicillin and Gonococcal Infections (Based on 600 Observations Selected in Lille); First Appearances of Penicillin Resistance. C. Huriez and M. Desurmont.—p. 13.
Ascending Progressive Spinal Hemiplegia with Slow Course: Two New Cases. A. and M. Porot.—p. 14.
Technical Progress of Apparatus of Auditory Prosthesis. R. Caussé.—p. 15.
New Concept of Problems Associated with Monocytes. L. Fruhling and S. Roger.—p. 17.
Study on Renal Elimination of Bilirubin in Icterus. M. Enachesco, V. Comanesco and Mrs. M. Zamfiresco.—p. 17.
*Pneumonectomies and Lobectomies in Treatment of Pulmonary Tuberculosis. R. M. Garraud.—p. 18.

Pneumonectomy and Lobectomy in Pulmonary Tuberculosis.—Garraud considers pulmonary resection as having a definite place in the treatment of pulmonary tuberculosis. Pneumonectomy and lobectomy should be applied only to a limited number of patients in whom considerable destruction of the pulmonary parenchyma may be localized in one lobe or in one lung, when other methods of treatment have proved ineffective or may be contraindicated (cavity associated with bronchial stenosis, tight adhesions, tuberculoma). The remaining healthy pulmonary tissue must be sufficient to insure respiratory function after the surgical intervention. The mortality rate is still high, with an average of 15 to 20 per cent, but a better selection of cases and improvement in anesthesia and in technic may reduce it to 5.5 per cent. Only late results will tell whether pulmonary resection is preferable to thoracoplasty.

Acta Clinica Belgica, Brussels

1:377-488 (Sept.-Oct.) 1946. Partial Index

New Treatment of Narcolepsy-Catalepsy. J. Roskam.—p. 377.
Five and Seven Years of Follow-Up in Treatment of Adrenal Insufficiency of 2 Patients by Desoxycorticosterone Acetate. P. P. Lambert.—p. 383.
*Nonhypoglycemic Comas Produced by Insulin. J. P. Hoet and C. A. Vuylsteke.—p. 409.
Respective Roles of Thyroid and of Sympathicoadrenal System in Hyperthyroidism. M. De Visscher.—p. 419.
Action of Sympathicomimetic Amines on Glycemia in Man. J. Hughes.—p. 429.
Vitamin A Content of Blood in Hyperthyroidism in Man. A. Thomas and C. Leleux.—p. 436.
Hemorrhagic State in Patients with Pulmonary Tuberculosis. L. Swalue and C. Renard.—p. 442.

Nonhypoglycemic Comas Produced by Insulin.—Hoet and Vuylsteke report the histories of 4 patients in whom coma was produced by insulin, but the pathogenesis of this type of coma differs from that of true hypoglycemic coma. It may continue for hours and days and does not respond to dextrose injection. This nonhypoglycemic coma is similar to that which develops after a series of comas produced by insulin shock therapy. That type of coma likewise cannot be counteracted by the administration of dextrose. A poor nutritional state and particularly B_2 hypovitaminosis seem to be prominent among the factors causing this hypersensitivity of the nervous system.

Cardiologia, Basel

11:1-110 (No. 1 and 2) 1946. Partial Index

Experimental Investigations on So-Called Energeticodynamic Cardiac Insufficiency. H. Grauer and R. Hegglin.—p. 1.
*Three Fatalities in Electrocardiographic Exertion Test. P. H. Rossier and O. Spühler.—p. 60.
Pathogenesis, Etiology and Clinical Aspects of Disturbances in Orthostatic Regulation of Circulation. A. F. Essellier.—p. 70.

Fatalities Caused by Electrocardiographic Exertion Test.—Rossier and Spühler report the histories and the necropsies of 3 patients in whom exertion tests resulted in death. The electrocardiograms taken during rest had failed to reveal changes indicative of organic cardiac lesions, but all 3 patients had coronary disease. The authors warn against the routine indiscriminate use of the exercise tolerance test. The severity of exercise has to be individually adjusted, and caution is required in patients with coronary lesions.

Schweizerische medizinische Wochenschrift, Basel

76:1302-1324 (Dec. 21) 1946

Orientation on the Respirator. G. Fanconi.—p. 1301.
Oral Penicillin Therapy. R. D. Shaner.—p. 1302.
*Desoxycorticosterone Acetate in Adrenal Insufficiency. A. Kappert.—p. 1304.
Doctrine of Ranke and the Surgical Forms of Tuberculosis. A. P. Naef.—p. 1309.
Observations on Lumbar Disk Hernia. K. Lenggenhager.—p. 1314.

Desoxycorticosterone Acetate in Adrenal Insufficiency.—Kappert discusses the different forms in which desoxycorticosterone acetate can be administered, with particular attention to the implantation therapy. Signs of excessive sodium chloride and fluid retention are the most important secondary effects of treatment with desoxycorticosterone acetate. Slight edema of the face and the extremities, together with headaches, may be observed at the onset of the endocrine therapy but usually regress after the metabolism has been stabilized. If they increase progressively, the sodium chloride intake may have to be reduced.

77:109-132 (Jan. 18) 1947. Partial Index

Streptomycin. H. Bloch.—p. 109.
Studies on Experimental Alloxan Diabetes. M. Mamie and J. L. Rivier.—p. 112.
*Urethane in Treatment of Leukemia. S. Maringer.—p. 144.
*Bronchial Asthma and Mold Fungus Allergy. E. M. Fraenkel.—p. 115.
Flat Foot and Tibialis Anterior. M. R. Francillon.—p. 116.

Urethane Treatment of Leukemia.—Maringer reports favorably on the use of urethane (ethyl carbamate) in the treatment of a woman aged 69 who had chronic myeloid leukemia. The average daily dosage of urethane amounted to from 4 to 6 Gm. Over a period of ten weeks a total of 248 Gm. was given. A favorable effect was noticeable in the subjective symptoms, the hepatosplenomegaly and the white blood picture.

Bronchial Asthma and Mold Fungus Allergy.—Fraenkel reported that among 552 patients with bronchial asthma whom he studied in England there were 84 who gave positive skin tests with extracts of Aspergillus, Penicillium or Mucor fungi. Subsequently he found that mold fungi play a greater role as an allergic cause of bronchial asthma in England than on the European continent. This is due to the moist British climate and to the construction of the houses, and it is comparable with similar differences in various parts of the United States. The most frequent allergenic organisms were Sporotrichum types, Cladosporium, Penicillium, Aspergillus, Mucor and Monilia.

Arch. del Inst. de Cardiol. de Mexico

16:471-584 (Dec. 31) 1946. **Partial Index**

*Significance of Interstitial Lymphocytosis in Rheumatic Fever and Other Processes of Inflammation: Global Interpretation of Main Rheumatic Lesions. I. Costero.—p. 471.

Rheumatic Fever.—Rheumatic fever behaves in a different manner in young people and in adults. It has two well defined periods: the first period, which is prevalent in children and adolescents, with severe changes in the small vessels, a subacute course and death as the consequence of encephalic changes (rheumatic encephalopathy described by Gortari, Pellon and Costero); the second period, which belongs to adults and has lesions affecting mainly the endocardium, large vessels and the serous joint membranes. It has a chronic progressive course and tends to give recurrences. This period often starts after the first period and often leads to heart failure. Corresponding to these symptomatic types, rheumatic disease presents two different types of anatomic lesions: Aschoff nodules and lymphocytic infiltrations circumscribed to the organs involved, which are seen during the second period of the disease and are of unknown significance. Aschoff's nodules represent a hyperergic reaction. Lymphocytic infiltration is due to the local action of lymphocytogenic substances which originate in the atrophy and reabsorption of reticuloendothelial cells during a process of spurious inflammation. It shows permanent metabolic changes in the affected tissues. These metabolic changes are manifested not only by local lymphopoiesis but also by proliferative phenomena with histocyte differentiation.

Arch. Urug. de Med., Cir. y Especial., Montevideo

29:121-200 (Aug.) 1946. **Partial Index**

*Periarteritis Nodosa. F. Herrera Ramos, H. Malossetti, G. J. Fernandez and J. Medoc.—p. 123.

Purpuric Syndrome with Acute Anemia in Gastric Epithelioma with Bone Metastasis. *A. Proto and O. F. Grosso.*—p. 164.

Acute Infectious Thrombophlebitis of Cavernous Sinus Following Anthrax of Ala Nasi Cured by Penicillin. A. M. Loubejac and P. Zito.—p. 184.

Periarteritis Nodosa.—Herrera Ramos and his collaborators report what appears to be the first case of periarteritis nodosa in Uruguay. The diagnosis was made on the clinical symptoms and biopsy. The symptoms consisted of rapid emaciation, articular pain, neuritis of the four limbs, nephritis without hypertension, polymorphous and hemorrhagic skin eruptions, edema, fever, attacks of asthma, nodular x-ray shadows of the lungs, which later regressed to normal, anemia and eosinophilia.

Revista Cubana de Pediat., Havana

18:601-664 (Oct.) 1946. **Partial Index**

*Rare Congenital Heart Disease. L. de la Villa Rodriguez.—p. 608.

Diphtheria and Poliomyelitis. A. Curbelo, A. Clerch y Rius, E. Marrero Vela and C. Vega Aguilar.—p. 621.

Rare Congenital Heart Disease.—An infant presenting superficial respiration, gray cyanosis, bradycardia, dyspnea and low temperature died three days after birth. Necropsy showed only one ventricle, one ventricular orifice and only one artery leading from the ventricle. The ventricle was in communication with the right auricle through the auriculoventricular orifice (the only one in this case). The left auricle was represented by a rudiment showing atrophy. De la Villa Rodríguez believes that this rare abnormality is due to atrophy secondary to a complete embryonal development of the heart.

Revista de Gastroenterol. de Mexico

11:45-88 (March-April) 1946. **Partial Index**

*Diaphragmatic Hernia: Clinical Study. A. Luna Olivares.—p. 57.

Diaphragmatic Hernia.—The most frequent types of diaphragmatic hernia are the esophagogastric, hiatal and traumatic. Hiatal hernia is asymptomatic in its early stages and in the late phase presents symptoms similar to those of gastric ulcer or gastric cancer. Gastric hemorrhage is frequent. The diagnosis is made by x-ray study of the stomach. Medical treatment gives good results when the hernia is still reducible. Otherwise treatment consists in resection of the herniated sac, replacement of the herniated viscera and suture of the borders of the hiatal opening. The symptoms of traumatic hernia are similar to those of hiatal hernia, but they appear early and are more acute. The diagnosis is likewise made on x-ray study. Traumatic hernias require surgical therapy. Recurrences are rare if the proper technic is followed.

Revista Liga Puertorriq. c. e. Cancer, Santurce

6:79-94 (Aug.) 1946. **Partial Index**

*Early Diagnosis of Tonsillar Cancer. I. González-Martínez.—p. 89.

Early Diagnosis of Tonsillar Cancer.—The diagnosis of cancer of the tonsil is difficult, especially in intracryptic and palliative recess cancers. Early symptoms are unilateral local pain (of variable acuteness) of a tonsil either hypertrophic or with ulcerations, cervical adenopathy of the same side and difficult swallowing. Spitting of blood, deafness and earache are symptoms of advanced tonsillar cancer. Biopsy should be made only when one is prepared to start radium or x-ray therapy immediately after it is performed. It should be taken with the needle or the electrothermic loop. The amount of material taken should be small but still sufficient to include both neoplastic and normal adjacent tissues. Radiotherapy is the treatment of choice. It is immediately indicated if the clinical symptoms are strongly suggestive of tonsillar cancer even if the report of the biopsy is negative, in which event biopsy should be repeated in the course of the treatment. Surgical intervention is contraindicated.

Wiener klinische Wochenschrift, Vienna

58:725-740 (Dec. 6) 1946. **Partial Index**

*Biologic Procedure for Artificial Induction of Labor. F. Hoff.—p. 725.

Present Status of Experimental Research on Cancer. H. Hamperl.—p. 731.

Joint Disorders in Typhoid. O. A. Stracker.—p. 734.

Combination of Surprise Anesthesia and Local Anesthesia in Goiter Operations. A. Winkelbauer.—p. 737.

Biologic Procedure for Inducing Labor.—Preeclamptic and eclamptic women from whom food and fluid were withheld for therapeutic reasons often reacted to this fasting with the onset of labor pains. Hoff tried to induce labor by means of fasting in other women. He evaluates the efficacy of a forty-eight hour fast on the basis of 111 cases in which this method was tried for the induction of labor. In cases in which the fasting cure was instituted before the computed end of pregnancy the percentage of failure was high; when begun in the final week, success and failure were approximately even. In cases in which pregnancy had gone beyond term, the prospect of success was good. Multiparous women did not respond better to the fasting cure than did primiparas. It seemed that an effective fasting cure in primiparas also reduced the duration of delivery.

38:1-16 (Jan. 10) 1947. **Partial Index**

Austria as a Future Member of World Health Organization. M. Kaiser.—p. 2.

Bronchial Carcinoma. W. Denk.—p. 6.

*Two Cases of Paroxysmal Hypertension Cured by Removal of Pheochromocytoma. F. Mandl.—p. 11.

Two Cases of Paroxysmal Hypertension Cured by Removal of Pheochromocytoma.—Mandl presents the histories of 2 men aged 33 and 41 respectively in whom removal of pheochromocytomas of the adrenals counteracted attacks of hypertension. In the first patient diagnosis was made on the basis of x-ray tomography after an operation on one side had been unsuccessful. X-ray tomography gave a positive result also in the second case. In this case permanent hyperglycemia and hyperglycosuria also were cured. As regards the clinical picture, both of the reported cases were typical for medullary tumors of the adrenals. The picture is almost identical with that of intravenous intoxication with epinephrine. There is pallor of the face, the patient feels cold and there are headaches, palpitation, tachycardia, anginal pain of the heart, nausea and increased blood pressure. The author discusses deviations from this clinical picture and describes the treatment for prevention of pronounced fall in the blood pressure, which must be instituted during the operation. The hypertensive changes on internal organs rapidly regress after the removal of the tumor. The 2 cases reported here bring the total of all cases of this type in which operations were performed to 50.

Wiener medizinische Wochenschrift, Vienna

97:25-40 (Jan. 12) 1947. Partial Index

Evaluation of Electrocardiographic Records by Practitioner. O. von Zimmermann-Meinzingen.—p. 25.
*Use of Duodenal Tube in Diagnosis and Therapy of Intrahepatic Bile Passages and Other Hepatic Disorders. H. Czickeli.—p. 29.

Duodenal Tube in Infections of Bile Passages and Liver.—Czickeli stresses the great value of the use of the duodenal tube in the diagnosis as well as in the treatment of infections of the intrahepatic bile passages. Examination of the duodenal juice is frequently decisive for the diagnosis of cholangitis. Once this condition has been diagnosed, the author employs at first daily and later twice daily duodenal lavage with from 100 to 250 cc. of a 20 per cent solution of magnesium sulfate. Of 21 patients with infection of the intrahepatic bile ducts 18 were cured or at least greatly improved by the duodenal lavage, and time required for treatment was greatly reduced.

Acta Medica Orientalia, Jerusalem

5:387-420 (Dec.) 1946

*Mixed Thyroidism. H. Zondek.—p. 387.
Granuloma Venereum in Palestine. I. Katzenellenbogen.—p. 391.
Right Bundle Branch Block (Wilson) Following Measles. E. Lyon.—p. 400.
Tropical and Phagedenic Ulcer and Desert Sore: A Review. F. Sagher.—p. 405.

Mixed Thyroidism.—Zondek directs attention to the fact that there are patients who display a mixture of practically all possible symptoms of hyperthyroidism and hypothyroidism. No satisfactory explanation for the pathogenesis of such conditions exists. He assumes that the thyroid function is abnormal probably as the result of an abnormal lobe. Treatment should depend on the predominant symptom in the clinical picture, the basal metabolic rate. In cases in which it is below normal—the change over to subnormal values sometimes takes place over a period of some years—thyroidin should be generally given in doses not larger than 0.4 to 0.5 Gm. a week, even in the presence of hyperthyrotic signs such as tachycardia, and discontinued after normalization of the basic metabolic rate at least temporarily. If the basic metabolic rate is within normal limits or above normal, the usual treatment for hyperthyroidism should be applied.

Maandschrift voor Kindergeneeskunde, Leyden

14:297-328 (Oct.) 1946

*Gold Therapy of Chronic Arthritis in Children. T. Halbertsma.—p. 297.
Recovery of 2 Young Children with Pneumococcic Meningitis. A. V. Westrienen.—p. 308.
Vitamin D_2 in Treatment of Lupus Vulgaris. M. K. Polano.—p. 315.

Gold Therapy in Chronic Arthritis of Children.—Halbertsma presents the histories of 6 children between 4 and 14 years of age who had chronic arthritis. He prefers the term chronic arthritis to Still's disease and to chronic primary infectious polyarthritis. Treatment consisted chiefly in intramuscular injections of a 2 per cent solution of solganal B in doses of 0.1 to 0.4 cc. given twice weekly. This corresponds to from 1 to 4 mg. of gold. After a series of ten injections one or more other series followed, each separated by a drug free interval. No accident due to intoxication was observed. All 6 children were cured. They came under treatment not long after the onset of the disease. Some had the septic type of disorder; others had few general symptoms, but in all cases the joint lesions were not serious.

Acta Orthopaedica Scandinavica, Copenhagen

16:101-212 (No. 2-4) 1946. Partial Index

Results After Resectio Arthroplastica Coxae and Arthrodesis Coxae Interna in Arthrosis Coxae. A. Berntsen and W. Anthonsen.—p. 110.
Congenital and Acquired Luxations of Capitulum Radii, with Discussion of Some Associated Problems. P. Windfeld.—p. 126.
Recurrent Dislocation of Shoulder. J. Agerholm-Christensen.—p. 142.
Tendon Transplantation for Repair of Opponens Paralysis of Thumb: Results from Operations After Methods of Ney and Silfverskiöld. P. H. Nielsen.—p. 148.
*Tuberculous Necrosis of Entire Vertebral Body with Negative X-Ray Findings. A. Hellstadius.—p. 163.
Habitual Luxation of First Carpometacarpal Joint. H. Wahren.—p. 172.
Resection of Lateral Plantar Nerve in Spasmodic Flat Foot and Metatarsalgia. H. Wahren.—p. 176.
Some Cases of Brodie's Abscess. S. Orell.—p. 180.

Negative Roentgenoscopy in Tuberculous Necrosis of Vertebral Body.—Hellstadius reports a case which demonstrates that a caseous tuberculosis may spread widely through the medullary spaces without conspicuous injury to the osseous tissue ensuing and consequently also without any apparent changes of the vertebral body as shown by x-rays. In addition, the case proves that adjacent intervertebral disks are not necessarily involved despite wide communication between the diseased tissue and the disk. This case emphasizes the difficulties of x-ray diagnosis of tuberculous spondylitis.

Nordisk Medicin, Gothenburg

31:1931-1944 (Aug. 30) 1946. Partial Index

Maternal Care in Norway. Grete Bonnevie Høyer.—p. 1931.

Hospitalstidende

*Variations in Incidence of Acute Hepatitis: Analysis of Epidemic Curve in Hepatitis According to Helge Petersen's Theories. M. Bjørneboe.—p. 1933.

Finska Läkaresällskapets Handlingar

Gonorrheal Arthritis in Infants. P. Forssell.—p. 1953.

Medicinsk Revue

Transvesical Prostatectomy. N. Aars Nicolaysen.—p. 1963.
*Bacteriologic Examination in Cases of Pneumococcus Pneumonia Treated with Sulfonamide. L. Selberg.—p. 1970.

Hygiea

Emphysematous Cystitis. R. Jönsson.—p. 1975.

Variations in Incidence of Acute Hepatitis.—In Denmark acute hepatitis occurs with seasonal variations. In 1931-1935 and 1941-1945 the variations were pronounced. Analysis of the epidemic curve according to Helge Petersen, Bjørneboe says, indicates that transmission of the infection from person to person probably does not play an important part in the form of the curve. The origin of the epidemic waves may depend on decreased resistance in the population or variations in the virulence of the infective agent. The infective agent must be assumed to be widely spread, possibly ubiquitous. Attention is called to similarities between hepatitis and poliomyelitis, both infectious diseases due to a virus, with possibility of fecal infection in both, the way of infection relatively seldom demonstrable and the maximum epidemic curve in the fall of the year, in poliomyelitis in September, in hepatitis a month or two later.

Bacteriologic Examination in Pneumococcic Pneumonia of Adults Treated with Sulfonamide.—Selberg says that of 356 cases of pneumococcic pneumonia in adults treated with sulfonamide, 289 were lobar pneumonia, and 67 bronchopneumonia. In the lobar form types 1, 2, 4, 5, 6, 7 and 8 were most frequent; in the bronchopneumonias the types established were evenly apportioned. There were 24 deaths. Excluding the 6 deaths within the first day of sulfonamide treatment, there were 18 deaths in 350 cases, or 5.1 per cent. Blood culture in 226 cases of lobar pneumonia showed bacteremia in 15.9 per cent, with a mortality rate of 17.6 per cent; in the nonbacteremic cases the mortality rate was 2.1 per cent. Bacteremia and deaths in cases with bacteremia occurred most often in patients over 65.

Complications occurred in 18.6 per cent of all the cases and in half of the cases with bacteremia. The author concludes that sulfonamides in many instances are ineffective in bilateral pneumonia and in bacteremia, especially in old persons. The sulfonamide treatment should in certain cases be supplemented with serum or penicillin.

31:1995-2058 (Sept. 6) 1946. **Partial Index**

Hospitalstidende

*Agglutination in Chronic Polyarthritis with Hemolytic Streptococci as Antigen. K. Kalbak.—p. 1997.

Postoperative Treatment of Thyrotoxicosis with Thyroxin. Anna Marie Gade.—p. 2000.

Svenska Läkaresällskapets Förhandlingar

Multiple Infections in Tuberculosis. A. Westergren.—p. 2013.

*Bacteriologic and Serologic Examinations of Pharyngeal Flora in Tuberculosis. T. Packalén.—p. 2014.

Bacteriologic Investigations in Necropsy in Tuberculous and Nontuberculous Cases. C. A. Adamson.—p. 2016.

Induction of Abortion. J. Olow and A. Brosset.—p. 2019.

Indications for Interruption of Pregnancy and Sterilization. E. A. Rosell.—p. 2020.

Medical Therapy and Prophylaxis of Alcoholism. S. Izikowitz.—p. 2038.

Agglutination in Chronic Polyarthritis with Hemolytic Streptococci as Antigen.—Kalbak found positive agglutination in 154 (79 per cent) of 183 cases of chronic polyarthritis. In 400 control subjects including normal persons and patients with other medical diseases there were few positive reactions; the reaction, however, was positive in 10 of 100 cases of rheumatic fever. No positive reactions occurred in the 18 serums with high antistreptolysin titer. The antistreptolysin reaction, the author says, expresses the toxin-producing ability of the streptococci, the agglutination reaction the extent of the streptococci in the organism. If the agglutination reaction is specific in chronic polyarthritis it may mean that the disease is a form of chronic sepsis with hemolytic streptococci. The value of the reaction in diagnosis is not clear. A negative reaction does not definitely exclude the disease; a positive reaction supports the diagnosis.

Bacteriologic and Serologic Examinations of Pharyngeal Flora in Tuberculosis.—Packalén concludes that the more abundant occurrence of streptolysin-forming B streptococci and yellow staphylococci in the pharynx in tuberculous patients is hardly to be considered a relatively unimportant manifestation parallel with or resulting from the tuberculous infection in the organism. These bacteria are rather to be regarded as having an important effect on the tuberculous process.

32:2491-2566 (Nov. 1) 1946. **Partial Index**

International Congress of Women Physicians in London. A. Andreen.—p. 2491.

Pantothenic Acid. V. Schmidt.—p. 2492.

Hospitalstidende

Eczema Due to Picric Acid. D. Pedersen.—p. 2495.

Finska Läkaresällskapets Handlingar

*Influence of Tonsillectomy on Healthy Kidneys and on Course of Disorder in Nephritis.—H. Björk.—p. 2500.

Hygiea

Premature Separation of Placenta: Report on 102 Cases. L. Iacobaeus.—p. 2509.

Etiology of Kienbock's Diseases. Preliminary Report. F. Ståhl.—p. 2512.

Svenska Läkaresällskapets Förhandlingar

Experiences in Mass Inoculation Against Diphtheria in Sweden. H. Ericsson and Britta Ericsson.—p. 2528.

Antibiotic Agents Against Tubercle Bacilli. H. Davide.—p. 2534.

Substances with Bactericidal Effect on Tubercle Bacilli. H. Theorell and Sune Bergström.—p. 2544.

Influence of Tonsillectomy on Healthy Kidneys and on Nephritis.—The postoperative changes in the urine found in 8 out of 80 patients with healthy kidneys were unimportant, Björk says, except in 1 instance, when a mild but persistent nephritis set in. Tonsillectomy for therapeutic reasons was done on 18 patients with acute or subacute diffuse nephritis and on 2 with chronic nephritis. In 3 patients with acute nephritis and high sedimentation reaction a definitely favorable effect on the course of the disease has resulted. Postoperative reaction in the form of pronounced increase in erythrocyturia occurred in half the cases without unfavorable influence on the course as a whole; the occurrence or absence of the reaction affords no indication of the effect of the operation. The 18 patients resumed work; 15 were subjectively well. Physical examination showed recovery in 12, latent disease in 6. Tonsillectomy in acute nephritis is to be considered in extremely threatening cases regardless of the length of time since the onset, but in general it should be resorted to only when the nephritis does not show signs of improvement after some weeks of internal treatment and should then be carried out within three months after the onset. Tonsillectomy in grave chronic conditions is not advised. Internal treatment of the nephritis must be carefully continued after tonsillectomy.

32:2567-2614 (Nov. 8) 1946. **Partial Index**

Felty's Syndrome in Connection with Case After Splenectomy. G. Nyström.—p. 2567.

Hospitalstidende

Bilirubin Content of Blood After Operation. A. Zacho and E. H. Larsen.—p. 2571.

Sulfonamides and Synthesis of Vitamins in Intestine: Review. F. Schønheyder.—p. 2573.

Norsk Magasin for Lægevidenskapen

*Bradycardia. O. Jervell.—p. 2575.

*So-Called Adenomas or Mixed Tumors of Salivary Glands in Bronchi. P. Berdal.—p. 2593.

Spontaneous Remission of Leukemic Infiltration (?) in Cecum Simulating Cancer. W. L'Orange.—p. 2599.

Case of Malaria in Oslo. E. Vogt.—p. 2601.

Subacute Bacterial Endocarditis Treated with Penicillin: Two Cases. C. Lian.—p. 2603.

Hygiea

Cystic Lung in Children. B. Werner.—p. 2605.

Bradycardia.—Jervell states that the heart action was 50 or less per minute in 191 patients (139 men, 52 women) out of about 9,000 examined cardiographically from 1940 to 1945. Bradycardia due to disturbances in conduction appeared in only 18 patients (12 with disturbance in sinoauricular conduction, 6 with complete atrioventricular block). In the remaining 173 there was sinus bradycardia, usually due to increased tonicity of the vagus. The bradycardia in 105 patients with peptic ulcer and in 11 with other digestive disorders is regarded as a sign of vegetative constitution. Bradycardia with syncope may in predisposed persons depend on reflex action (sinus caroticus syndrome, vagovagal syncope). Three patients had hepatitis and 2 hypothyroidism; in 3 there was postinfectious bradycardia. The bradycardia often seen in older persons is partly of vagal origin, partly due to sclerotic changes in the heart with lowered irritability of the sinus node. Signs of degenerative heart disease were observed in 37 patients, 35 of them over 50 years of age.

So-Called Adenomas or Mixed Tumors of Salivary Glands in Bronchi.—Berdal reports 7 cases of these tumors observed at the Rikshospital during the last two years; in 5 the tumor was in a main bronchus, in 1 in a secondary bronchus, in 1 in the trachea. They are believed to have persisted for from two to twenty years; the symptoms set in between the ages of 20 and 30. In 2 instances the tumor recurred seven and two and a half years respectively after diathermocoagulation. As a rule these tumors are benign but progressive; now and then malignant development may occur. There is hemoptysis, usually repeated, in nearly all cases. An asthmatoid wheeze is often heard. The symptoms otherwise depend on the site and size of the tumor and possible pulmonary complications. Bronchoscopy is essential to allow inspection of the local conditions and to allow biopsy and planigraphy to determine intramural and extrabronchial spread. Radical surgery, roentgen-radium treatment and bronchoscopic treatment may be considered. The localization and extent of the tumor, complicating pulmonary changes and histologic type mainly determine the procedure. Six of the reported cases were treated with diathermocoagulation. Because of the risk of recurrence after conservative treatment, frequent bronchoscopy and eventually planigraphic examination is called for.

Book Notices

Aging Successfully. By George Lawton. Cloth. Price, $2.75. Pp. 266. Columbia University Press, 2960 Broadway, New York 27, 1946.

Dr. Lawton is a consulting psychologist who has long been interested in the problem of older people and who deserves credit for developing a course on "Aging Successfully" in the Adult Extension Series of the Division of Social Philosophy, Cooper Union, New York. In writing this book he has drawn on his contacts with older people of various ages and in various walks of life. He discusses in plain, easily understood language the adjustments that one needs to make in preparation for the latter half of life. An idea of the problems dealt with can be had from a few sample topics: in youth prepare for age; jobs after 50; love at maturity; can youth and age be friends? a philosophy for maturity; a private talk with your older self; a bill of rights for old age.

The theme on which the book is based is put in one sentence in chapter XI: "A philosophy for maturity must be built on the older person's maximum utilization of every ability and inner resource which will make him a more effective human being." Dr. Lawton steers a sensible middle course between the overoptimistic view that life begins with middle age and the more cynical attitude expressed by the witticism current a few years ago that after 50 everything one likes to do is illegal, immoral or fattening. He emphasizes the lesson learned in the war that the older workers can hold their own with the younger, and that the policy of forcing men to retire while in their prime is senseless and unjustifiable.

Many medical men who read the book will object strongly to a footnote following the exquisite poem "Salutation of the Dawn:" "After the death of Dr. William Osler this poem . . . was found among the papers in his desk. Dr. Osler was a great physician who was convinced that men over 60 were useless and that the remedy was chloroform." It is regrettable that a slander perpetrated more than forty years ago by yellow journalism at its worst has been thus revived. Dr. Lawton might have done his readers a greater service had he reminded them that the poem serves as the prologue to Osler's masterpiece "A Way of Life." This little volume, written when he was 64, is one of the best prescriptions for aging successfully ever written.

Dr. Lawton's book can be recommended to all people over 50 who want to make the most of their later years, and to all people under 50 who are interested in preparing for old age or who have the responsibility of caring for elderly dependents. Its easy, conversational style makes it easy to read; its understanding attitude makes it palatable; its sound advice makes it helpful.

Conférences d'actualité sur les ultravirus. Par Mm. Lemierre, Boivin, Levaditi, Mollaret, Lépine et Gastinel. Paper. Pp. 120, with illustrations. Paris & Montpellier: Librairie Maloine, 27 rue de l'Ecole-de-Médecine, Paris 6^{e}, 1944.

This is a collection of eight lectures presented in 1943 at a series of conferences arranged by the chairman of the department of bacteriology at the Faculty of Medicine in Paris. According to the introduction the conferences served to acquaint the physician and biologist with the recent interesting developments in the field of medical bacteriology. The subjects presented are infectious mononucleosis by A. Lemierre, the chemical constitution of viruses by A. Boivin, the electron microscope in microbiology by C. Levaditi, the maladie de Nicolas-Favre (lymphogranuloma venereum) by C. Levaditi, the human-equine-avian encephalomyelitis by P. Mollaret, ultravirus and cancer by P. Lépine, the immunity in the infections caused by ultravirus by P. Lépine and the biologic study of vaccinal allergy by P. Gastinel. These lectures have the character of a review. For quick orientation some possess definite value. The section on the encephalitides is the only one which carries bibliographic references in the text. It would doubtless require considerable revision to bring it up to date. Little critical evaluation of the factual knowledge is found in the lecture on immunity in virus infections. The importance of the theories on cellular immunity is supported by citing an experiment with a few guinea pigs (p. 101). The essential facts and the overemphasis of the histologic findings in the experimental lesions induced by the lymphogranuloma virus have been presented repeatedly by Levaditi in textbooks and other articles. Doubtless the most interesting lecture of the series in that of Gastinel on vaccinal allergy. However, the statement that the injection of a killed virus merely induces allergy, while a live attenuated agent stimulates both allergy and immunity, awaits further confirmation. Any one who reads French fluently will enjoy the lucid presentation offered in some of the lectures.

It's an Allergy. By Frank G. Crandall Jr., M.D., Director Allergy Clinic, University of California, Los Angeles Medical Department, Los Angeles Cloth. Price, $3.50. Pp. 318. Murray & Gee, Inc., Hollywood 28, California, 1946.

This is a comprehensive book on allergy written for the patient. It begins with a historical consideration which is brief and a discussion of the mechanism of allergy. There is a chapter on frequency of the disease followed by one on diagnosis, which includes extensive lists of common allergens among foods, pollens and miscellaneous substances, including cosmetics. The general treatment of allergy with drugs is discussed. Then follow special chapters on cosmetic allergy, hay fever and allergic rhinitis, asthma, skin allergies, digestive allergies, migraines, allergies of the nervous system, eye, ear, nose and throat, physical allergies and miscellaneous allergies. The final chapter is a well summarized piece of advice to allergic patients. There is an extensive bibliography, mostly of medical sources, which seems a trifle out of place in a book for lay persons, and a good index. This should be a useful book for patients who desire to know more about their disease. The author's discussion of treatment should not lead to self medication.

Palæontology Invertebrate. By Henry Woods, M.A., F.R.S. Eighth edition. Cloth. Price, $3; 12s. 6d. Pp. 477, with 221 illustrations. Macmillan Company, 60 Fifth Ave., New York 11; Cambridge University Press, 200 Euston Rd., London, N. W. 1, 1946.

This well known account of the fossil invertebrates differs from the preceding edition only in minor changes and additions to the bibliography. Following an introductory chapter that explains the manner of formation of fossils, the varying degrees of preservation of animals as fossils, the chemical nature of the fossil remains and the scientific and economic importance of fossils, a chapter is devoted to each invertebrate group that has furnished fossils, namely the protozoans, sponges, coelenterates, echinoderms, annelids, brachiopods, bryozoans, mollusks and arthropods. In each chapter the time honored custom is followed of giving a conventional account of the anatomy of living members, with special emphasis on skeletal structures, succeeded by a survey of the fossil members. The account of living forms thus takes considerable space; it is questionable whether this is really necessary in a paleontologic work. The fossil members receive first a general description, followed by a list of important genera with their characters and distribution in geologic time. The illustrations, not too numerous, concern both living and fossil forms. Considering the size of the book there is adequate treatment of the most important invertebrate fossil groups, namely the rugose and tabulate corals, the echinoid, crinoid, cystid and blastoid echinoderms, the brachiopods, the bivalve, univalve and ammonoid mollusks and the trilobites. Altogether the book can be well recommended as giving a clear concise account in a handy form of the fossil invertebrates.

Human Genetics. By Reginald Ruggles Gates, B.Sc., Ph.D., D.Sc. In two volumes. Cloth. Price, $15. Pp. 742; 743-1518, with 326 illustrations. Macmillan Company, 60 Fifth Ave., New York 11, 1946.

This is the first comprehensive treatment in English of the literature of human heredity. It is more compendious than the multivolumed German works in this field, and at the same time it provides more encyclopedic coverage. The extent of the material which the author has undertaken to review may be inferred from the fact that although approximately 5,000 references are cited the author claims to have included little beyond the key references for each topic. These have been for the most part judiciously chosen; and they are admirably up to date. About three fourths of the text is devoted to pathologic conditions. It is obvious that the volume will prove an almost indispensable working tool for any one directly concerned with genetic aspects of medical problems, and it will doubtless find readers among all who are interested in the total biology of disease. The author offers little critical evaluation of the material surveyed, and it must be confessed that his occasional attempts at interpretation or analysis often fail to be helpful. The introductory chapters, dealing with the general principles of human heredity, are rather unsatisfactory; they cannot compare, for example, with the treatment of similar subject matter in Roberts' Introduction to Medical Genetics. Sections touching on methodology are sometimes misleading and all together are quite inadequate to serve as a guide in the conduct of research or the interpretation of data. A commendable feature is the frequent inclusion of collateral material drawn from experimental animal genetics; the results of various of the developmental studies in particular are often suggestive of a more than superficial relevance to problems of human pathology. This work will find its chief use as a reference manual and bibliographic guide. Its value for these purposes is greatly enhanced by an excellent index of ninety pages

Les ictères: Moyens d'exploration, simptômes, physio-pathologie, thérapeutique. Par I. Pavel, maitre de conférences à la Faculté de médecine de Bucarest. Second edition. Paper. Pp. 189, with 66 illustrations. Bucarest Rumanía, 1944.

The first chapter is given to the theoretical formation of bilirubin and its secretion, which leads to a discussion of a chemical and radiologic examination with special reference to the duodenum. The usual discussion of functional icterus and its treatment together with a differential diagnosis from virus hepatitis is inadequately presented. Illustrations on pages 107 to 113 attempt explanation of the mechanism of jaundice based on histologic evidence. A consideration of the catarrhal jaundice comprises the remainder of the book, which suggests the trend and the worldwide interest in virus hepatitis. The etiology of the disease is discussed loosely as a mystery of the duodenum, the pancreas, the liver or possibly a systemic disease. Credit must be given to the careful recording of the clinical symptoms of infectious (catarrhal or virus) hepatitis leading to the full blown picture of jaundice. The relation of the liver, the duodenum, the gallbladder and the pancreas is debated inconclusively, with failure to suspect the nature of the etiologic factor. The long clinical experience of the toxic effects of protein in liver disease is discussed, but a significant exception for the tolerance and value of milk is mentioned (p. 175). The possible value of glucose and insulin is recorded, and special treatment of duodenal irritability with kaolin is reviewed. The value of this book is largely replaced by the series of articles which have appeared in the Scandinavian, British and American publications in the past three years. It is doubtful that the current drive on diseases of the liver will be aided by this volume, which was produced under the limitations of the times.

Lehrbuch der physiologischen Chemie in 29 Vorlesungen. Von Emil Abderhalden, Professor an der Universitat Zurich. Twenty-third-Twenty-fifth edition. Cloth. Price, 26 Swiss francs. Pp. 417, with 51 illustrations Benno Schwabe, Klosterberg 27, Basel 10, 1946.

Emulating his famous teacher at Basel (G. von Bunge) the author presents the subject of biochemistry in a series of twenty-nine excellently organized lectures That this plan has been successful is evident from the frequent editions which have appeared. After an introductory approach the chemistry, digestion and metabolism of the fats are considered, followed by a discussion of their related phospholipids, sterols and steroid hormones and vitamins in eight lectures. The carbohydrates and proteins are similarly treated in eleven lectures, while the vitamins, hormones, enzyme systems and mineral, nitrogenous, gaseous and energy metabolism are taken up in the remaining ten lectures. The sequence and manner of presentation follow closely the structure of the numerous organic compounds discussed. In this the author's long association with E. Fischer is evident. Probably no other textbook covers the subject from this point of view so authoritatively and with equal logic and clarity. While the author no longer cites the literature in the text, he has added a brief section giving the names of the investigators who have made the fundamental discoveries discussed in the different lectures together with the topics of their research and the date. This method has permitted a direct presentation and saved considerable space but still gives an insight into the development of the subject without taking the space required by the customary historical approach. These changes were brought about largely by the fact that in the present edition the author was restricted to one small volume. He is to be commended on how well he has been able to present the subject in the small space allotted.

The Diabetic A B C: A Practical Book for Patients and Nurses. By R. D. Lawrence, M.A., M.D., F.R.C.P., Physician in Charge Diabetic Department, King's College Hospital, London. Ninth edition. Boards. Price, 4s. Pp. 79. H. K. Lewis & Co., Ltd., 136 Gower St., London, W C. 1 1946.

The primary purpose of this little manual, according to the author, is to confine itself to practical details, to show the diabetic patient how to live easily and comfortably, as well as healthily. Difficulties of understanding diabetes, doses of insulin, the three strengths prepared, methods of injection and signs of insulin overdose are gently ironed out so as to make them simpler for the patient to understand. Instructions and planning of diets are adequately and simply discussed under Diet-Line-Ration-Scheme, a method made popular in England but not in America. The numerous recipes for diabetic patients are also carefully planned and prepared. Since persons with diabetes are liable to the same illness as other people the section on what to do when ill will help to clarify many problems of care—diet and insulin—for diabetic patients during illness. The author is still in doubt concerning the merits of the third type of insulin, globin zinc insulin, when he states that "it is a delay action insulin, supposed to be intermediate in action between protamine zinc insulin and soluble insulin, . . . but its exact place in treatment is not yet fully established." Surely an insulin which has been in practical use over two years has established its merit. After all, globin insulin is merely an insulin with added globin and zinc, having a prolonged action of twelve to eighteen hours, whereas protamine zinc insulin lasts over twenty-four hours and plain insulin only four to six hours, facts established by clinical evidence. Generally speaking this book is an excellent accomplishment and may be recommended for the diabetic patient.

A Manual of Tomography. By M. Weinbren, B.Sc, M.R.C.S., L.R.C.P. Fabrikoid. Price, 45s. Pp 270, with 397 illustrations H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1946.

This is described as a summary of the author's seven years' experience with linear tomography. After a rather brief introduction the writer deals with tomography in the chest, spine, skull, larynx and miscellaneous anatomic regions. There is then a fairly long chapter on technic, a list of references and an index. As is customary with studies of a special nature, the author overextends himself in an attempt to demonstrate the usefulness of the method For example, figures 3, 6 and 7 are reproductions of films alleged to show merely a "suggestion" of pulmonary cavity, while the respective succeeding illustrations are tomograms "revealing" clear demonstration of cavity. We believe that an experienced interpreter would not have needed body section films in these particular cases in order to diagnose cavity.

Figure 84 is an illustration of ankylosed sacroiliac joints and 84-a is a tomogram of the same case; we do not believe that it adds any particular information. The author's illustrations of tomograms of the thorax in the oblique position are quite instructive from the anatomic point of view but are of doubtful value from the clinical diagnostic aspect. He reproduces tomograms of the urinary tract and gallbladder, an extension of the method of very dubious value.

The pages on tomography of the temporomandibular joint and of the larynx are quite poor; this is surprising, since it is in these two areas that the method has the most usefulness.

With characteristic British candor the author states in the preface that he had no intention of publishing a book on tomography! He had prepared six hundred slides for a lecture on the subject to be given at Capetown, but "time did not permit more than half that number to be shown." The book is printed on good paper, and the quality of most of the illustrations is sound; the references are not complete, several of them lacking titles. There is a good index. We believe it is fair to label the work a labor of love but not a source of valuable information, even to tomographiles.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

THE SMOKE NUISANCE

To the Editor:—I am a committee member of the Croton Rotary Club and I have been delegated to meet with the Croton Civic Association with regard to the smoke nuisance created by the Harmon railroad yards of the New York Central in our community. I would greatly appreciate a few comments from you with regard to what injuries are possible to the community from the smoke liberated by the railroad yards and the numerous coal-steam engines. I would be grateful for any comments which might help in our future meetings. Samuel Kahn, M.D., Brooklyn.

Answer.—The coal-burning steam locomotive constitutes one of the most serious single health menaces in the urban air pollution picture. This is particularly true for heavily industrialized cities located in regions prone to natural large scale fogs or to nocturnal fogs from a hill and valley topography such as one sees at Cincinnati and Pittsburgh. Coal-burning steam locomotives contribute (1) carbon particles, which would be harmless if pure but which have condensed on them varying loads of tars, some of which have been found definitely cancerigenic in animals; (2) fly-ash, which is probably more damaging than carbon soot to the human respiratory tract, especially in setting up chronic irritative states; (3) noxious gases, especially the oxides of sulfur, which form corrosive acids when dissolved in water, and (4) exhaust steam, which itself is not harmful but which is liberated into cold winter air in far greater amounts than the air can hold as invisible water vapor and hence must remain as a steam cloud. During stable winter weather phases of low air motion there is often formed a stratified ceiling 500 to 800 feet above the ground. Into this pocketed air mass the locomotives exhaust their steam and polluting materials. Natural fog tendencies are thus greatly accentuated, and the suspension and rapid accumulation of all flue products in this surface fog mass leads quickly to "smogs" and a dangerous atmosphere for the people to breathe. A recent U. S. Public Health Service survey (The Journal, Feb. 1, 1947, p. 334) indicated that about a fourth of the total pollution in the Chicago area is contributed by the coal-burning steam locomotives, but their output of exhaust steam to hold the polluting materials suspended easily gives them a first place as a public health menace. Their percentage contribution would be much higher if only the industrialized parts of the city were considered.

Death rates from pneumonia, tuberculosis and respiratory tract cancer provide a clear index of the damage air pollution inflicts on a city's population. All three of these diseases show a much higher death and incidence rate in badly polluted areas. This increase takes place mainly in the men who are out in the polluted atmosphere a greater portion of each day. The relation between sootfall and respiratory disease death rates is highly significant on a statistical basis and should lead public health and housing authorities to a keener appreciation of the importance of air pollution in the high respiratory disease death rates of slum populations. Interest in air pollution and the steam locomotive's contribution is becoming keen and countrywide. Diesel engines provide the best answer to this phase of the problem, for with them the emission of water and solid particles is reduced to a minimum.

TUBERCULOUS IRITIS

To the Editor:—A woman under my care is being treated for congenital syphilis with oxophenarsine hydrochloride and a bismuth compound. During the course of treatment an iritis of the left eye developed. She was seen in consultation by several ophthalmologists who, after a thorough investigation and examination, insist that it is nonspecific in origin. I am now investigating her for a possible tuberculous focus. Is it possible to have an iritis develop as a result of the antisyphilis treatment mentioned?

M.D., New Mexico.

Answer.—No. It is not possible to have endogenous tuberculous iritis develop without the presence of a tuberculous infection somewhere else in the body.

Furthermore, it is not possible to induce any form of iritis by the use of any drug, unless it is applied directly to the eye.

ANTERIOR PITUITARY AND OVARIAN EXTRACTS NOT ABORTIFACIENTS

To the Editor:—A woman was seen in October 1945 who gave a history of amenorrhea for six to twelve months prior to this date. A diagnosis of pregnancy was not established. However, she was told that there was a possibility of pregnancy. It is now known that she was pregnant one month at this time. In December 1945 she was given Anterior Pituitary and Ovarian Extract (Sherman Laboratories, Detroit) containing 18½ grains of anterior pituitary fresh tissue and 40 grains ovarian fresh tissue. The Anterior Pituitary and Ovarian Extract was administered after a flat plate of the abdomen had failed to disclose that a fetus was present. The patient was given six ampoules on alternate days for what was thought to be a functional amenorrhea. Bleeding did not ensue. The medication was not given with the intention of producing an abortion. The patient was instructed fully that it had not been determined whether or not she was pregnant. The patient is now bringing suit, stating that the drug was given as an abortifacient. Is it possible that anterior pituitary and ovarian extracts will make a pregnant woman menstruate?

M.D., West Virginia.

Answer.—There is no known drug or hormone which will produce abortions in normal cases, else the abortionists would have little to do. Even potent standardized pituitary preparations such as posterior pituitary injection cannot produce an abortion when the ovum is normal and normally implanted in the uterus. The anterior pituitary obtained from fresh tissue is most likely not as potent as posterior pituitary injection and hence it too cannot produce an abortion in a normal pregnancy. Likewise the ovarian substance which was administered to this patient could not have any effect in inducing an abortion.

ANTIBACTERIAL EFFECT OF SULFONAMIDES

To the Editor:—There seems to be disagreement as to the effect of sulfa drugs on various organisms. Lowsley and Kerwin state that sulfanilamide is not effective for Bacillus proteus, while sulfathiazole is effective against Streptococcus fecalis. Everett states that sulfonamide drugs are effective against all types of organisms commonly found in the urinary tract with the exception of alpha Streptococcus fecalis. Dodson states that sulfanilamide is more effective against streptococcus and B. proteus, while sulfathiazole is more effective against staphylococci. Dr. Harry Gold in Conferences on Therapy in the *New York State Journal of Medicine* for May 1, 1944 says that practically all common varieties of organisms found in urinary tract infection responded to sulfonamides except B. proteus, nonhemolytic streptococcus and tubercle bacilli. Please clarify this, with particular attention to B. proteus and Streptococcus fecalis.

C. K. Pearlman, M.D., Huntington, W. Va.

Answer.—It is obvious that experience in various clinics reflects differences of opinion concerning the antibacterial effect of the sulfonamides against the several species of bacteria causing infections of the urinary tract. It is generally regarded that Escherichia coli is sensitive to all the commonly used sulfonamides, but some strains of E. coli have been proved in vitro to be highly resistant to these drugs. In general, strains of B. proteus are highly resistant to sulfanilamide, sulfathiazole and sulfadiazine, and urinary tract infections due to this species do not respond favorably to treatment. This also applies to infections due to Streptococcus fecalis. Not uncommonly, strains of staphylococcus are highly resistant to the sulfonamides, as well as some strains of Streptococcus viridans.

HYDROCHLORIC ACID THERAPY

To the Editor:—Recently a paper entitled "Hydrochloric Acid and Mineral Therapy," by the late Walter B. Guy of St. Augustine, Fla., has come to my attention in which many extravagant claims are made. Can you inform me if it is safe to employ this treatment intravenously or intramuscularly and if it has any therapeutic value? M.D., Florida.

Answer.—Hydrochloric acid therapy has been tried intermittently for the past twenty years in a wide variety of conditions, mostly in infectious diseases. Twelve years ago a critical discussion of this work was published (The Journal, Feb. 17, 1934, p. 534), and nothing has transpired since then to alter the views expressed in the conclusion of that article: (*a*) Any alleged therapeutic effect is, in all likelihood, produced by alteration in blood colloids, such as hemolysis; (*b*) it has not been demonstrated beyond reasonable doubt that an appreciable leukocytosis is produced by such injections; (*c*) the reputed causative relationship of the alleged leukocytosis to clinical improvement is derived entirely from so-called post hoc reasoning and remains unproved; (*d*) adequately controlled evidence of clinical benefit from such treatment is completely lacking.

In the concentrations usually employed (1:3,000) hydrochloric acid has not been reported to cause harmful effects if not more than 10 cc. of such a solution is injected at one time. Of course, rigid asepsis must be observed, since the acid reaction produced locally favors bacterial growth.

CAROTID SINUS REFLEXES

To the Editor:—Last year, while I was descending the stairs after a call, a holdup man caught me from the side and pressed his arm around my neck. I became unconscious instantly. When I awoke I found myself on the landing of the floor below minus my money but perfectly sound in mind and body as if awakening from a deep sleep. Except for a few seconds of wonderment, my mind was perfectly clear. There was no pain, no tenderness nor marks of constriction round my neck. I know of similar cases without fatality or bodily injuries. Evidently the compression of the carotid vessels produced a partial anoxia of the brain—partial, because the circulation through the vertebral arteries was not obliterated. How long can pressure on the carotids with consequent partial anoxia of the brain and unconsciousness be maintained without danger? Could such a procedure be used for anesthesia? Such anesthesia would be rapid, simple and without any after-effect. A machine (like the Tycos) could be constructed with two longitudinal pads or compressing balloons to be applied to the sides of the neck back of the trachea. M.D., New York.

ANSWER.—Unconsciousness produced in the manner described in the query is almost always the result of reflexes from the carotid sinus and not of obliteration of the carotid arteries with resulting cerebral anemia. Mechanical stimulation of the carotid sinus sets up reflexes which after passing through various cerebral centers affect the pulse and blood pressure. The bradycardia and hypotension thus produced may cause temporary loss of consciousness. In addition, fainting may occur from the so-called cerebral reflex (Weiss, Soma; Capps, R. B.; Ferris, E. B., Jr., and Munro, Donald: Syncope and Convulsions Due to a Hyperactive Carotid Sinus Reflex, *Arch. Int. Med.* **58**:407 [Sept.] 1936).

Stimulation of the carotid sinus is not a satisfactory method of producing anesthesia because it is too transitory and because prolonged stimulation may be distinctly dangerous. It should be mentioned that this reflex is frequently taken advantage of in jiujitsu and other methods of so-called self defense.

AUTOLESIONISM

To the Editor:—A young woman for the past ten years has had an ulcerated area on the upper part of the left arm which has been recalcitrant to various forms of treatment and extremely painful to the slightest touch. Only aquaphor or boric acid ointment is tolerated as medication. She has been seen by dermatologists and neurologists in skin clinics, in hospitals and at dermatologic meetings. A diagnosis of dermatitis factitia has been made more than once with the added statement that this diagnosis was offered in place of 'etiology unknown.' The patient has never asked compensation and denies injuring herself. Further she reiterates "How can I scratch my arm if the slightest touch makes me scream?" The following neuropsychiatric questions arise: Are autolesionists, as a rule, hyposensitive to pain so that they can stand severe mutilations without pain or with pleasure? How many autolesionists are hypersensitive to pain? Would hypersensitiveness to pain rule out autolesionism? M.D., Rhode Island.

ANSWER.—Some people, because of a variety of psychologic reasons, mostly representing aggressive impulses repressed and turned against themselves, inflict lesions on their skin. Some autolesionists are hysterical personalities, some are psychotic. In the latter group the skin lesion inflicted may have special bizarre symbolic significance. A majority of autolesionists are hyposensitive to self-inflicted painful stimuli and some few may even derive pleasurable feelings from such acts. However, hypersensitiveness to pain does not rule out the possibility of autolesionism.

GANGRENE OF BOWEL AND MESENTERIC BLOOD SUPPLY

To the Editor:—What is the shortest length of mesentery that can be detached from a loop of ileum and produce gangrene of the bowel wall? What visible changes will appear in the bowel wall to indicate loss of blood supply sufficient to cause gangrene and how soon after detachment will these changes appear? M.D., New York.

ANSWER.—In this problem experimental work on animals cannot be applied to man because of the difference in the anatomy of the mesenteric blood vessels. Even in man the variations are so great that resection of a similar extent of mesentery in 2 cases will not produce the same results. One of the main features to be taken into consideration is the site at which the mesentery is detached. If it is removed immediately at the wall, roughly 7.5 mm. can be safely detached without ensuing necrosis. Anything over this figure could produce impairment of nutrition of sufficient severity to cause localized gangrene. If the wound in the mesentery is some distance from the wall, collateral circulation is sufficient to maintain nutrition. A transverse tear of 3 inches occurring 1½ inches from the ileum has produced gangrene of 6 inches of bowel.

Whether impairment of the circulation will be enough to produce gangrene is a difficult problem. The extremes are easily dealt with. It is the intermediate cases that cause the trouble. Even wide experience and excellent judgment may on occasions prove faulty. After detachment of mesentery at the wall, color changes occur almost immediately. As the defect is produced farther away from the wall the changes take longer to occur, depending on the efficiency of the collateral circulation, so that fifteen minutes or longer may pass before signs of moderate ischemia occur. The visible changes are cyanosis, loss of normal sheen, lack of peristalsis and loss of pulsation of vessels. Color changes eventually become more evident, and the typical picture of necrosis is produced. If the patient is given pure oxygen by mask and if warm packs are applied, one may find that there is some return of circulation and a smaller extent of the bowel is compromised. The fluorescein and procaine tests have proved efficacious in some hands in determining the eventual viability of the bowel.

IRRADIATION OF ADENOIDS

To the Editor:—Please discuss the use of radon for the treatment of hypertrophied adenoid tissue. What are the indications, contraindications, method of application, dosage, and the earliest age at which this has been used? Is there any danger of irradiating other tissues than the adenoid, for example, the pituitary gland or other deeper tissue? M.D., New York.

ANSWER.—Irradiation of nasopharyngeal lymphoid tissue is now common practice. This form of therapy apparently has its greatest usefulness for the treatment of small collections of lymphoid hyperplasia in and about the pharyngeal orifice of the eustachian tube which swell and produce edema within the tube and by this process produce secondary changes within the middle ear and hearing loss. In some instances this nasopharyngeal condition may account for congestive changes in the nose. Symptoms produced by the effect of hypertrophied adenoid tissue in small children have responded favorably to small amounts of irradiation. It has been used in children as young as 2 years of age.

Some of the first observations on the effect of irradiation of nasopharyngeal lymphoid tissue were made with applicators containing radon. This is not generally available, and it was found that radium filtered to provide the more caustic beta rays would give the same result. The beta rays are more caustic than the gamma rays but do not penetrate as deeply. With the use of the former, however, it was found that the clinical result was the same on lymphoid tissue in contact with the applicator as compared with the gamma rays (Boies, L. R.: Irradiation of Nasopharyngeal Lymphoid Tissue: An Evaluation, *Arch. Otolaryng.* **44**:129 [Aug.] 1946). The advantage of utilizing the beta rays lies in the fact that a small amount of radium is sufficient for a short period of irradiation.

Several companies now furnish applicators for this irradiation. The applicator is passed through the nostril until the radium is over the eustachian orifice of the side to be treated.

With this method of application and dosage there is no danger of irradiating tissue outside the nasopharynx, such as the pituitary gland. The effect of this irradiation on the lymphoid tissue is not a grossly destructive one. It has been referred to as a "biologic" effect by S. J. Crowe (*Ann. Otol., Rhin. & Laryng.* **53**:227 [June] 1944), who has described the effect of irradiation as follows:

"The action of the irradiation is to inhibit mitosis in germinal centers and thus stop the formation of new lymphocytes. Observation of hyperplastic lymphoid tissue under this treatment leads us to believe that lymphocytes, like the skin cells, have a brief life cycle, probably not more than two weeks. Under irradiation treatment no new lymphocytes are formed to replace those discarded and the mass gradually shrinks and disappears."

However, the effect on any considerable amount of lymphoid tissue is negligible, and surgical removal is indicated if there is any sizable mass of tissue.

RECURRING ERYSIPELAS-LIKE ERUPTIONS

To the Editor:—I am writing in regard to the discussion of the treatment of recurring erysipelas-like eruptions of the extremities (The Journal, March 1, 1947, p. 655). I have found that local treatment is ineffective. If the patient exhibits no intolerance to the drugs, 0.5 Gm. of sulfadiazine or sulfathiazole orally twice a day for a period of a minimum of six months will prevent recurrences. An occasional patient will require even more prolonged prophylactic treatment.

C. Russell Anderson, M.D., Beverly Hills, Calif.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 2 CHICAGO, ILLINOIS May 10, 1947

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SURGICAL ASPECTS OF BRONCHOGENIC CARCINOMA

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Los Angeles

In the past thirteen years, since Graham[1] performed the first pneumonectomy for carcinoma of the lung, one can safely state that the development of a safe surgical technic for pneumonectomy has far surpassed the clinical advances for the earlier diagnosis of this lesion. Since carcinoma of the lung contributes 10 per cent of all adult male cancers coming to autopsy and is second only to carcinoma of the stomach, it behooves the clinician to bend every effort to diagnose the disease earlier if a successful surgical cure is to be secured. The low surgical mortality of pneumonectomy should be a vital stimulus to all of us to make an early diagnosis of a common disease that can be cured only by surgical extirpation.

The actual incidence of the disease is on the increase, according to reliable statistics. The greatest number of cases occur between the ages of 40 and 60 years, as is true in other carcinomas, and there seems to be a slightly greater number that occur in the right lung than in the left. There is a great preponderance of male incidence over the female, some reporting 4 to 1, while in our series the incidence was 6 males to 1 female.

SYMPTOMATOLOGY

The symptoms are essentially the same as those of inflammation and depend on the location and size of the tumor and the degree of obstruction and ulceration of the bronchus. The great majority (80 to 90 per cent) of the patients complain of cough as the earliest symptom. Frequently they volunteer that they have a dry "cigaret cough," which later usually becomes productive of mucoid sputum. As the lumen of the bronchus becomes obstructed, the retained secretions become infected and the cough yields purulent sputum. Chills and fever are an indication of the retention of infected secretions, and a diagnosis of pneumonia, pneumonitis or influenza is a frequent early erroneous diagnosis. These symptoms are usually relieved by the raising of sputum only to recur in a few days or weeks.

Pain is the second most common symptom; it varies from a discomfort, feeling of tightness, oppression or a characteristic pleuritic pain of varying degrees to the severe intractable pain due to the tumor invasion of the brachial plexus and the intercostal nerves. Severe pain is usually indicative of mediastinal, pleural or chest wall involvement and inoperability.

Hemoptysis occurs in more than half of the patients. There is nothing characteristic about it; slight or occasional streaking all the way to fatal hemorrhages may occur. Bleeding is frequently in direct ratio to the amount of infection and ulceration. Tumors arising far out in the bronchial tree become infected later than those occurring in the major and secondary bronchi and are less apt to cause hemoptysis. It is not unusual for patients to deny raising blood but on careful questioning admit occasional blood streaks in their mucoid sputum.

Weight loss is a rather constant complaint, and except in patients emaciated, with obvious metastases, is usually greater in the patients who have considerable infection complicating the tumor. Weight loss is then not in itself an important indication of operability.

Wheezing, at first intermittent, sometimes becoming constant for a while, then suddenly disappearing with a complete occlusion of the bronchus by the tumor, is a common complaint. Here again this is usually elicited by careful questioning of the patient.

Dyspnea occurs in about a fifth of the patients and may be due to atelectasis but more commonly accompanies the pleural effusions. The vast majority of effusions are an indication of carcinoma of the pleura, but occasionally they are due to the underlying inflammation of the lung.

Clubbing of the fingers and toes may be observed early in the disease before any symptoms referable to the intrathoracic disease are observed. It is frequently seen later in the course of the disease and is of no particular significance.

Hoarseness is occasionally noted as the first symptom and signifies inoperability, for the cancer has invaded the mediastinum to involve the recurrent laryngeal nerve.

It is not unusual for a patient who has no symptoms referable to the lungs and no physical findings on examination to have a routine roentgenogram which reveals a small pulmonary lesion which has already metastasized either to the skeletal system, the central nervous system or other organs. For this reason neurosurgeons have for a long time routinely x-rayed the chests of all patients suspected of having a brain neoplasm.

Late manifestations such as hoarseness, Horner's syndrome, phrenic nerve paralysis, intractable pain with involvement of the intercostal nerves and the

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Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Radiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946

[1] Graham, E. A., and Singer, J. J.: Successful Removal of an Entire Lung for Carcinoma of the Bronchus, J. A. M. A. **101:** 1371 (Oct. 28) 1933

brachial plexus and the cervical, axillary and supraclavicular metastatic lymph nodes are of little significance in making the diagnosis and indicate only a state of inoperability.

PHYSICAL EXAMINATION

After a careful history is elicited, the physical examination will yield findings varying according to the location and extent of the lesion and its atelectasis, the extent of the infection and the presence of metastases. Expansion of the hemithorax is decreased, and there is a noticeable lag on respiration. Careful palpation for metastatic lymph nodes in the cervical, supraclavicular and axillary areas is most important. Auscultation over the trachea with the stethoscope may reveal a wheezing respiration. Dulness on percussion with suppressed breath sounds over the involved area is a common finding. The presence of rales will depend on the degree of obstruction and the extent of the secondary infection.

DIAGNOSIS

The relatively late diagnosis of carcinoma of the lung is due either to a patient seeking medical advice long after the onset of his symptoms or the physician's failure to recognize the importance of the patient's complaint and carrying out the necessary diagnostic measures. All too often carcinoma masquerades under the erroneous diagnosis of atypical or virus pneumonia, and frequently the correct diagnosis is long delayed by the temporary clinical improvement in the patient in response to repeated sulfonamide and penicillin therapy. Clinical improvement following chemotherapy without a complete roentgenologic clearing of a bronchopulmonary lesion in an adult is indicative of at least a tentative diagnosis of primary bronchogenic new growth until proved otherwise.

The sputum should be examined for tubercle bacilli. Recently there has been increasing emphasis on the search for tumor cells in the sputum, but this requires time consuming and tedious methods which may not be productive of cells in the presence of a growth. More recently Herbut and Clerf[2] have reported the value of stained bronchial smears in lesions beyond the vision of the bronchoscope.

Roentgenography is the greatest single diagnostic aid at our disposal, and it suggests the diagnosis in the vast majority of cases. The tumor itself may cast the entire shadow where the lesion (peripheral) arises farther out in the bronchial tree. A tumor arising in a primary or a secondary bronchus (central lesion) does not cast a distinct shadow of its own but one of atelectasis. Finally, a third type of roentgen manifestation may be evidence due to bronchiectasis, abscess or pleural effusion secondary to the primary tumor. There are no characteristic roentgen features of bronchogenic carcinoma, for it may simulate all types of lesions, such as bronchiectasis, tuberculosis, lung abscess, lymphoblastoma, benign tumor, pneumonia and pleural effusion. Careful fluoroscopy and lateral and oblique roentgenograms are frequent necessary diagnostic aids. Only in certain selected cases is bronchography indicated; namely, where the tumor is small and the bronchoscopy has not aided in the diagnosis, and a filling defect is searched for in the bronchus outlined by the iodized oil. The injudicious use of bronchograms not infrequently flares up an acute pneumonitis in the infected cases with retained secretions. Tomograms or planigrams have been of great aid to us when the lesion was well beyond the vision of the bronchoscope and biopsy was impossible. They reveal partial or total bronchial obstruction characteristically inside the outline of the tumor shadow and are indicated when the bronchoscopy yields no information.

Bronchoscopy is the next most important diagnostic aid and is the easiest and most accurate method of early diagnosis. A biopsy should be taken if possible to clinch the diagnosis. Bronchoscopy may yield important information, such as narrowing and fixation of the bronchi, even though the tumor arises beyond the visual field of the bronchoscope. Operability may be determined at the time of bronchoscopy, and the retained infected secretions may be aspirated to improve the patient's condition for the anticipated surgery should the latter seem feasible. In between 60 and 75 per cent of the cases bronchoscopy will yield diagnostic tissue for a biopsy or information leading to a presumptive diagnosis.

Needle biopsy of the lung has been advocated but is mentioned only for the purpose of condemning it. Hemorrhage, infection and extension of the tumor along the needle track are serious complications contraindicating its use.

In cases in which the history and diagnostic measures indicate a presumptive diagnosis of carcinoma of the lung, but positive tissue biopsy has been unobtainable, exploratory thoracotomy is definitely indicated. The safety of the surgery and its great advantages over the limitation of thoracoscopy far outweigh any of the advantages of the latter procedure as a diagnostic aid.

PATHOLOGY

It is now generally agreed that all cancer of the lung arises from bronchial mucosa and is of a high grade of malignancy. There are, generally speaking, three groups or classifications; squamous cell (epidermoid), adenocarcinoma and undifferentiated cell types. The squamous cell carcinoma occurs more frequently than do the others. It apparently has a slower course, and the incidence of metastases is lower. It is therefore the more favorable type for operability and offers the best prognosis from the standpoint of a surgical cure. Adenocarcinoma and undifferentiated carcinoma are much more rapid in their progress and have a higher incidence of metastasis and a much lower surgical operability and therefore a poorer prognosis. Since the cell type of carcinoma is frequently found to be different in the tissue taken from the lung as compared with the bronchoscopy biopsy, the question of operability and prognosis cannot be decided by the study of the bronchoscopy biopsy alone, and, if the tumor is resectable, every effort should be made to carry out a total pneumonectomy with resection of the mediastinal lymph nodes, even though adenocarcinoma or undifferentiated cell carcinoma is diagnosed on the biopsy.

TREATMENT

Roentgen therapy at best offers the patient only palliation in lesions that are radiosensitive and is reserved for cases that are inoperable. Total pneumonectomy with resection of the regional mediastinal, subcarinal and azygos lymph nodes is the only operation that offers a cure. The incidence of recurrence following lobectomy is convincing evidence that pneumonectomy should be done where it is feasible. Exploratory thoracotomy with a view of proceeding with a pneumonectomy in cases not proved by biopsy is an entirely safe procedure. In the group in which the lesions were inoperable, none of the patients died as the result of the exploration of the thorax alone.

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[2] Herbut, P. A., and Clerf, L. H.: Bronchiogenic Carcinoma, J. A. M. A. **130**: 1006 (April 13) 1946.

PREPARATION AND ANESTHESIA

The usual preparation of the patient for pneumonectomy is essentially the same as is indicated in other major surgical procedures. Penicillin inhalations and sulfadiazine orally are administered to control infection if the patient is febrile or if he has considerable purulent secretions. Blood transfusions have occasionally been necessary preoperatively. Bronchoscopic aspiration of retained purulent secretions may be necessary to relieve the inflammatory process in the lung where the secretions are retained by blockage of the bronchus. Penicillin intramuscularly may be needed when the occlusion of the bronchus reduces the efficiency of the inhalation method. Preliminary pneumothorax is no longer considered worth while and is not employed.

Intratracheal anesthesia with a closed system is utilized routinely. Some prefer induction with pentothal sodium followed by nitrous oxide and ether-oxygen; others prefer cyclopropane throughout, and still others are advocates of either pentothal or cyclopropane induction, then going on to ether-oxygen for the duration of the operation. The important aspects of the anesthesia are a clear airway that gives access to frequent catheter aspirations of the purulent secretions throughout the operation to prevent a spill-over to the opposite good lung, and an anesthesia which gives a high exchange of oxygen to the patient throughout the operation. I prefer a pentothal sodium induction followed by ether-oxygen anesthesia after the intubation of the tracheal catheter.

After the operation, all the secretions in the tracheobronchial tree are aspirated by catheter while the patient is turned on his back, and then on his operated side with the healthy lung uppermost in order to empty out any secretions that may have gravitated to the upper lobe of the remaining lung. Aspiration of each of the remaining lobes with the curved Thompson catheter is continued through the endotracheal tube until the entire lung is dry to auscultation with the stethoscope.

OPERATION

The patient is placed on his good side with a 15 to 20 degree depression of the head of the table to promote drainage toward the intratracheal catheter. Through a posterolateral incision, usually the fifth or sixth rib is resected and the ribs are spread apart without further rib resection. The hilus is dissected out, the regional lymph glands are removed, either individually or with the lung, and all the vessels are individually ligated without the use of the tourniquet. Finally the main stem bronchus is cut across close to the carina after two guide sutures of alloy steel wire have been placed to secure the bronchial stump. With traction on the two guide sutures, seven or eight interrupted 35 gage alloy steel wire sutures on atraumatic needles are placed and tied over the end of the stump so as to approximate the membranous posterior bronchial wall to the anterior cartilaginous portion. No other sutures are taken except fine silk ligatures in the bronchial vessels. After the pleural cavity is thoroughly rinsed with saline solution, 2 Gm. of sulfapyridine powder or sulfanilamide crystals is sprayed over the raw surfaces of the mediastinum, and the mediastinal pleura is closed. If this is not feasible, a flap of pleura is dissected and turned over the stump and sutured in place covering the end of the stump. In all, 2 to 5 Gm. of sulfanilamide crystals and in addition 50,000 or 100,000 units of penicillin in 100 cc. of saline solution are left in the pleural cavity. The chest wall is closed in layers without drainage, and finally enough air is aspirated from the pleural cavity to establish a negative intrapleural pressure. Throughout operation and afterward the patient receives blood transfusions equivalent in volume to more than replace his blood loss.

RESULTS

In the past four years 196 cases of bronchogenic carcinoma have been seen and diagnosed. By virtue of metastases and other causes, 119 cases (61 per cent) were considered inoperable; 78 patients (39 per cent) were advised to have exploration and pneumonectomy if feasible; 66 patients (84.5 per cent of 78) accepted operation. Of these, 27 (41 per cent of 66) were inoperable and had only exploratory thoracotomy, none of whom had complications, and there were no hospital deaths in this group.

Thirty-nine patients (20 per cent of 196, 59 per cent of 66) had pneumonectomy. Among these, 2 (5 per cent of 39) died in the hospital. There were 37 of the 39 (95 per cent of 39) who survived the pneumonectomy and were discharged from the hospital in good condition. Eleven patients (29.5 per cent of 37) have since died of recurrence of the growth or metastases or other causes. Twenty-six of the 37 patients surviving pneumonectomy are alive, and several of these will probably die of recurrence of metastases.

SUMMARY

In 196 cases of carcinoma of the lung, only 39 per cent were clinically operable, and when exploration in 66 cases of this group was done only 39 (59 per cent of 66, 20 per cent of 196) were operable and had pneumonectomy. Of these patients 2 (5 per cent of 39) died in the hospital, and 11 (29.5 per cent of 37) died later. Twenty-six patients (70.5 per cent of 37) remain alive, and a number of these will probably die of recurrence or metastases.

Only the early diagnosis and early resection can elevate the appallingly low operability and curability rate. Certainly the low surgical mortality (5 per cent) in this series of pneumonectomies is as low as if not lower than that of surgery in carcinoma of other organs. An otherwise fatal disease, curable with a 5 per cent mortality rate, is a challenge to the profession to make the diagnosis earlier. The absence of deformity resulting from the surgery should decrease greatly the refusals for operation.

ADDENDUM

Since submitting this paper I have completed thirteen additional pneumonectomies for carcinoma without mortality. A total of fifty-two pneumonectomies with two hospital deaths yields an actual operative mortality of slightly less than 4 per cent.

1136 West Sixth Street.

ABSTRACT OF DISCUSSION

Dr. B. V. A. Low-Beer, San Francisco: Dr. Jones pointed out the ambiguity of the early clinical symptoms. The great problem in this field is the early diagnosis. Clinical symptoms which in daily practice may seem to have no definite significance have to be individually evaluated with the possibility of bronchogenic carcinoma in mind. The part which we have to play in this grave problem of bronchogenic carcinoma is to turn the medical profession's and the public's attention to the fact that a cough does not mean simply a "cold," but it might be a grave symptom indicating something more serious. Bronchial smears should be employed more frequently; we should encourage the use of this method. As to the value of the roentgen examination, usually when there are roentgenologic signs the percentage of operability decreases considerably. The earlier we catch these signs the better the outlook for diagnosis and surgical procedure. The expansion of chest surveys will prove of great value. The statistical analysis of the 196 cases is excellent. Even the most critical biostatistician can't find fault with Dr. Jones's evaluation. Approximately 13 per cent have proved operable and so far deaths have not occurred after pneumonectomy in his series. Though this is a fair result, we all strive for a higher salvage rate. Dr. Jones pointed out that radiation therapy is merely a palliative method. I am always at a loss when I am asked to treat palliatively. Am I expected to treat for pain or am I to try to change the kinetics of the tumor cells? This requires two entirely different energy quantities to be delivered to a lesion. In every case we should, after a pneumonectomy, give the patient the chance of judicious radiation therapy. That means to deliver a dose of 4,000 to 6,000 roentgens to the mediastinum. It can be done without untoward effect. It was said today that radiation cannot destroy metastases in lymph nodes. I do not agree entirely with such a statement. But even if this were correct, we might produce fibrosis, encapsulate the nodes and keep them dormant. Radiology and surgery are not competitive methods. It is not a question of deciding for one against the other, but much more for one with the other.

Dr. Paul C. Samson, Oakland, Calif.: Bronchoscopy plays an invaluable role in the early diagnosis of primary carcinoma of the lung. Endoscopy constitutes the only proper means by which a biopsy specimen can be obtained prior to surgery. A positive biopsy can be obtained in from two thirds to three fourths of patients with carcinoma on whom bronchoscopy was done. A negative bronchoscopy does not rule out the possibility or even the probability that a carcinoma is present. A subacute inflammatory process may clear following bronchoscopy, but it is highly suggestive when the roentgen findings remain the same or increase, even if the patient's symptoms (particularly productive cough, fever or pain) are ameliorated. Under such circumstances it is poor judgment to wait until a tumor may become visible bronchoscopically. Exploratory thoracotomy within a period of two to four weeks is far preferable. In patients suspected of having bronchogenic carcinoma but in whom no tumor can be seen several maneuvers may be employed to aid in the diagnosis. Indirect evidence of a neoplastic process may be gained by observing fixation, stenosis or deformity of the bronchial walls. When upper lobar lesions are encountered, a right angle bronchoscopic telescope may visualize the neoplasm "around the corner." In rare instances it may be justifiable to induce a pneumothorax in an effort to deflect the upper lobar bronchus so that a full lumen image may be seen. In lower lobe disorders prebronchoscopic study of roentgenograms may localize the lesions sufficiently so that a "blind" biopsy may be done safely with the cup or ball bearing forceps, or by endoscopic curettage. When bloody sputum is obtainable Holinger collects this material and sections it. Your chairman has made additional refinements in his cytologic study of bronchoscopically removed secretions. Endoscopy is a valuable aid in the determination of operability. It is to be stressed, however, that the presence of early mediastinal metastases or infiltration cannot always be proved bronchoscopically. Carinal widening and fixation usually means extensive metastasis to the subcarinal lymph nodes. Induration or distortion of the lower tracheal wall is highly presumptive evidence that the neoplasm is no longer resectable. The bronchoscope is very effective in improving pulmonary drainage when chronic infection exists distal to an obstructing neoplasm. Immediate postoperative aspiration bronchoscopy is performed if there is the slightest question that all possible secretions have not been removed through the endotracheal catheter. To be of consultant caliber, a bronchologist must possess a knowledge of intrathoracic physiology and pathology as well as technical ability. The occasional remover of foreign bodies whose background is essentially nonthoracic cannot satisfy these requirements. Bronchoscopy and esophagoscopy are part and parcel of thoracic diagnosis, and there can be no question that the competent thoracic surgeon should perform his own endoscopies. This is scarcely less true of the medical specialist in chest disease. Both should acquire technical skill under suitable, auspices during their period of training. By the same token those whose training is primarily otorhinologic must ground themselves thoroughly in the various aspects of thoracic disease if they wish to become bronchologists and consultants in their professional communities.

Dr. Leo Rigler, Minneapolis: A mortality of 5 per cent in pneumonectomy is something for all of us to cheer about. During the course of survey examinations a good many lung tumors are now being picked up. In one county in Minnesota, where a mass survey study was made of a large portion of the population, among about 200 cases of tuberculosis 17 chest tumors were found. To find such small tumors of the lung, however, one has to look for small signs. One of these is the evidence of increased radiability of one lung as compared to the other, the result of obstructive emphysema. Westermark described this a number of years ago, but there is little or no reference to it in the literature as an early sign. Obviously it has to occur in cases in which the carcinoma is in one of the larger bronchi and causes a sufficient degree of partial obstruction at an early stage so that emphysema may be produced. I have recently seen 3 cases in which, if the original films had been critically examined, or if films had been made or fluoroscopy done in the phase of expiration, the clue to the fact that there was something seriously amiss in one lung would have been found. In each of these cases the root shadow was a little enlarged and one lung was more radiable than the other. Such a finding should lead to further studies by which a diagnosis of early carcinoma of the lung may be achieved. I was interested in Dr. Jones's statement about the substitution of planigraphy for bronchography. I have had a similar experience but find that in a good many instances I would prefer to do a bronchogram also before making an exploration, particularly, of course, when bronchoscopic biopsy is impossible. I should like to ask Dr. Jones whether he shares with other thoracic surgeons the reluctance to operate on a patient within a few days after the instillation of iodized oil. Some thoracic surgeons feel that bronchography may cause an operation to be postponed for six weeks, a very undesirable thing in carcinoma of the lung.

Dr. Maurice Lenz, New York: In support of the growth restraining effect of x-ray dosage with 200 kilovolts, I should like to cite an instance in which a patient who had a microscopically proved bronchogenic carcinoma of the left lower lobe has now been clinically well for six years. He has some fibrosis of the irradiated lobe of the lung but feels and looks perfectly well. On the other hand, I have dozens of similar patients who have died.

Dr. John C. Jones, Los Angeles: In answer to Dr. Rigler's question about the surgeon's reluctance to operate soon after bronchography with iodized oil, a patient who has a carcinoma of the lung should not have a resection delayed for several weeks while waiting to cough out the oil in the good lung. If bronchography is indicated at all, it should be limited to the affected side. A spill over into the good lung is to be avoided and the patient given postural drainage immediately after roentgenography to drain out his oil and secretions so as to prevent oil trapping and pneumonitis. The roentgenologists have been of great help to us in this problem of carcinoma of the lung. Since there has been a great reduction in the operative mortality in resection, roentgenologists have changed a great deal in their attitude toward the treatment of these patients. They now are far more confident of their diagnosis of the disease and refer these patients to the surgeon for bronchoscopy and resection with impunity. They seemed reluctant to do so when the mortality ranged above 50 per cent. We are seeing many cases now that the radiologist sheltered eight or ten years ago. The statistics presented here are absolutely useless from the standpoint of "cure," for all these patients were operated on during the last four years. None of these resections were done for the so-called "benign adenoma," the latter group not being included because in the eventual follow-up a much higher percentage of cures would be recorded than actually existed in the carcinomas alone. Including the adenomas would lead only to false optimism. In none of these resections was roentgen therapy given.

ROENTGEN THERAPY IN CANCER OF THE LARYNX

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Roentgen therapy of cancer of the larynx depends on the administration of sufficient x-rays to destroy the cancer while preserving the recovery power of the simultaneously irradiated, uninvolved larynx and laryngopharynx. The resistance to x-rays of the cancer and of the uninvolved laryngeal and pharyngeal mucosa is so similar that in order to destroy the cancer it is necessary to administer a dose which will also cause sloughing of the irradiated mucosa. The resulting denuded area promptly epithelizes, provided the subjacent vascular and connective tissues are healthy and have not been injured by preceding disease, operative trauma or previous irradiation. Microscopic evidence of retrogressive radiation changes in the vascular and connective tissues begin to appear about two to three months after such x-ray dosage. It is therefore preferable to terminate all roentgen therapy before this period of lowered resistance and not to repeat the treatment.

Tolerance of radiation injury diminishes with increase in the size of the irradiated area. Small cancers are therefore more easily treated than extensive ones. The latter require exfoliation of larger areas of laryngeal and pharyngeal mucosa, causing more dysphagia and consequently greater likelihood of dehydration. Roentgen therapy of small fields is readily tolerated by ambulatory patients. Irradiation of extensive areas may require hospitalization so as to combat dehydration by gavage, hypodermoclysis, proctoclysis or venoclysis. These considerations argue for the use of the smallest radiation fields which will include the clinically involved area. An ample zone of grossly uninvolved tissue surrounding the cancer, however, should also be adequately irradiated in order not to exclude silent extensions, which later might give rise to local recurrence and metastasis.

Because of the position of the larynx near the entrance to the respiratory tract, sloughs of the mucosa resulting from the natural breakdown of the cancer or due to the x-ray reaction may be aspirated and may give rise to bronchopneumonia or lung abscess. Tolerance for intensive roentgen therapy is especially poor in weak patients suffering from chronic alcoholism, cardiovascular disease, diabetes and other debilitating diseases.

Adequate x-ray dosage to laryngeal cancer causes a little dilatation of the lymph capillary plexus of the laryngeal mucosa, especially in its richer supraglottic portion. Ordinarily this reaction is slight, passes unnoticed and recedes in a few days or weeks. This dilatation may, however, become more pronounced if the flow through the plexus is already obstructed by extensive invasion by cancer or if the daily or total x-ray dose has been excessive, especially if the radiation fields are larger than 8 by 10 cm. The x-ray reaction in such cases may cause acute edema of the larynx and necessitate emergency tracheotomy. The edema may then disappear or be followed by chronic edema, lasting months and even a year. The damaged mucosa has little resistance to infection. Weeks or months later it may again become suddenly and noticeably edematous, necessitating tracheotomy, or may break down. The ulceration permits entrance of bacteria into the deeper layers, which may be followed by perichondritis with consequent radionecrosis of the laryngeal cartilage. This complication occurs exceptionally unless the mucosa is extensively involved.

Cartilage which has a healthy perichondrium will usually tolerate an x-ray tumor dose which is considered adequate for destruction of laryngeal cancer. The same dosage may result in chondronecrosis if the tolerance of the cartilage has been lowered by preceding disease, partial resection or previous intensive roentgen or radium therapy, and above all if it is invaded by bacteria or cancer. Chondronecrosis is exceptional after roentgen therapy of small laryngeal cancers. In a review of 29 cases of chondronecrosis following roentgen therapy for cancer of the larynx at the Presbyterian Hospital, New York, during the past sixteen years, William A. Goodrich found a single instance of this complication in which the cancer was confined to its original site—in this case the lesion was on the epiglottis; nearly all others showed extensive involvement.

The gravity of chondronecrosis differs as to whether it occurs in the arytenoids, the epiglottis or the more rarely invaded thyroid cartilage. Involvement of the latter is usually limited to far advanced cases which are incurable by roentgen therapy.

Epitheliomas arising on the mucosa of the epiglottis readily invade this cartilage because of the close attachment of the mucosa to its perichondrium. Drainage from the suprahyoid portion and free border of the epiglottis is down toward its base. Necrotic cartilaginous sequestrums resulting either from destruction by cancer or radionecrosis fall into the laryngeal ventricle and are coughed up. Though roentgen therapy may temporarily increase this chondronecrosis, healing may nevertheless take place once the sequestrums have been disposed of. Most cured epitheliomas of the epiglottis show a deformity of the epiglottis suggesting healed chondronecrosis.

Similarly favorable conditions do not exist in chondronecrosis of the arytenoid cartilage, and adequate roentgen therapy may at times even aggravate the condition. Necrotic sequestrums of the arytenoid cartilage slough into the adjacent piriform sinus, where they remain in a sort of reservoir. Drainage from this is uphill, and the cavity cannot be emptied by coughing, although some material may spill over into the pharynx and be swallowed. As the necrosis progresses, it may reach a blood vessel and cause fatal hemorrhage. Absorption from this area may produce cachexia, and aspiration may be followed by pneumonia or lung abscess. The gravity of invasion of the

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Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

arytenoid cartilage in the treatment of cancer of the larynx by x-rays cannot be exaggerated and is amply supported by published survival statistics after roentgen therapy.[1]

Local extensiveness, metastatic involvement of lymph nodes,[2] and, to a lesser degree, microscopic evidence of differentiation, all have an influence on the radiocurability of laryngeal cancer.

The extent of involvement on admission to roentgen therapy is likely to differ according to the primary site within the larynx.

While hoarseness facilitates early recognition and treatment of cancer at the edge of the vocal cord, cancers of the bands, subglottis, epiglottis, aryepiglottic folds and piriform sinus are frequently overlooked until necrosis and hemoptysis, dyspnea due to an obstructing bulky growth, or a metastatic lymph node calls attention to the correct diagnosis.

The paucity of lymphatics at the edge of the vocal cord contrasted with the rich lymph capillary plexus of the rest of the larynx also contributes to the fact that local extension and metastasis of cordal cancer is slower and later than in growths of other portions of the larynx. Spread at first is by contiguity and along the delicate horizontally placed lymph channels the length of the cord, more commonly forward and across the anterior commissure. More rapid and wider extension and lymph node metastasis occurs only after the cancer has reached the richer lymphatic plexus of the walls of the larynx or posterior commissure. As is well known, the supraglottic and infraglottic lymphatic plexuses draining the interior of the larynx communicate only on the posterior wall of the larynx. The supraglottic collecting trunks unite in the form of lymphatic pedicles near the junction of the lateral border of the epiglottis and the aryepiglottic fold. They dip under the mucosa of the piriform sinus, where they unite with the lymphatic trunks of the inferior part of the pharynx. Together they traverse the thyrohyoid membrane through the orifice for the superior laryngeal artery and empty into the anterior group of the deep cervical lymph nodes on the jugular vein. Cancer cells of epitheliomas arising in the ventricular bands, ventricle, epiglottis or aryepiglottic folds growing along and into these lymphatic channels may be carried in the direction of the lymphatic flow, starting new extensions and lymph node metastases. Retrograde spread does not occur until progress forward is blocked by obstructing cancer.

TABLE 1.—*Results of Treatment*

128 Patients Treated 1931-1941, Reviewed May 1946

3 patients discarded; received about half adequate x-ray dose
15 patients discarded; lost or died of intercurrent disease, free from cancer

110 Patients Studied in Detail

Cause of Death	No. of Deaths
Cancer, persisting	42
Cancer, persisting or radiation edema	21
Larynx controlled; died metastases (lymph nodes 7, lungs 3, gum 1)	11
Radionecrosis	4
Alive with cancer	2
Cured	
a. Dead intercurrent disease, free from cancer over 5 yrs	7
b. Alive and well	23
c. Free from clinical evidence of cancer 5-14 yrs	30

The statements made in the preceding paragraphs were corroborated by a review of the clinical histories of the patients receiving roentgen therapy for cancer of the larynx at the Presbyterian Hospital, New York, between 1931 and 1941, as may be seen in the accompanying tables.

Of the 15 patients who died of intercurrent disease free from cancer, 3 were clinically free from cancer for four years, 2 for three years and 10 others for shorter periods after their last x-ray treatment. In the present study a follow-up of at least five years has been postulated as a prerequisite. It is for this reason that these 15 perhaps cured patients are not included in the present report.

Of the 110 patients used in this study, cancer was assumed to persist locally in the larynx or pharynx in 42. In 1, in whom the epithelioma had arisen in the ventricular band, epithelioma was again found in the piriform sinus seven years later. Since it was not possible to determine whether this was an extension from the original site or was an independent epithelioma, it was counted as a failure of roentgen therapy. In 21 other patients the larynx at the time of death was definitely edematous. Postmortem examination was not permitted, and it is uncertain whether the edema was the result of underlying unrecognized persisting cancer or radiation edema. In 4 patients who died, and in 1 who is now free from cancer, there was frank radionecrosis without evidence of persisting cancer. The living patient, a doctor now free from clinical evidence of cancer for six years since his last x-ray treatment, developed necrosis of the entire thyroid cartilage nine months after treatment, complicated by aspiration pneumonia, lung abscess and empyema necessitating resection of a rib for drainage. A year later, however, he was back practicing medicine. He had an epithelioma of the right cord which had extended across the anterior commissure to involve the left band, and he had refused a laryngectomy. In 11 other patients the growth was controlled in the larynx but in 7 spread to the regional lymph nodes, metastasizing in 3 to the lungs and in 1 extending to the gum.

Seven patients died from intercurrent disease, free from primary or metastatic laryngeal cancer more than five years after their last treatment. Among these, 2 died of cardiovascular disease, 2 of pneumonia, 1 of pulmonary tuberculosis, 1 of an independent bronchial cancer nine years after treatment and 1 of an unknown cause. Twenty-three patients are now alive and free from clinical evidence of cancer from five to fourteen years after their last treatment. In other words, 30 of 110, or 27 per cent of the patients with cancer of the larynx, are known to have remained well five years or more after roentgen therapy.

MICROSCOPIC GRADING

The prognostic significance of microscopic grading in roentgen therapy of cancer of the larynx has repeatedly been questioned.[3] Among 101 cases in our series classified microscopically, the five year cure rate was 27.2 per cent of 22 well differentiated epitheliomas, 26 per cent of 46 moderately differentiated and 36.9 per cent of 33 undifferentiated growths. It would thus appear that roentgen therapy is somewhat more successful in undifferentiated than in well differentiated or moderately differentiated epitheliomas. The influence of this finding on prognosis, however, is much less than the bearing of other factors such as involvement of the arytenoid cartilage or the presence of regional lymph node metastases.

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[1] Lenz, Maurice: Causes of Failure of Roentgen Therapy in Cancer of the Larynx, Am. J. [illegible] 46:21, 1941; X-Ray Treatment of Diseases of the Laryn[illegible] 52:85, 1943. Ahlbom, H. E.: *Die* [illegible] von Endolaryngealen Karzinomen am [illegible] 0 bis *1939*, Acta radiol. **22**:539, 1941.

[2] Cutler, Max: Concentration Radiotherapy of Cancer of the Larynx, J. A. M. A. **124**:967 (April 1) 1944.

[3] Harris, W., and Klemperer, P.: Pathologic Differentiation Between Radiosensitive and Nonradiosensitive Malignant Neoplasms of Larynx, Arch. Otolaryng. **28**:355 (Sept.) 1938.

TABLE 2—*Factors Influencing Prognosis*

	Number Treated	Free from Cancer 5-14 Years
Invasion of arytenoid		
Incomplete or no fixation	42	50%
Complete fixation	68	12.3% (epiglottis 27.7%)
Clinically metastatic lymph nodes		
Patients without nodes	57	37%
Patients with nodes	53	15% (epiglottis 28%)
Microscopic structure		
Well differentiated	22	27.2%
Moderately differentiated	46	26%
Undifferentiated	33	36.9%

The grave significance of invasion of the arytenoid cartilage and lymph nodes is illustrated by table 2.

The extent of the cancer with which the patient presented himself for roentgen therapy and the presence or absence of the unfavorable factors influencing prognosis differed according to the locations of the epithelioma on the laryngeal mucosa.

In reviewing the results just quoted, one is struck by the increasing number of failures with increased extent of the cancer on admission. Roentgen therapy succeeded in arresting 8 of the 10 cases in the first two groups, or 80 per cent. The first 6 cured cases, confined to one cord, and the next 2 involving the anterior commissure, could probably also have been treated successfully by laryngofissure and cordectomy. The 2 failures could not have been avoided by this operation. One patient died of regional lymph node metastases though free of laryngeal disease, while in the other the epithelioma arose in the posterior third of the vocal cord, which is considered to be a contraindication to laryngofissure. The 5 other cases arrested by roentgen therapy were too extensive for laryngofissure and would have required laryngectomy.

One is therefore confronted with the fact that, as far as curability is concerned, roentgen therapy of early cordal cancer in which the entire larynx is irradiated compares favorably with the more limited approach by laryngofissure and cordectomy. Though many[4] disagree with this view, roentgen therapy may even be superior to this operation, especially if the cancer has extended beyond the cord and anterior commissure. Roentgen therapy results in a much better voice than laryngofissure, a fact which will be admitted by any impartial observer who has had the opportunity to watch the result of both methods over a period of years. This is the view held by Dr. J. D. Kernan, the director of the laryngologic service at the Presbyterian Hospital, with whom my associates and I have had a joint follow-up clinic for the past fifteen years.

Subglottic extensions from epithelioma on the superior surface of the cord, as well as primary epitheliomas arising in the subglottic space, are frequently overlooked until they are extensive, because of the absence of early symptoms. In addition to mirror and direct laryngoscopy, lateral roentgenograms of the neck and tomographs should be taken so as to help estimate more correctly the extent of the disease. The epithelioma fixes the cord, causing hoarseness, and when extensive may cause a peculiar dyspnea. The relative infrequency of this involvement makes it difficult to evaluate roentgen therapy in epitheliomas of this location. In addition to the 2 failures just quoted, we failed in 2 primary epitheliomas in the subglottic region. Because of these frequent failures we lean toward laryngectomy. A preliminary trial with irradiation may at times be justified if there are valid objections to laryngectomy.

When cancer of the vocal cord has produced a partial fixation of the arytenoid cartilage, a full course of x-ray therapy should be given. The frequency with which these cases respond satisfactorily warrants that a decision to do a laryngectomy be deferred for three months or so to see whether the treatment may not eradicate the disease. In spite of improved speaking apparatus and schools for the teaching of esophageal voice, the laryngectomized patient is seriously handicapped and usually cannot continue in his former occupation. A full course of modern roentgen therapy before laryngectomy has, in our experience, not interfered or delayed healing materially.

In view of the poor results with roentgen therapy in patients with invasion and complete fixation of the arytenoid cartilages, laryngectomy must remain the first choice when this extension has taken place. Four of the 21 patients with this complication in this series, however, were clinically arrested over five years by roentgen therapy alone. A preliminary trial with roentgen therapy may therefore be justified occasionally and laryngectomy deferred for three months. Roentgen therapy in these cases, however, is less reliable than laryngectomy.

The usefulness of so-called prophylactic postoperative roentgen therapy is questionable. We do not use it but give postoperative irradiation only if after laryngectomy there is persisting cancer clinically or if microscopic examination of the laryngectomy specimen shows that the cancer has been incompletely removed.

TABLE 3.—*Epithelioma of Vocal Cord*

(17 of 40 patients free from clinical evidence of cancer 5-14 years)

Extent on Admission	Number Treated	Number Free from Cancer	
Limited to one cord	7 (1 posterior ⅓)	6	80%
Extension, anterior commissure	3	2	
Extension, opposite band or cord ...	*3*	*2*	55.5%
Subglottic extension	3	1	
Arytenoid partly movable ...	3	2	
Arytenoid fixed	21 (9 ln)*	4	19%

* ln = clinically metastatic lymph nodes

Neither do we believe in prophylactic lymph node excision in cordal cancer. We advise radical neck dissection in the presence of movable clinically involved lymph nodes if they are single or few in number. If widespread, nothing seems to do much good, but palliative roentgen therapy may be tried. This treatment may also be used if these nodes are fixed. If fixed and single, or few in number, higher doses of roentgen therapy over small individual fields, or interstitial radium or radon, with or without preliminary surgical exposure, may be used.

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[4] Martin, H. E.: Selection of Treatment for Cancer of the Larynx, Ann. Otol., Rhin. & Laryng. 49: 728, 1940.

Of the 7 epitheliomas of the ventricular band, 5 extended to the arytenoids and lymph nodes, 1 to the piriform sinus, 2 to the laryngeal surface of the epiglottis and 1 to the preepiglottic space. In only 1 instance was there also downward extension toward the vocal cord, but there were none to the infraglottic region. In spite of the extension to the arytenoids and lymph nodes, 2 of the patients were clinically cured.

Of the 9 patients classed as clinically cured, only 6 are alive and well five to fourteen years. Three died free from cancer, 1 five years after treatment of pulmonary tuberculosis, the second in 6 years of pneumonia and the third in six years with coronary artery disease. Because of the rich lymphatic drainage of the epiglottis, lymph node metastases are frequent (21 of 28). The anterior surface of the base of the epiglottis is perforated by the ducts of numerous mixed mucous glands. These perforations facilitate extension of cancer from the laryngeal to the lingual side and vice versa. Ten of the 28 epitheliomas of the epiglottis arose on the laryngeal surface, 6 on the lateral border and 12 originated nearer the lingual surface In more than half of those on the laryngeal surface there was extension to the aryepiglottic fold and arytenoid, and in half of those arising on the lingual side there was involvement of the base of the tongue. There were also extensions to the piriform sinus, cord, band, vallecula, lateral pharyngeal wall and supratonsillar region. In none of the 28 was the cancer limited to the epiglottis when the patient arrived for roentgen therapy.

TABLE 4.—*Epithelioma of Ventricular Band and Ventricle*

(3 of 8 patients free from clinical evidence of cancer 5 14 years)

Extent on Admission	Number Treated	Number Free from Cancer
Ventricle	1	0
Band and cord	2	1
Band and arytenoid	5 (5 ln)	2 (2 ln)

TABLE 5.—*Epithelioma of the Epiglottis*

(9 of 28 patients free from clinical evidence of cancer 5 14 years)

On Admission Extension to	Number Treated	Number Free from Cancer
Aryepiglottic fold	11	3
Arytenoid	11 (8 laryngeal)	3
Piriform sinus	2	1
Lateral pharynx	2	0
Tongue	12 (6 lingual)	1
Tonsillar fossa	2	1
Lymph nodes	21	8 (38%)

Invasion of the arytenoids and clinically metastatic lymph nodes is evidently not so serious in cancers of the epiglottis as in those of the vocal cords.[5] This cannot be explained on the basis of lesser differentiation of the cancers. Of the 3 cured cases with invasion of the arytenoid, 1 was well differentiated and 2 moderately differentiated. Of the 8 arrested cases with lymph node metastases, 1 was well differentiated, 2 moderately differentiated and 4 undifferentiated.

EPITHELIOMA OF ARYEPIGLOTTIC FOLD

Radiocurability of epitheliomas of the aryepiglottic fold varies with their proximity to the arytenoids—the nearer the growth is to the arytenoid, the worse is the outlook for a cure. One of the 4 patients with an epithelioma close to the epiglottis is well nine years after treatment, while the other 3 are dead. Both of the 2 patients whose epithelioma originated nearer the arytenoid are dead.

EPITHELIOMA OF PIRIFORM SINUS

All of the 26 epitheliomas arising in the piriform sinus invaded the arytenoid and 17 clinically also involved the cervical lymph nodes. The 26 patients are dead. Statistics of other radiotherapy clinics corroborate the failure of roentgen therapy in epitheliomas of this location. Better results might perhaps be obtained if laryngectomy could be done before the lymph nodes are invaded If the removal is incomplete, as proved by gross persistence or microscopic examination of the laryngectomy specimen, postoperative roentgen therapy may be indicated. With the laryngeal cartilage entirely out of the way, fear of chondronecrosis will not interfere with the administration of adequate tumor dosage.

TECHNIC

The technic of modern roentgen therapy of cancer of the larynx dates back to 1919, when Coutard[6] first published his method of treatment and results. In spite of some technical improvements, the main principles of the treatment laid down by Coutard at that time still hold true today. The published five year statistics of results obtained by various technics[7] do not appear superior to those accomplished by Coutard twenty-seven years ago, and often it is more a matter of personal preference which one is employed. An accurate estimate of the extent of the disease, familiarity with laryngoscopy for guidance of the daily dosage and careful setting up of the field by the person doing the laryngoscopy contribute to the success of the treatment. The treatment should never be entrusted to a technician without medical supervision. If a patient is once irradiated unsuccessfully, it is unlikely that cure can be obtained by subsequent roentgen therapy.

Because of the low output of Coutard's original x-ray equipment, each exposure took several hours, the treatment being administered twice daily. In 1928 more powerful x-ray equipment delivering 30 milliamperes and 200 kilovolts was installed at Montefiore Hospital in New York, and we had the opportunity to administer the same doses as Coutard in daily treatments lasting fifteen to twenty minutes. The early results of this technic and some of the first cases treated at the Presbyterian Hospital were presented before the Section on Radiology at the Eighty-Third Annual Session of the American Medical Association in New Orleans on May 11, 1932.[8] Since that time we have modified our technic by reducing the size of the irradiated area and the daily dose so as to conserve normal tissue resistance.

Our present technic consists in the administration of an average tumor dose of 5,700 to 7,000 roentgens in five to six weeks. Treatment is given once daily, except Sundays, and 100 roentgens in air, 20 roentgens per minute, with 200 kilovolts, 2 mm. of copper or Thoreus filter, 50 cm. target-skin distance is administered to each side of the neck over the larynx up to a total of 3,000 to 3,500 roentgens in air on each side. Treatment is discontinued for a few days if severe mucositis develops during the course of the treatment, and irradiation is begun again when this reaction starts to recede. Most of the clinically arrested cases show some sloughing of the irradiated mucosa toward the end of their treatment. While the sizes of the fields used originally often exceeded 8 by 10 cm., the acute immediate pharyngitis and the chronic pharyngitis which followed have led us to reduce our fields to at most 8 by 10 cm. and usually to 6 by 8 cm. or smaller. In cordal cancer we prefer a field of 6 by 6 cm. and at times have used a field of 4 by 5 cm. In extrinsic epithelioma 6 by 8 cm. is the average, but we usually start with an 8 by 10 cm. field, gradually reducing it. When nodes are involved, these small fields do not suffice, and additional special fields directly over the nodes have been used. The results of roentgen therapy in lymph node metastases secondary to cordal cancer have been poor, and we prefer radical neck dissection if the nodes are movable and few in number; if fixed we advise interstitial radium for limited involvement and x-ray therapy if many nodes are invaded. Lymph node metastases from cancer of the epiglottis or band have often responded satisfactorily to roentgen therapy.

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[5] Baclesse, F: Résultats eloignés du traitement roentgenthérapique des épithéliomas glosso épiglottiques, J. de radiol et d'electrol. **25:** 190, 1942 1943

[6] Coutard, H, and Hautant, A Resultats du traitement du cancer du larynx par les rayons x, J. radiol. et d'electrol. **7:** 541, 1923.

[7] Quick, D.: Carcinoma of Larynx, Am. J. Roentgenol **38:** 821, 1937. Cutler.[2]

[8] Lenz, Maurice: Roentgentherapy of Malignant Neoplasms of the Pharynx and Larynx, J. A M. A **99:** 1840, 1932

An analysis of 110 clinical histories of patients who received roentgen therapy for cancer of the larynx at the Presbyterian Hospital between 1931 and 1941 and were reviewed in May 1946 with the finding that 30 were free from clinical evidence of cancer between five and fourteen years has led to the following conclusion:

CONCLUSION

Roentgen therapy in early cancer of the cords gives as high a cure rate and a better voice than laryngofissure. We recommend roentgen therapy in all cancers of the vocal cord except when the cancer has extended subglottically or into the arytenoid cartilage. In these cases we prefer laryngectomy followed by roentgen therapy if clinically there is persisting cancer or if microscopic examination of the laryngectomy specimen shows that the removal was incomplete. Roentgen therapy in cordal cancer with definite fixation of the arytenoid cartilage has succeeded in a small number of cases but should be substituted for laryngectomy only if there are valid reasons for avoiding this operation. If the arytenoid is partially movable a trial with roentgen therapy is indicated. If roentgen therapy fails, laryngectomy can be done without fear of delayed healing, provided treatment has been properly administered. For cancers of the epiglottis, ventricular band and anterior portion of the aryepiglottic folds roentgen therapy should be employed even after fixation of the arytenoids and the occurrence of lymph node metastases.

Cancer of the piriform sinus usually invades the arytenoid cartilage and early metastasizes to the cervical lymph nodes. Roentgen therapy has failed to cure most of these cancers.[9] Laryngectomy and postoperative roentgen therapy might yield better results.

Prognosis is grave when cancer of the cord or piriform sinus has metastasized to lymph nodes. If movable they should be radically resected and, if fixed, treated by radium or x-rays. Prognosis is less serious if these metastases are secondary to cancer of the epiglottis or band. These should receive roentgen therapy.

840 Park Avenue.

SURGICAL TREATMENT FOR CARCINOMA OF THE LARYNX

SIMON JESBERG, M.D.
Los Angeles

The treatment for laryngeal cancer is surgical, radiologic or a combination of the two. The selection of the course of treatment is governed by broad basic principles that time and experience have shown to be efficacious. The selection must be under the direction of one who is a laryngologist and is radiologically minded or a radiologist who is trained in laryngology.

There is only one Coutard in this world, who is a radiologist and a laryngologist combined. Therefore a close and sympathetic understanding between the laryngologist and the radiologist will give the laryngeal cancer patient the full benefit of all treatment possible. One who is partisan minded is in no position to select or direct the treatment for cancer of the larynx.

Malignant growths follow the pattern of the parent cell. Thus in cancer of the larynx there exist two separate and distinct conditions, because the one that arises from the vocal cord is almost invariably squamous cell carcinoma of low grade malignancy, which is not radiosensitive and which belongs to the domain of surgery, whereas elsewhere in the larynx the exact opposite holds forth. That is, tumors of high grade malignancy are more amenable to irradiation than to surgery.

In addition to this, tumors that arise on the vocal cords are of slow growth and are of the adult type cell, and the bed from which they spring is poorly supplied with lymphatics and blood vessels, so that they can be expected to be localized for a long time.

Cancers that arise elsewhere in the larynx spring from a bed that is abundantly supplied with lymphatics and blood vessels. Their growth is rapid and they extend early to regional nodes or metastasize. Quite likely by the time diagnosis is made those tumors have already extended beyond the area of surgical possibility.

No cancer can be diagnosed without a biopsy. Direct laryngoscopy in this field with the Jackson biopsy forceps is used for the purpose of securing the tissue for examination.

There are two main classifications of carcinoma of the larynx. In common laryngeal parlance the description of intrinsic and extrinsic cancers is not sufficiently distinctive. Textbooks on anatomy divide the larynx into three components and do not even mention intrinsic and extrinsic, and such a description is the outgrowth of the laryngologist who recognizes the clinical significance of laryngeal cancer according to its site of origin whether cordal or extracordal.

The first is almost invariably of low grade malignancy and belongs to the domain of surgery. The extracordal cancers arising from columnar epithelium are almost invariably highly malignant and more radiosensitive. This distinction is of the greatest importance when malignant neoplasms in this field are considered. Squamous cell epithelium gives rise to epidermoid cancer, generally with a high percentage of keratin. As is well known, these cancers are of adult type cell and are of low grade malignancy. According to Coutard,[1] "the more the embryonal or undifferentiated cells, the more the possibility of curing by irradiation. Cancers consisting of differentiated cells developing on fibroelastic connective tissue are forms generally incurable or difficult to cure by irradiation, because of the lack of radiosensitivity. When they are technically operable they belong to the domain of surgery, because the cells multiply slowly and have only a slight tendency to disseminate and develop adenopathy rarely or late."

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[9] Schinz, H. R., and Nuppinger, A.: Seventeen Years of Radiotherapy of Cancers, Leipzig, Germany, Georg Thieme.

Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

There are two other sites in the larynx that require special mention. The epiglottis is definitely a part of the larynx, and a cancer originating from this appendage may almost entirely involve the whole structure and yet be slow to extend to surrounding tissues. Of 5 cases of cancer of the epiglottis, 4 were cured by external subhyoid pharyngotomy.

The other area in which cancer arises is subglottic. These tumors, according to Coutard and Clerf, are not usually radiosensitive. Clerf states that they generally should be treated by laryngectomy; however, if one can remove the entire growth it can be treated by laryngofissure. I have several patients who are alive and well over ten years following the operation.

The indication for laryngofissure is when the cord is motile and the lesion is located in the anterior part of the cord. If the cord is motile or whether it is fixed is of the utmost importance, because in the latter situation the underlying structures are infiltrated, and the thyroid cartilage must be removed along with the involved cord. When, on clinical examination of the larynx, the tumor is found to involve or nearly involve the anterior commissure I consider that it has already crossed to the opposite side and I remove the anterior part of the other cord. More extensive lesions than this of cordal origin call for a laryngectomy.

I am in entire accord with Hayes Martin,[2] who approached the laryngologic problem from the radiologic side. Some years ago he took over the treatment of a very prominent citizen who had carcinoma of the larynx arising from the aryepiglottic fold. Much to my surprise, the first thing Martin did was a laryngectomy, and the patient is alive and well. In personal communications which I have had with Dr. Martin, he has expressed himself by saying that small cordal cancers are best treated by partial laryngofissure. He favors total laryngectomy in more extensive intrinsic cancer and in general feels that there is insufficient appreciation of the possibility of combining radiation and surgery in certain cases.

CONCLUSIONS

1. Surgical treatment for carcinoma of the larynx consists in laryngofissure with cordectomy if the cord is motile and laryngofissure with removal of underlying laryngeal cartilage if the cord is fixed.
2. Cordal cancer approaching the anterior commissure should be treated by removal of the anterior part of the opposite cord with laryngofissure.
3. Cordal cancer that has involved the larynx beyond the extent of the true cord calls for a laryngectomy.
4. If the cancer is extensive or of high grade malignancy a preliminary course of irradiation should be done before surgery is attempted.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DR. LENZ AND DR. JESBERG

Dr. Orville N. Meland, Los Angeles: I have been familiar with Dr. Jesberg's work for many years, and I feel that he has always approached the subject of carcinoma of the larynx with an open mind. Careful selection of cases is the basis of selection of treatment. The laryngologist usually sees these patients first, and on him rests the responsibility of deciding the best method of approach. In early lesions, usually of low grade, limited to the anterior cord which is still mobile, the results from laryngofissure have stood the test of time. However, I have treated many of these persons who have refused surgery and many have gone anywhere from five to thirteen years; but I have also had many failures. I have not been able to approach the results Dr. Lenz has. I have about 50 per cent living and well. I feel that laryngofissure is still the method of choice for these early localized areas. When the disease is no longer confined to the cord, and especially when it extends posteriorly to the vocal process and up toward the arytenoids, with fixation, the problem is different. The disease is usually more malignant and tends to metastasize earlier. Here the decision is between laryngectomy and irradiation. These patients should be given the test of radiation therapy, and after the treatment if there is any residual growth, or if there is a persisting edema that doesn't subside, the patient should have another biopsy. When positive, laryngectomy should be carried out, since further irradiation is of no value as far as cure is concerned. If surgery is undertaken it should not be delayed too long, so as to avoid the technical difficulties of increasing fibrosis. Patients who have postoperative recurrence, or those who develop metastases, do not do well with external irradiation alone. While it is true that an occasional case does respond, in the main the results are disappointing. These should be treated by some method of electrosurgery accompanied with a partial or radical neck dissection, occasionally supplemented by the use of radon seeds or platinum radium needles.

Dr. Julius A. Weber, Seattle: Dr. Lenz quoted 7 cases of cordal carcinoma treated between 1931 and 1941, of which 6 were cured, or 80 per cent. Between 1932 and 1941 I treated 9 cases of purely cordal carcinoma by fissure operation. One death occurred on the ninth day of embolus; the remaining 8 were cured, ranging from five and a half to twelve years, or 88.8 per cent. Dr. Jesberg mentioned that the severity of the disease should be classified according to grade only. Of my 9 cases 5 were of grade 1, 2 were of grade 2 and 3 were of grade 3. The location of the lesion, rather than the gradation, is the most important factor. I believe Coutard and others have the same opinion. For cases of carcinoma of the epiglottis, arytenoid or aryepiglottic fold I use radiation first in most cases. If that fails I consider surgery. In cases in which the lesion extends to the anterior commissure it is my custom to use an operation similar to that of Jackson and Clerf, in which I incise the cartilage beyond the midline to remove the anterior commissure, including its cartilage, plus the primarily involved side. This is a very fine operation, offering good results. It is important that if a radiologist sees these cases first he should work with a very competent laryngologist who is able to see the exact site of these lesions in order to get the best interpretation of results.

Dr. T. E. Carmody, Denver: I have had the pleasure of seeing Dr. Lenz's and Dr. Curran's work and I have known of Dr. Jesberg's work for a good many years and have seen many cases of his. Some of these carcinomas are radioresistant.

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[1] Coutard, Henri: Results and Methods of Treatment of Cancer by Radiation, Ann. Surg. 106: 584 (Oct.) 1937.

[2] Martin, Hayes: Personal communication to the author.

In such cases surgery is necessary. That may not be found as much in the larynx as in other parts of the upper respiratory tract, which I have seen, some of them treated with radium or x-rays that did not respond, while surgery cleared them up. I was interested in Dr. Lenz's statement regarding aspiration from the epiglottis and from the arytenoid. In some upper respiratory tract cases something will be aspirated into the larynx. I had such a case years ago, a carcinoma of the tongue, in which a portion apparently was aspirated, and there was a carcinoma of the bronchus. If we treat these cases with heavy doses of x-rays or radium, operation afterward will sometimes cause a lot of trouble. I had a case some years ago in which x-ray treatment was given and later I did a laryngofissure and all the cartilages of the larynx necrosed away. I was blamed for that, and probably rightly. If carcinomas are radioresistant operation is to be performed. If they are not radioresistant the x-rays will be of help. I have had some inoperable carcinomas treated with x-rays with excellent results, and some of the patients will do very nicely, and some of them are alive several years later. Wherever the lesion is (and the lesions in the posterior part of the larynx are always worse), whether we take the cellular theory or whether we depend on the location is something that we should keep in mind in treating these patients.

Dr. Irving Wilson Voorhees, New York: The fairness of approach with which all of you are working on cancer of the larynx is one of the most pleasing things in connection with my visit to San Francisco. Nobody is riding his hobby too hard. Everybody is working to try to solve an apparently insoluble problem. The fact that a patient lives five or seven years without recurrence in the larynx is pleasing. However, when surgery is undertaken for the cure of cancer, wherever it is, the cancer is always a couple of jumps ahead of the knife. Are we dealing with a local condition with constitutional symptoms or are we dealing with a constitutional disease with local signs and symptoms? Time after time we see a carcinoma of the cervix cured apparently, and then amputation of the breast cured apparently, only to break out in the lymphoid nodes in the abdomen or elsewhere. That is a discouraging fact. I regret to have to sound it, but I think we may hope that eventually cancer will be cured (if we may use the word "cured") or at least alleviated more than for five to seven years via the blood stream by some method yet undiscovered—perhaps by chemotherapy or an antibiotic. That is the way the problem will eventually be solved.

Dr. L. H. Clerf, Philadelphia: I agree with the authors, both of whom presented the subject fairly. It is important that the radiologist and the laryngologist cooperate. I would place as little dependence on the statements of a laryngologist concerning radiologic matters as on the radiologist's opinion in laryngologic problems. This applies particularly to their statistics. In the treatment of cancer, whoever begins therapy in a given patient has the best chance to make that patient well. Obviously, patients cannot determine what is the best plan. Some patients are more interested in a good voice and lose sight of the need of saving life. It is the patient's life we want to save and not his voice. Selection of cases influences statistics. Those of you who knew the late Dr. Mackenty know that he had a magnificent record with cancer of the larynx. After doing a few laryngofissures he performed only laryngectomies. He selected only early cases and as a result had few recurrences. He had no concern in late cases. Cancer is a strange disease and this too influences statistics. Patients with slowly growing lesions may survive a long time in spite of our prognosis. In 1928 Dr. Mackenty recommended laryngectomy on a patient. The patient refused and in 1939 I did a laryngectomy on that same patient. The old gentleman is alive and free from recurrence seven years postoperatively. I would not recommend that in every case. The matter of recurrences is important in statistical studies. Our results are best if cases are reported as soon as treatment is completed. The American College of Surgeons says we ought to wait five years. There is no limit for recurrences. One must live a number of years with cancer before one knows much about it. In the last six weeks I have taken out two larynxes of patients on whom I did laryngofissures, one seven years ago and the other seven and a half years ago. They are not new growths but are slowly growing recurrences in cases of incompletely removed cancers. Reference was made to the anterior commissure operation I advocated long ago. I have lived long enough now to know that there are too many recurrences in this group. If one is going to do surgery, one should do it radically enough so that no cancer will remain. If irradiation is selected, have a laryngologist help the radiologist to keep a watchful eye on the larynx so that if anything does happen there may be a reasonable chance to get rid of the growth.

Dr. Paul Holinger, Chicago: These papers have stressed again the fact that we are not dealing with surgery versus irradiation but with treatment versus the carcinoma. We have had presented here in Dr. Lenz's classification and analysis of cases and in Dr. Jesberg's analysis of results from the surgical point of view the possibility that we have to reevaluate some of our indications either for surgery or for irradiation. I have not been able to reproduce or duplicate the results that Dr. Lenz has shown. I extend my congratulations because we all know of his work and that of Dr. Kernan in the examination and follow-up of these patients. But why is it that we are unable to reproduce these results of irradiation? Is it a question of technic, a question of our evaluation and observation of the patients from the standpoint of indications, or is it a question of irradiation dosage? The dosage Dr. Lenz has mentioned is much smaller than I have been using in the same types of cases, and yet my results following irradiation are not in any way comparable to his. Results surgically, on the other hand, as Dr. Jesberg has indicated, in the operable lesions, have been unqualifiedly better than results following irradiation in similar cases. I am anxious to know, Dr. Lenz, more detail regarding technic, dosage, filtration, the interval between treatments, the indications for postponing treatment a few days and the like. You say that with mucitis you hesitate for a time to go ahead with treatment.

Dr. Maurice Lenz, New York: The belief that in early cancer of the vocal cords the proportion of five year freedom from clinical evidence of cancer after roentgen therapy is as great as, while the resulting voice is better than after laryngofissure, is based on a fifteen year follow-up carried on jointly with the ear, nose and throat service of the Presbyterian Hospital of New York. The director of that service, Dr. J. D. Kernan, concurs in this opinion. I agree with Dr. Clerf that the choice of laryngofissure or roentgen therapy for early cordal cancer should be based on the rate of cure. Since there is practically no difference between the results of the two methods of treatment in this type of cancer, the better voice following roentgen therapy makes its use preferable to laryngofissure. Modern roentgen therapy does not injure the larynx if the laryngeal cancer is small, the irradiated area limited and the irradiation not too intensive. The few very early cordal cancers in our series, which after roentgen therapy showed slight telangiectasia and slight thinning of the skin or laryngeal mucosa, were treated too intensively more than ten years ago; no such limited cases treated since then have shown x-ray injuries like those mentioned by Dr. Jesberg. Healing after laryngectomy for irradiated cancers of the larynx is not delayed if the irradiation is not too intensive. Thus Dr. Imperatori told me that there was no delay in healing after laryngectomy in a patient with laryngeal cancer which I had failed to arrest with roentgen therapy; the patient has now been well for over six years. I have seen delayed healing of the skin flap after laryngectomy when, in addition to the first series of x-ray treatments, the flaps had been exposed to a second series or to radium treatment. It is only these cases which justify Dr. Carmody's fears of delayed healing. Dr. Meland's suggestion to defer laryngectomy until after a trial with roentgen therapy and biopsy proof of persisting cancer in cordal cancers with arytenoid invasion deserves consideration. Dr. Holinger's request for details of treatment is complied with in the paper. I agree with Dr. Voorhees that neither surgery nor irradiation is the ideal treatment for laryngeal cancer.

Dr. Simon Jesberg, Los Angeles: Dr. Lenz has given the radiologic aspect of the treatment of carcinoma of the larynx and I have tried to present the surgical side. It is not possible of proof to show superiority of one treatment over the other; each has its indications, and when one fails the other may succeed. The person who treats carcinoma of the larynx should use any and all treatment best indicated in each individual case. There is not sufficient appreciation of the benefits to be obtained by combining both surgery and irradiation. Allegorically I like to think of the one treating carcinoma of the larynx as the skipper of an auxiliary yacht. He has both wind and motor power and will use either or both to meet existing conditions and to accomplish the purpose of his voyage. If he wishes to reach his destination in the shortest time he will use both sail and motor; if there is no wind he must rely on his motor; if his motor is out of commission and there is no wind, he is left at the mercy of the elements; if he is in a sailing race his motor is sealed and he must rely on wind alone. Such an event comes under the heading of sport, and the treatment of carcinoma is no sport.

IRRADIATION OF HYPERPLASTIC LYMPHOID TISSUE IN THE NASOPHARYNX

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and
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The presence of hypertrophied or chronically infected lymphoid tissue in the nasopharynx has long been recognized as the cause of many ills related to the upper air passages, such as repeated colds, sinusitis, ear infections and deafness.

Since the adenoids form an integral part of the mucous membrane of the nasopharynx, it is usually impossible to remove them completely by surgical operation, and nodules which are left often rapidly hypertrophy, so that within a few months there is recurrence of the original condition. In cases of deafness resulting from obstruction of the eustachian tubes, surgical removal of the adenoids is often unsuccessful in relieving the condition, because often the offending lymphoid tissue is within or close to the orifice of the eustachian tubes and thus is inaccessible for surgical removal. Such tissue, when chronically infected, will cause edema of the surrounding mucous membrane and thus impair the drainage and ventilation of the middle ear. The complete removal of this tissue is essential if deafness is to be prevented.

Fortunately lymphoid tissue is extremely sensitive to irradiation with radium or x-rays. For the past eighteen years Dr. Samuel Crowe and his associates have been using irradiation for the removal of such surgically inaccessible lymphoid tissue in the nasopharynx. With doses too small to cause demonstrable effect on the mucous membrane, cartilage or glands, the lymphoid tissue may be caused to disappear, leaving behind smooth, normal appearing mucous membrane.

During these years many thousands of treatments have been given, and there have been no burns or other serious reactions.

Microscopic examinations of adenoids which had been irradiated before removal shows that the action of the radiation is confined to the cells of the germinal centers. A few days after irradiation these cells show chromatolysis and fragmentation of the nuclei. Since the life span of the mature lymphocytes is only a few weeks, the mass of the adenoid tissue gradually shrinks, since there is no replacement from the damaged germinal centers.

Radium has been used as a source of radiation instead of x-rays because the applicator can be placed in contact with the lymphoid tissue and much lower dosages and more local effect can be obtained. With x-rays, to obtain the same dosage at the adenoids, a much greater total dosage must be given because of the absorption of the rays in the superficial tissues.

Two types of applicators for irradiation are in use in our clinic. One makes use of radon gas and the other of a radium salt. In each case the radioactive material is confined within the tip of a slender rod 8 to 9 inches long. The metal wall of the applicator acts as a filter. The effective rays given off by radium are beta and gamma rays. Most of the beta radiation is absorbed in the surface layers of the tissue and therefore is more likely to cause erythema than the more deeply penetrating gamma rays. For this reason proper filtering of the radioactive capsules is necessary. We use 0.3 mm. of stainless steel for the radon applicator and 0.3 mm. of monel metal for the applicator containing radium salt.

The advantage of the radon applicator is that much greater radioactivity can be obtained with it than with radium, and thus a shorter period of treatment is required. The disadvantage is that the useful life of such an applicator is only about one week, and it then must be replaced. Also, since the strength changes rapidly, the dosage must be calculated for each treatment.

The radium applicator contains about 50 mg. of anhydrous radium sulfate. It requires only an initial standardization. However, the applicator should be tested occasionally with an electroscope to be sure that a leak has not developed, allowing escape of radon gas. A treatment time of about eight and one-half minutes to each side of the nasopharynx every ten days for three doses is recommended.

It is, first, of the greatest importance to visualize clearly the nasopharynx through a nasopharyngoscope to determine whether or not treatment is indicated and to know exactly where to place the applicators. Small lymphoid nodules between the tubal orifice and the posterior end of the middle turbinate may be responsible for the symptoms.

The technic of treatment is easily carried out. With the patient lying on a cot, the applicators are passed along the floor of the nose until the tips are in contact with the nasopharynx. It is essential that the duration of the treatment be carefully timed if ill effects are to be avoided. Local anesthesia with 10 per cent cocaine or pontocaine can be used for children or for adults with any nasal obstruction. Usually three to five treatments at ten day intervals are required. No treatments should be given during the acute stages of a cold, as there is danger of aggravating the cold or of causing otitis media.

Normally functioning eustachian tubes are a prerequisite to good hearing. Nodules of lymphoid tissue in or about the eustachian orifices, which become infected with each cold, will cause mechanical blockage and overproduction of mucus from the glands in the

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Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

mouth of the tubes. During such episodes acute otitis media or transitory feelings of stuffiness in the ears may develop. If the infection in such lymphoid nodules becomes chronic, catarrhal otitis may develop. In some cases this chronic obstruction is not sufficient to cause earaches or to attract attention by obvious hearing impairment. Nevertheless there may be insidious changes in the middle ear which gradually lead to deafness. These changes are similar in every way, except in abrupt onset, to aerotitis in aviators, submariners or deepsea divers. Such unhealthy conditions of the nasopharynx are probably more common than is generally believed. In a study of some 1,300 school children by Dr. Crowe and his associates, a high proportion of those whose tonsils and adenoids had been removed surgically showed sufficient regrowth of adenoids in and around the eustachian orifices to cause some hearing impairment. In these children examination of the ears showed retraction of the tympanic membranes, often confined only to Shrapnell's membrane or to the anterior quadrant. When retraction in such a case is minimal, hearing impairment is confined to the higher frequencies and may escape detection by the usual methods of testing the hearing; but, as the condition progresses, successively lower tones are involved until the conversational range is reached.

Patients with sufficient obstruction to cause earaches or obvious deafness are those who usually come to the otologist and are the ones on whom the most dramatic results can be obtained. Irradiation should often be only a part of the therapy; adenoidectomy and the use of antibiotics should often supplement the radium treatments.

In Maryland the state department of health has organized several county clinics for the prevention of deafness. Schools are periodically screened for children showing hearing impairment. These children are examined by an otologist, and, when necessary, provision is made for surgical removal of tonsils and adenoids. Usually radiation treatments are given in addition. It is impossible because of poverty, shortage of hospital beds or lack of cooperation of parents to get more than a small percentage of these children operated on. For these reasons radium treatments have been given hundreds of children, and the end results are usually as good as or better than those of operation alone. To avoid recurrence it is necessary that every child who has been treated be followed and that his tympanic membranes, nasopharynx and hearing be examined at least twice a year for two or three years.

The recognition of subclinical obstruction of the eustachian tubes is more difficult and must await a much more comprehensive method of public health examination of school children.

In some instances of nerve deafness or otosclerosis there may also be superimposed conduction deafness due to blockage of the eustachian tubes. If the examination of the tympanic membranes and the nasopharynx establishes a clear indication for irradiation, this treatment should be employed. It may often restore the hearing to a useful level. Of course there is nothing to be gained as far as the primary condition is concerned.

With the increase in air travel, another condition is becoming more prevalent. i. e. the inability to equalize the air pressure in the middle ear with the barometric pressure outside during rapid changes in altitude. This condition has been given the name aerotitis. It was the most common cause of disability due to flying in the air forces during the war. A commission was formed for its study, and the report of the commission has recently been published. It was found in this study that equalization of the pressure in the middle ear was accomplished easily during ascent, but during rapid descent in certain fliers air did not get back into the middle ear. This resulted in negative pressure in the middle ear, causing outpouring of serum and lymph from the vessels, and gave rise to pain, loss of hearing and sometimes mucosal hemorrhages. Examination disclosed retraction, injection of the tympanic membrane and bubbles of mucus in the middle ear. In almost all of these men, nasopharyngoscopy revealed some obstruction of the eustachian tubes by adenoid tissue.

An extensive program of treatment with radium was undertaken, and there was uniformly great improvement in a large percentage of the fliers so treated.

A similar program was undertaken by the submarine forces for treatment of personnel developing aerotitis during ascent in "escape-hatch tests." This group also showed great improvement following radium treatment.

A second group of conditions results from chronic infection of the lymphoid tissue in the nasopharynx. Here the problem is not primarily one of obstruction, since a small amount of infected tissue may play as large a role as a great amount. In children and also in adults one may encounter recurring attacks of purulent rhinitis and sinusitis associated with granular pharyngitis, which have their origin in chronically infected adenoids. This is common in children whose tonsils and adenoids have been removed surgically, especially in allergic children. Radium treatments in conjunction with antibiotics often produce remarkable and permanent improvement, provided the patients are followed and the treatments repeated if symptoms recur. The mere presence of lymphoid tissue is no indication for treatment if the patient has no symptoms. Similarly there are many cases of chronic cough resulting from postnasal discharge that are greatly benefited by irradiation of the nasopharynx.

On reviewing histories of children being treated for deafness, it was observed that some who were asthmatic (usually those in whom cough was a prominent symptom and whose attacks were precipitated by an upper respiratory infection) showed a concomitant improvement in their asthmatic condition during their radium treatments. Several hundred such children have now been treated and carefully studied by a group of doctors composed of an otolaryngologist, an allergist and a pediatrician. The preliminary results are very encouraging in cases due to bacterial allergy. As would be expected, the atopic conditions were less benefited.

In conclusion I should like to emphasize that the purpose of irradiation of the nasopharynx is simply to remove lymphoid tissue, and one can expect improvement of the condition to the extent that the adenoids are the offending agent either by mechanical obstruction or by chronic infection.

When carefully used, as an adjunct to surgery and antibiotics, it offers a powerful therapeutic aid.

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ABSTRACT OF DISCUSSION

Dr. H. A. Fletcher, San Francisco: Many common conditions and symptoms in the ear, nose and throat are dependent on residual hyperplastic lymphoid tissue in the nasopharynx and in the areas of the openings of the eustachian tubes. All of us have been plagued with stubborn recurrent attacks of otitis media in young patients and adults. A great many of these cases have their origin in residual adenoid tissue in the nasopharynx. We can and do recognize the presence of a large mass of adenoid tissue centrally placed in the nasopharynx. Many procedures are difficult, particularly in children and in patients who have a very active gag reflex. It often takes five or six careful and patient examinations to determine the exact conditions we are dealing with, and many of us do not take the time necessary for this. All of us have seen many patients who have had their tonsils and adenoids removed by other specialists or particularly by a general physician and surgeon, and these patients may have large, scattered remains of adenoids or large central masses. Specialists in general are particular in the careful removal of adenoids, but in spite of this in many cases we leave shreds or small areas of adenoid tissue which it was impossible to see or palpate at the time of operation. This particularly applies to the area around the openings of the eustachian tubes and inside the eustachian tube itself, where surgical removal is practically impossible. The use of radium application to the nasopharynx has been proved by Dr. Crowe and his workers over a period of many years to be a definite additional help in the eradication of this important tissue. About a year and a half ago, having failed to get any institution to put in a radium applicator for the treatment of these cases, I purchased an applicator that cost $1,200. I use it regularly after the removal of adenoids in children at the time of operation. Children having recurrent and frequent attacks of otitis media are definitely improved, recurrence is prevented or the incidence of recurrence is much decreased. Cases of recurrent acute serous catarrh and cases which have not responded to prolonged and persistent treatment have cleared up only after the use of radium over three, four or five treatments a month apart. Many children with recurrent pharyngitis, with hobnailed lymphoid tissue in the posterior nasopharynx and adenoid tissue in the nasopharynx, are often cleared up remarkably after three or four treatments, the pharynx becoming smooth and normal in appearance. Adults with frequent recurrent head colds, whose symptoms are the common ones of burning and itching behind the soft palate at the onset of a cold, after three or four treatments have remained free from colds for long periods. One may bring up the question of the use of x-rays in these cases. Naturally what radium does can be duplicated with x-ray treatment. However, it is apparent not only that the dose of x-rays must be much heavier in order to reach the small areas of hyperplastic lymphoid tissue, but also that it must cover a greatly enlarged and unnecessary area. I have time and again seen a dry pharynx following the application of x-rays. With the radium applicator one can apply a much smaller dosage, which is very intense at the point of application, where it is most needed.

Dr. J. S. Mikell, Santa Barbara, Calif.: During the summer of 1944 the professional division of the Air Surgeon's Office called in ten otologists to study the problem of aerotitis, which was responsible for more loss of combat duty than any other condition resulting from flying. After a thorough study of 3,000 crew members it was decided by these ten officers to use irradiation of the hyperplastic tissue in the nasopharynx with radium as a measure to aid in the control of aerotitis. The rationale was that the removal or reduction of this tissue by irradiation would permit better function of the eustachian tube. An extensive program was set up in this country, and four officers were sent overseas, two to England, one to southern Italy, and one to northern Italy and the continent. At the conclusion of this study it was found that the amount of improvement as reported by the various groups varied by only 3 per cent. Of the 636 men who had an adequate follow-up, 87 per cent reported a definite improvement. No ill effects were reported. The study done in the army air force alone is convincing that irradiation of the nasal pharynx with radium is the treatment of choice when there is malfunction of the eustachian tube in the presence of infected hyperplastic lymphoid tissue in or about the tubal orifice.

Dr. Henry J. Ullmann, Santa Barbara, Calif.: I sincerely hope that any remarks I make will not be considered a criticism of this fine paper. A number of points should be kept in mind in considering something which may be assumed by some of the younger men to be something new: The technic is somewhat new. In the first world war reports were made of the use of x-rays in the treatment (especially in the French army) of diphtheria carriers. I have been using the x-rays for enlarged lymphoid tissue for more than twenty years, and I want to emphasize that the action of x-rays and gamma rays of radium on living tissue is essentially the same. I should like to ask Dr. Walzl about the filtration he used, because 0.3 mm. of monel metal will not eliminate all the beta rays. It requires at least 2 mm. I assume that there was 0.2 mm. of gold inside the monel metal, which would cut out about 78 per cent of the beta radiation. I have had similar results with the use of x-rays in all types as described (all referred by otolaryngologists) with the exception of aerotitis, which of course I have not seen. Dr. Nuzum and I in reporting on the bacteriology of irradiated tonsils in 1923 showed that there was no relationship to the change of the flora in the reduction of hypertrophied lymphoid tissue. Radium has its advantage in treating a very local area, but the reduction of adenoids in general has been spoken of and that you cannot do with such localized treatment. As far as persistent dryness is concerned, I would consider that such a result from the use of x-rays is due to excessive dosage and is unnecessary. There are no skin changes, as I use a half value layer of copper of 1.15 mm. and the dose is given every day, every other day or twice a week, as is needed to obtain the desired results. Permanent dryness or dryness lasting more than a week or two should never follow. I was interested to see this revival of the use of radiation in treating enlarged lymphoid or chronically infected lymphoid tissue of the nasopharynx, but remember that the only difference in the use of radium and x-rays, both properly employed, is that radium can be used for a more strictly local effect, if this is desired, as its effect will be confined to a 1 to 2 cm. circle. Beyond that area there will be little effect. I want to warn all the otolaryngologists: If you take up the use of radium, don't burn your fingers.

Dr. Herman Semenov, Beverly Hills, Calif.: I have been interested in this work since 1935, at which time I spent several months with Dr. Crowe. The literature describing lymphoid tissue in and around the eustachian tube, so-called tubal tonsil, is based on some questionable work which was done about 1860, before stains were available. Recently, while working at the Army Institute of Pathology, it was my good fortune to examine some histologic material and review this subject. The important feature of Dr. Crowe's work is that it calls attention to this area once more, puts it on a scientific basis and opens the eyes of a great many people to a neglected region. It is up to radiologists to decide whether x-rays or radium are better. In the army we take what we can get, and at Letterman General Hospital we have good radiologists and use both methods. It all depends on the area that we want to treat. Occasionally there is some lymphoid tissue within the eustachian tube, but it is not very common there, and in most cases treatment of the mouth of the tube is sufficient. The important thing is to know what we are doing and where we are doing it.

Dr. Edward M. Walzl, Baltimore: There seems to be no conflict of opinion in this discussion except perhaps as to the relative merits of the use of x-rays and radium. In addition to the advantages of radium over x-rays enumerated earlier, there are certain conditions in which x-rays would not be feasible, i. e. in our county clinics for the prevention of deafness. In these clinics we often recommend that tonsils and adenoids be removed. Usually the tonsillectomy is perfectly adequate, but on nasopharyngoscopy it is rare to find a thorough adenoidectomy. If deafness is to be prevented, it must be recognized that adenoidectomies are often inexpertly performed, and it should never be sufficient simply to recommend that a tonsillectomy and adenoidectomy be performed. Such children should be reexamined after operation and if necessary given radium treatments. The problem of filtration of the radium capsule was carefully considered. In the applicator containing radium salt the largest amount that can be inserted conveniently into the nose is 50 mg. In order to keep the treatment time within reasonable limits, it was necessary to use a filter allowing penetration of some of the hard beta radiation. These rays certainly have more effect on the surface of the tissue, but experience has failed to show any harmful results from the low dosage used.

SUPERVOLTAGE ROENTGEN THERAPY OF CARCINOMA OF THE ESOPHAGUS

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and
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To enter again the discussion of roentgen therapy of epidermoid carcinoma of the esophagus with the limited material at our disposal may well appear as a symptom of monomania. The purpose of this discussion, however, is only an attempt to overcome the attitude of defeatism which apparently prevails in the medical profession at large as well as in the minds of surgeons and even many radiotherapists in regard to any therapy of esophageal carcinoma.

This conviction that nothing can be done for an esophageal carcinoma is reflected in the histories of those patients who are finally referred for radiation therapy or come on their own accord when feeding becomes entirely impossible. It would probably still be more impressive if we knew how many patients with a possibly curable carcinoma of the esophagus are never given the opportunity of even an appraisal of. their chance by radiotherapy.

In spite of our particular interest in this problem, we have seen only 19 patients with esophageal carcinoma since 1939. Five of these were in such poor general condition and the lesion so advanced that no therapy could be considered. Six patients, or almost one third, had symptoms for more than nine months, some for considerably longer than a year. Only 1 of these patients was himself responsible for the delay by using a chiropractor for his adviser. The 5 others were either not diagnosed or were treated by inadequate palliative procedures such as dilation or not at all. Seven patients, or more than 30 per cent, had x-ray examinations for symptoms leading to the suspicion of an esophageal carcinoma, but the x-ray findings were supposedly negative until several months later, when a well established obstruction could be demonstrated. In none of these cases had an esophagoscopy been done. In 4 patients valuable time was lost by inadequate procedures such as repeated mechanical dilation obviously done under the assumption that no other treatment was useful. Two patients were frankly advised against treatment after the diagnosis of esophageal carcinoma was established and were told that no treatment would be useful. One of these patients is now well seven years after roentgen therapy. After a recent discussion of our cases in a county medical association meeting, one of the leading internists of the community expressed his surprise that anything could be done for a carcinoma of the esophagus. Again and again we encounter this attitude in the discussion with our colleagues. In each of the cases which we report some kind of inadequate medical advice was given, at least at one time prior to admission to our institute.

The reasons for this pessimistic attitude are obvious: The majority of esophageal cancers, if they are treated at all by radiation, are, as far as our personal experience is concerned, treated with technics that could not possibly be expected to control either a lymphosarcomatous focus in the chest or a carcinoma of the skin. We have seen patients treated with surface therapy with an entirely inadequate dose. Many more are probably treated this way for whom no critical analysis was ever done, but all these patients return to their referring physicians, who register them as another failure of radiation therapy.

The other more legitimate reason for the pessimism is the fact that, so far, no group of esophageal carcinomas has been permanently controlled by any procedure available. Occasional prolonged growth arrests, possibly exceptional cures, have been reported, but these must be considered as curiosities, not as predictable results obtainable with any degree of probability.

By those who conclude from these experiences that any further attempt is useless, it is forgotten that until quite recently no procedure was available that could, on the basis of biologic and physical considerations, be expected to sterilize permanently a carcinoma of the histologic type and at a location such as the thoracic portion of the esophagus, but that in spite of all these shortcomings temporary tumor regressions have been accomplished with a predictable regularity in any larger series of cases treated consistently with an adequate technic skilfully applied. The most convincing evidence is the large series of 161 cases reported by Zuppinger,[1] in which he observed a tumor regression with a temporary improvement of the stenosis in 79 cases, or almost 50 per cent. Similar experiences were reported by Strandqvist.[2] From the reports in the literature, and from our own experience, we can conclude that with 200 kilovolt radiation therapy in about half of the cases of carcinoma of the esophagus which are still in a sufficiently good general condition to support the procedure, temporary reopening of the obstruction lasting from six to eighteen months can be expected. The papillary exophytic growths are more favorable for radiation therapy, which is in accordance with our experience with epidermoid carcinomas elsewhere. The histologic analysis of esophageal carcinomas substantiates the clinical experience that at least a proportion of them represent essentially radiovulnerable carcinomas similar to the radiocurable carcinomas of larynx, pharynx, cervix or oral cavity. Thirty per cent of the carcinomas in Zuppinger's series showed a moderate or low degree of differentiation consistent with radiocurability without intolerable damage to the surrounding structures.

That in spite of this demonstrable radiovulnerability permanent cures so far have not been accomplished

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From the Tumor Institute, Swedish Hospital.

Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

[1] Zuppinger, A.: Die Behandlung der Oesophaguskarzinome: Zürcher Erfahrungen, Ergebn. d. med. Strahlenforsch. 7: 389, 1936.

[2] Strandqvist, M.: Transthoracic Roentgen Treatment of Cancer of the Esophagus, Acta radiol. 22: 172, 1941.

may well be due to mere physical difficulties in applying an adequate tumor dose. We can expect that a tumor of this type will require at least 5,000 roentgens in a period of about forty days for complete sterilization. As we[3] have discussed elsewhere in detail, physical measurements demonstrate that this dose cannot reach a tumor of the thoracic esophagus without intolerable damage to the surrounding structures and without an intolerable deterioration of the patient's general condition if radiation in the medium volt range is used. That this physical problem is in part, at least, responsible for the failures is suggested by the observation that the more accessible but biologically very similar tumors of the cervical esophagus and hypopharynx can be controlled in approximately 20 per cent. On the other hand, physical measurements and considerations have shown that with radiation in the million volt range[3] a tumor dose which is probably adequate can well be applied at the depth of the tracheal bifurcation by the use of only one anterior and one posterior field, eliminating in this way the irradiation of a large volume of tissue as is necessary by cross firing through multiple oblique portals. Theoretically, therefore, radiation therapy in the million volt range should accomplish a certain number of cures in esophageal carcinoma if the problem of sterilization is actually one of adequate tumor dose. We therefore felt that the treatment of esophageal carcinoma should be one of the crucial experiments in regard to the question of superiority of million volt radiation if the problem is viewed from the point of view of tumor dose only.

Epidermoid Carcinoma of Esophagus

	Symptoms	Weight Loss	Passage	Gross Type	Location	Total Dose, Roentgens Measured on Skin	No of Fields	Treatment Duration, Days	Estimated Tumor Dose	Immediate Result	Final Result
1. B. B. 47 yrs. ♂	6 to 7 mos	35	S	?	L	9,850	2	46	4,400	Stenosis open 26th day	Well 7 yrs
2. J R. 62 yrs ♂	1 yr.; liquids only for 10 mos.; regular dilat. and x ray therapy	41	(L)	P	M	16,200	2 and 2	81	7,300	Stenosis open; remained open 13 mos	Clinically well 13 mos.; terminal 2 yrs post-treatment; massive fibrosis
3 A R 65 yrs. ♂	2 months	22 ?	L	I	M	12,700	2 and 2	53	5,700	Stenosis open 40th day	Died after 11 mos ; local recurrence liver and node metastasis
4 C. J. 72 yrs. ♂	2 months	..	(S)	I	M	11,925	2	40	5,350	Stenosis open; ulcer crater developed	Died after 10 mos (mediastinitis ?)
5. G G. 58 yrs ♂	14 months	35	SS	P	L	14,175	3	61	6,375	Stenosis opened and remained open	After 12 mos. pulmonary fibrosis; paraesophageal node recurrence; esophagus remained open
6 H. N. 72 yrs ♀	4 months	..	SS	P	M	11,000	2	46	4,950	After 2 mos. esophagus normal	Well to date, 2 yrs

Passage: L, liquids can be taken; S, solid food can be taken; SS, semisolids can be taken
Gross type: P, papillary; I, infiltrating.
Number of fields. Boldface number indicates number of main fields (anterior and posterior) through which most of total dose is given
Location: L, lower third; M, middle third of esophagus

The results which we can present so far are very meager, but they are in accordance with our theoretical considerations and are, as we believe, encouraging enough to justify further attempts with this procedure. As can be seen from the accompanying table, only 6 cases have been treated with, as we judge it, adequate therapy. All of them have shown tumor regression with temporary reopening of the food passage. Two of the patients have remained well clinically and radiographically without signs of esophageal pathology for a period of seven years and two years respectively.[4]

The detailed analysis and careful observation during and after treatment of these few cases has taught us what we believe are some pertinent facts, if interpreted in the light of more extensive experience with 200 kilovolt radiation.

The papillary growths are more favorable than the infiltrating types. The interval between the first clinical symptoms which should lead to careful esophageal examination by x-ray and esophagoscopy is in this type longer than in the primarily infiltrating tumors. The duration of freedom from symptoms even in the uncontrolled cases and in spite of the advanced stage of the disease lasted longer in the papillary than in the infiltrating types.

We see again, which is known from experience with all other carcinomas, that a forced increase of dose will not improve the results but will rather interfere with curability through intolerable by-effects. Two of our patients were frankly overtreated and developed pulmonary fibrosis which probably would not have been compatible with life even if the tumors had been controlled. The 2 patients who have remained well for seven years and two years have received fairly low doses. The 1 patient well for seven years has received the lowest dose of the entire group.

We have furthermore learned from the analysis of these cases that treatment with radiation in this range is considerably better tolerated. The skin does not react with more than a very temporary mild reaction with doses sufficient for an adequate depth dose. The general condition of the patient is much less influenced by this irradiation because the fields can be limited to one anterior and one posterior port exactly aimed at the lesion and therefore reasonably small.

Radiation therapy of the esophageal carcinoma still remains a major clinical procedure. It will be tolerated only in patients with incomplete stenosis when feeding is still possible, in patients who have not lost too much weight and whose general condition has remained good enough to support the procedure.

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[3] Buschke, F. J., and Cantril, S T.: Supervoltage Roentgen Therapy of Esophageal Carcinoma, Radiology 42: 480 (May) 1944.

[4] Details of the first case were published previously.[3] Details of the other cases will be published in a monograph on supervoltage roentgen therapy.

Hospitalization is essential for preservation of strength and proper supervision of enteral or parenteral feeding, particularly of fluid and protein intake. The response to irradiation must be observed by weight record, by careful interpretation and evaluation of symptoms (such as improvement or deterioration of swallowing, pain, coughing) and by repeated fluoroscopies with careful search for a possibly developing ulceration with the imminent danger of a perforation leading to mediastinitis. Particularly in elderly patients, supervision and support of the cardiovascular system and avoidance of secondary infections, particularly of the respiratory organs, is essential.

A preliminary gastrostomy should be avoided. A patient who needs a gastrostomy will usually be in too poor condition to support radiation therapy. For the treatment in the medium volt range we definitely refuse patients who have had gastrostomy because we feel that in this voltage range the only purpose of the procedure is to reopen the obstruction and avoid gastrostomy. The preliminary operation therefore defeats this purpose. In cases to be treated with million volt radiation this attitude may possibly be revised very occasionally when a cure might still be hoped for but when the general condition due to starvation is too poor to support the treatment. In none of our cases was a gastrostomy done. In patients in whom the general condition was poor because of starvation it was always possible by proper adjustment of the treatment to overcome the stenosis eventually so that the general condition improved sufficiently to support the major portion of therapy. The improvement of the general condition following reopening of the stenosis is sometimes dramatic. At times it is difficult to judge by a preliminary examination whether the poor general condition is due to starvation or to tumor cachexia. We have therefore occasionally accepted and will continue to accept some patients for a therapeutic trial and discontinue treatment if the general condition continues to decline during treatment.

We believe that probably a number of epidermoid esophageal carcinomas can be cured if the diagnosis is made in a reasonably early stage and radical therapy instituted before obstruction is complete or the disease has spread to the regional lymph nodes. It is unlikely that lymph nodes secondary to carcinoma of the esophagus, once they have developed, will be any more curable than lymph node metastasis secondary to most epidermoid carcinomas.

The possibility of improvement of radiation results is greater for esophageal than for bronchogenic carcinoma. Distressing symptoms appear earlier, and the chance of recognition is therefore better at a time when the regional nodes may not yet be involved. In bronchogenic carcinoma the paucity and vagueness of symptoms will usually not permit a diagnosis at a time prior to lymphatic involvement. We therefore feel that a further attempt at supervoltage irradiation for carcinoma of the esophagus in carefully selected cases may not be entirely fantastic.

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ABSTRACT OF DISCUSSION

DR. ROBERT S. STONE, San Francisco: The authors are right in saying that there has been too much of a defeatist attitude toward carcinoma of the esophagus and that too few of us have been willing to try. This was exemplified in my clinic by a patient who has now been alive over six years having had a lesion of the esophagus so extensive that no one thought he would live any length of time. We should try to do everything for these patients if there is any hope at all. There is one feature which is going to come up in the next few years which will teach us a lot more about early carcinoma of the esophagus, and that is that surgeons have now developed their technic for thoracic surgery to the point where we are going to have a hard time getting carcinomas of the esophagus to treat. We shall learn a lot more about carcinoma of the esophagus when the surgeons try to remove the early ones. The authors thought they might be able to prove the advantage of million volt therapy over other therapy by getting doses into the depths. I shall have to disagree with them that they will be able to prove it with carcinoma of the esophagus. One can prove it with a phantom, that one gets the depth dose in better with a million volt than with a 200 volt dose, but in a carcinoma of the esophagus one is up against a proposition not similar to other parts of the body, namely a very thin walled tube with but little support, so that one is likely to have a thin scar wall as the result of treatment or an actual perforation. I have lost patients who apparently were cured of their carcinoma. It had disappeared, but 1 died with pericarditis, and in 1 the perforation was seen very small but definite, and in another case I had to hypothecate that the infection had been able to pass through a damaged wall easier than it had a normal wall. The lesson to be learned from this presentation is that it is worth while trying to go ahead in these cases with the highest voltage so that one can avoid using large fields and cut down on the amount of tissue that one needs to irradiate in order to build up a dose inside by scatter. This is one of the few fields in which that can be accomplished by supervoltage radiation.

DR. MAURICE LENZ, New York: Treatment of cancer of the esophagus is handicapped by its tendency to spread longitudinally early, to ulcerate extending through its 4 mm. thick wall, with consequent mediastinitis, and to metastasize to the mediastinal lymph nodes. Operative and postmortem reports show that clinical estimates of the extent of involvement are frequently inaccurate in spite of esophagoscopy and x-ray examination. Because of these unfavorable conditions the few reported five year cures are chiefly in early, small, noninvasive growths treated before they have become inaccessible to esophagectomy, intracavitary radium or external treatment with x-rays. Although operative mortality after esophagectomy has been slightly lowered in recent years, it is still a serious drawback to surgical treatment. Added to this objection are the need for a permanent gastrostomy in growths of the cervical and thoracic esophagus, and for laryngectomy in cases extending forward toward the larynx. It is chiefly in the lower third of the esophagus, which is surgically more accessible, that improvement may be hoped for from operative treatment. Adequate tumor dosage by intracavitary radium can be administered only to those cancers which are relatively small and superficial. On account of the rapid fall of intensity of radiation with increasing distance from intracavitary radium, only inadequate tumor dosage can be delivered by this approach to the base of larger fungating or invasive growths, their exterior surface being farthest away from the radium. In view of this irreducible handicap, this method of irradiation can be expected to remain a palliative measure in all but the very rare early lesions. Five year clinical arrests of cancer of the esophagus with 200 kilovolts have been observed practically only in the more accessible cervical portion of 4 patients with postcricoid epithelioma involving the mouth of the esophagus treated with 200 kilovolt rays at the Presbyterian Hospital. Two died soon after treatment; 1 cancer recurred six years after therapy; 1 patient is well ten years after treatment. No important radiosensitive organs except perhaps the arytenoid cartilages have to be included in irradiating the cervical esophagus, and adequate tumor dosage is usually well tolerated. In the region of the thoracic esophagus, tolerance for adequate dosage is impaired by the danger of radiation pneumonitis with consequent pulmonary radiation fibrosis, especially if large areas of the lungs are irradiated. Other organs also may be injured. Buschke and Cantril's two long survivors received tumor doses of a little less than 5,000 roentgens, but given in forty-six days and through single anterior and posterior fields. When they increased their dose beyond this, they caused fibrosis of the lungs. The chief merit of their presentation is that they suggest a way to avoid pulmonary and other injury, while administering adequate tumor dosage. If roentgen therapy at 1,000 kilovolts or higher voltage is to improve the statistics of the treatment of cancer of the middle portion of the esophagus, it will be along the lines suggested by them. These are treatment of earlier lesions, reduction in the radiation injury to the mediastinum and lungs by accurately applied, limited radiation fields, and prolongation of the treatment time.

Dr. Paul Holinger, Chicago: This paper is of particular interest because we are all looking for some type of therapy to offer the patient with carcinoma of the esophagus. The surgeon has made tremendous advances in this field and deserves great credit. When the cancer is operable we should urge the patient to consider the surgery that we all know is curing some of these patients. Have biopsies been taken of all patients? Are the results in this series influenced by the character of the lesion? We all know the relative curability of the lesions in the upper esophagus, which are usually squamous cell lesions. On the other hand, with lesions in the lower esophagus, generally adenocarcinomas, the response to irradiation, in my experience at least, has been much less favorable. The authors can give more information concerning these points. They did mention that the papillary type of lesion responded more readily than the other lesions, but my feeling in the matter is that patients with adenocarcinomas in the lower esophagus are generally hastened in their death by the irradiation rather than assisted by it. Possibly it is a question of dosage, possibly a question of the character of the million volt type of therapy that is being discussed. Are the lesions discussed in the cervical esophagus or the midthoracic esophagus, or are they in the cardia just above the stomach, possibly extensions of the gastric carcinomas?

Dr. Louis Daily, Houston, Texas: I worked out a system of treating these patients with radium by applying the radium directly into the tumor mass. I have had good results with early cancer; with late cancer it is only palliative, but I have made the patient more comfortable and prolonged his life. An old man in whom I diagnosed an early carcinoma of the esophagus was first treated with x-rays, which aggravated the condition. I decided to try radium, as I have been using it in our City-County Hospital. There was a definite improvement. I used it about every six weeks. I worked out this method: I put into the esophagus the esophagoscope and used a rubber bushing that requires force to pull out. A capsule is included in the dental compound, and I trim it and cut it down to the size I require; then I tie the strings and put it through the bronchoscope into the tumor and let it stay there. Usually a 50 mg. capsule stays there forty-eight hours. I give the patient about 2,400 mg. hours. If the tumor is very large I use two capsules to give more area. After this patient had been treated for a few months esophagoscopy did not reveal any tumor. He was doing well. After a year he was able to go to his office, and he ate well. In a few months he developed severe epigastric pain, but he could still swallow. Finally the patient had a hemorrhage and I was sure we had overtreated him with the radium. Esophagoscopy did not reveal where the blood came from. A couple of hours later he had another hemorrhage. He lived eighteen months after that. The autopsy did not disclose a tumor. It was absolutely gone in the esophagus, but another tumor, an adenocarcinoma at the head of the pancreas, gave him all the pain.

Dr. Franz J. Buschke, Seattle: In regard to the problem of avoiding a perforation of the thin esophageal wall, I fully agree with Dr. Stone that the problem is not only one of adequate tumor destroying dose. But I am somewhat more hopeful and believe that it may be possible to conduct the treatment in such a way as to allow for fibrous replacement of the tumor tissue before perforation occurs in those cases which do not show an imminent perforation prior to therapy. With the general tendency to discard the very rapid treatment procedures in favor of prolongation of treatment to about eight weeks we may possibly succeed in overcoming this complication, at least in a number of instances. As to Dr. Lenz's remarks on the results of the treatment of the upper esophagus, my cases were all tumors of the thoracic portion and of the lower third. Cases of the hypopharynx and cervical esophagus were purposely not included because a priori supervoltage therapy here should not offer crucial advantages over 200 kilovolt roentgen therapy, which is a well established procedure for these lesions. To answer Dr. Holinger, all patients but 1 had positive biopsies of epidermoid carcinoma. The adenocarcinomas which we have treated were not included in this discussion because they offer a fundamentally different problem. In the case presented, which is apparently controlled for seven years, a biopsy was taken at the Mayo Clinic and a diagnosis of squamous cell carcinoma, grade 2, was made by Dr. Broders. Once (case 6) a positive biopsy could not be obtained because a submucosal infiltration narrowed the lumen so much that the instrument could not be passed to the ulcerative portion of the tumor. Biopsy through the nonulcerated mucosa (in contrast to bronchoscopic biopsies) is an exceedingly dangerous procedure in the esophagus and was therefore avoided. In this particular case the esophagoscopist as well as the x-ray diagnostician had no doubt of the diagnosis of a carcinoma. Concerning the question of local radium application, this was attempted many years ago and given up because of the frequent incidence of perforations. I think that with supervoltage roentgen therapy a more homogeneous application can be accomplished with considerably less risk.

THE DIAGNOSIS AND MANAGEMENT OF SPONTANEOUS HYPOGLYCEMIA

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Harris,[1] in 1924, was the first to emphasize the fact that a fairly characteristic group of symptoms experienced by some persons is the result of a spontaneous fall of the blood sugar to hypoglycemic levels. He suggested that this clinical syndrome be called hyperinsulinism. In the ensuing years there has been developed a large reservoir of detailed knowledge regarding various aspects of spontaneous hypoglycemia. From the point of view of the clinician, the following aspects of this information are of prime importance.

1. *The Multiplicity of Causes of Spontaneous Hypoglycemia.*—Spontaneous hypoglycemia must be regarded merely as a manifestation of an abnormality of carbohydrate metabolism, the cause of which may be one of a variety of diseases. Proof that a group of symptoms complained of by the patient is associated with an abnormally low level of sugar in the blood and that these symptoms can be quickly relieved by the injection or ingestion of dextrose establishes only the nonspecific diagnosis of spontaneous hypoglycemia. It does not imply increased secretory activity of the Langerhans cells of the pancreas, although the latter abnormality is capable, when present, of producing the hypoglycemic symptom complex. Thus, a careful investigative pro-

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Because of lack of space, this article is abbreviated in The Journal by omission of part of the footnotes and text. The complete article will appear in the author's reprints.

Read in a Symposium on "Treatment" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] Harris, S.: Hyperinsulinism and Dysinsulinism, J. A. M. A. 83: 729-733 (Sept. 6) 1924.

gram designed to establish a specific etiologic diagnosis becomes of utmost importance, especially since any hope of successful management (short of treating or attempting to prevent individual attacks by giving carbohydrate) must depend on establishment of the cause.[2] The etiologic possibilities are classified in table 1.[3]

2. *A Diagnostic Awareness of the Possibility of Spontaneous Hypoglycemia as a Cause of Symptoms.*—Despite the years that have elapsed since attention was first directed to this syndrome, physicians in general have not developed a sufficiently keen consciousness of its existence. As is the case with other conditions, those who are aware of the possibility of spontaneous hypoglycemia as a cause of symptoms recognize many cases, while those who are not see none. Among the many erroneous diagnoses which have been made in this complex are brain tumor, epilepsy, acute alcoholism, encephalitis, neurocirculatory asthenia, cardiac neurosis, various psychoses, atypical angina pectoris and peptic ulcer.

3. *An Insight into the Abnormal Physiology Involved in the Various Types.*—Depending on the etiology, rational management must be directed at (*a*) surgical removal of the cause (as in the case of a secreting pancreatic insuloma) or (*b*) medical measures designed to keep the blood sugar level within normal bounds. The surgical approach is indicated in only a small percentage of the total number of cases of spontaneous hypoglycemia. In the large group not requiring surgical intervention a regimen of medical management which is highly successful in one type will decidedly intensify the hypoglycemia in another type. In fact, criteria for differential diagnosis are based, among other things, on response of the patient's blood sugar level to certain test dietary procedures. Thus, both differential diagnosis and treatment of the various types of spontaneous hypoglycemia require a working knowledge of the abnormal mechanism responsible for the hypoglycemia in each case. A blood sugar level of 30 mg. per hundred cubic centimeters in the fasting state carries an entirely different significance from the same level determined, for example, during the course of a dextrose tolerance test.

DIFFERENTIAL DIAGNOSIS OF SPONTANEOUS HYPOGLYCEMIA

A detailed discussion of each type of spontaneous hypoglycemia (table 1) is beyond the confines of this presentation, nor is it entirely necessary. Three of the entire group of causes are responsible for over 80 per cent of all cases of spontaneous hypoglycemia. They consist of (1) functional hyperinsulinism (see synonyms in table 1), (2) organic hyperinsulinism and (3) hepatogenic hypoglycemia.[32] This group of causes is important not only from the point of view of numbers but also because considerable confusion exists concerning differential diagnosis. Since the therapeutic approach is entirely different in each of these types, emphasis will be placed on points of distinction between them. All the other known causes of spontaneous hypoglycemia occur relatively infrequently and, fortunately, are associated with other clinical observations which usually disclose the etiologic factor, as, for example, in cases of Addison's disease, Simmonds' disease, severe renal glycosuria, lactation, partial or total gastrectomy and severe inanition.

In the differentiation of functional hyperinsulinism, organic hyperinsulinism and hepatogenic hypoglycemia the following guides are of greatest value: (1) the level of the fasting blood sugar (*a*) on normal carbohydrate feeding and (*b*) on restriction of dietary carbohydrate or after a short fasting period; (2) the dextrose tolerance curve after a standard dietary preparation;[33] (3) the results of several tests of liver function, and (4) the history and clinical course of the disturbance.[34] Table 2 summarizes the usual distinguishing points in the various types of spontaneous hypoglycemia, and chart 1 shows illustrative oral dextrose tolerance curves obtained in each type of case.

Table 1.—*Etiologic Classification of Spontaneous Hypoglycemia*

I. Organic—recognizable anatomic lesion
  A. Hyperinsulinism
    1. Pancreatic island cell adenoma
      (*a*) Single[4]
      (*b*) Multiple[4]
      (*c*) Aberrant[5]
    2. Pancreatic island cell carcinoma
      (*a*) Localized[6]
      (*b*) With metastases[6]
    3. Generalized hypertrophy and hyperplasia of the islands of Langerhans[7]
  B. Hepatic disease
    1. Ascending infectious cholangiolitis[8]
    2. Toxic hepatitis[9]
    3. Diffuse carcinomatosis[10]
    4. Fatty degeneration[11] or "fatty metamorphosis"[12]
    5. Glycogenosis (von Gierke's disease)[13]
  C. Pituitary hypofunction (anterior lobe)
    1. Destructive lesions (chromophobe tumors, cysts)[14]
    2. Atrophy and degeneration (Simmonds' disease)[15]
    3. Thyroid hypofunction (? secondary to pituitary hypofunction)[16]
  D. Adrenal hypofunction (cortex)
    1. Idiopathic cortical atrophy[17]
    2. Destructive infectious granulomas[18]
    3. Destructive neoplasms[19]
  E. Central nervous system lesions (hypothalamus or brain stem, interference with nervous control of blood sugar)[20]
II. Functional—no recognized anatomic lesion but explainable on basis of unusual somatic function
  A. Hyperinsulinism (imbalance of the autonomic nervous system): hypoglycemic fatigue; nervous hypoglycemia; functional hypoglycemia, reactive hypoglycemia[21]
  B. Alimentary hyperinsulinism (rapid intestinal absorption)
    1. After gastroenterostomy[22]
    2. After gastric resection (partial or total)[23]
  C. Renal glycosuria (severe degrees of low renal threshold for dextrose)[24]
  D. Lactation[25]
  E. Severe continuous muscular work[26]
III. Miscellaneous
  A. Factitious (surreptitious insulin administration)[27]
  B. Postoperative hypoglycemia[28]
  C. Severe inanition[29]
  D. Unknown

Based on the clinical characteristics of the three types being considered and on the type of abnormality of carbohydrate metabolism encountered in each,[35] it has been found helpful to classify them in still another way, namely, (1) the fasting hypoglycemias and (2) the stimulative hypoglycemias.

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[2] Conn, J. W.: The Spontaneous Hypoglycemias: Importance of Etiology in Determining Treatment, J. A. M. A. **115**: 1669-1675 (Nov. 16) 1940.

[30] (*a*) Gorsuch, M. T., and Rynearson, E. H.: Hyperinsulinism: The Use and Misuse of the Term, M. Clin. North America **28**: 985-990 (July) 1944. (*b*) Wilder.[21a]

[31] Martin, L., and Hellmuth, G.: Hypoglycemia, Am. J. Digest. Dis. & Nutrition **4**: 579-587 (Nov.) 1937.

[32] These three causes accounted for 81 per cent of all the cases observed at the Mayo Clinic up to Dec. 31, 1942[30], 83 per cent of the series reported by Martin and Hellmuth[31] and over 90 per cent in my group (Conn, J. W.: To be published).

[33] Conn, J. W.: Interpretation of the Glucose Tolerance Test: The Necessity for a Standard Preparatory Diet, Am. J. M. Sc. **199**: 555-564 (April) 1940.

[34] Recent work has demonstrated the value of electroencephalographic studies in distinguishing symptoms due to hypoglycemia from those which rest on another basis. It cannot be too strongly emphasized, however, that such studies do not differentiate one type of hypoglycemia from another. Reference is here made to these articles.
Strauss, H., and Wechsler, I. S.: Clinical and Electroencephalographic Studies of Changes of Cerebral Function Associated with Variations in the Blood Sugar, Am. J. Psychiat. **102**: 34-39 (July) 1945.
Hoefer, P. F. A.; *Guttman*, S. A., and Sands, I. J.: Convulsive States and Coma in Cases of Islet Cell Adenoma of the Pancreas, ibid. **102**: 486-495 (Jan.) 1946.
Bernstein, S. S.: Hyperinsulinism, J. Mt. Sinai Hosp. **12**: 66-78 (May-June) 1945.

Fasting Hypoglycemia: The best example of this type is that which occurs with diffuse degenerative disease of the liver. Here the lowest level of the twenty-four-hourly blood sugar curve occurs after the longest period without food, which means just before breakfast. Attacks of hypoglycemia are infrequent during the day (unless meals are missed) because failure of rapid hepatic glycogenesis allows absorbed dextrose to remain in the blood for a somewhat greater than normal length of time.[36]

Stimulative Hypoglycemia: Functional hyperinsulinism represents a pure type of stimulative hypoglycemia. The fasting blood sugar level is normal and is not abnormally depressed by prolonged fasting. Hypoglycemic attacks occur two to four hours after the ingestion of a meal. Measures designed to prevent the usual postprandial rise of blood sugar (high protein, low carbohydrate diet;[37] premeal insulin[38]) abolish the secondary hypoglycemic dip which follows it.

Table 2.—*The Usual Points of Distinction in Types of Spontaneous Hypoglycemia*

Liver Function	Clinical Course (Progression and Time of Attacks)	Type	Fasting Blood Sugar: Standard Diet	Fasting Blood Sugar: Carbohydrate Restriction or 24 Hr. Fast	Dextrose Tolerance Curve (After Standard Dietary Prep.)
Normal	Not progressive in severity; more frequent under emotional or physical tension; relief by vacations etc.; *attacks 2 to 4 hrs after meals*; no prebreakfast attacks; no effect of skipped or late breakfast	Functional hyperinsulinism	Normal	Normal *	Normal fasting blood sugar (sharp fall to *hypoglycemic levels* between 2d and 4th hour)
Normal	Progressive in frequency and severity; prebreakfast attacks frequent, 2 to 8 a. m.; attacks 2 to 4 hrs. after meals; attacks precipitated by skipped or late meals or exercise	Organic hyperinsulinism	Subnormal (usually below 60 mg./100 cc.)	Subnormal (always below 40 mg./100 cc., usually below 30 mg./100 cc.)	Subnormal fasting blood sugar (low level curve †; sharp fall to severely low levels between 2d and 5th hour)
Usually decidedly diminished	Progressive in frequency and severity; prebreakfast the time of most frequent occurrence, 2 to 8 a. m.; day time attacks rare unless precipitated by a skipped meal; sometimes clinical evidence of hepatic disease	Hepatogenic hypoglycemia	Subnormal (often below 60 mg./100 cc.)	Subnormal (always below 40 mg./100 cc., often below 30 mg./100 cc.)	Subnormal fasting blood sugar (hyperglycemic plateau curve with glycosuria; gradual fall to hypoglycemic levels in 4 to 7 hours)

* *During three days of severe carbohydrate restriction most normal persons show fasting blood sugar levels of 50 to 60 mg. per hundred cubic centimeters.*

† See text under organic hyperinsulinism, the dextrose tolerance test.

Organic Hyperinsulinism: This syndrome represents a combination of both the fasting and the stimulative types of hypoglycemia. Attacks occur in the prebreakfast period (fasting hypoglycemia) but are also common two to four hours after meals (stimulative hypoglycemia). Evidence of a continuously excessive secretion of insulin is found in the fact that a short period of fasting invariably produces hypoglycemia. In addition, however, the excessive amount of functioning islet tissue responds to the physiologic stimulus (ingestion of carbohydrate food) with an excessive delivery of insulin.[35a] A careful clinical history, therefore, may afford a good deal of insight concerning the possible cause in a given patient. The hypoglycemia associated with hypofunction of the anterior pituitary gland or of the adrenal cortices falls into the group of fasting hypoglycemias, while that observed in patients who have had a total or subtotal gastrectomy is typically stimulative in type. The latter situation will be mentioned again, since it throws some light on the probable mechanism of the stimulative hypoglycemic group as a whole.

CHARACTERIZATION AND MANAGEMENT OF THE TYPICAL CLINICAL SYNDROMES

The various points mentioned previously will now be integrated with the typical clinical picture as presented by the patient. Illustrative examples of the commoner types of spontaneous hypoglycemia are reported.

Functional Hyperinsulinism

Case 1.—Dr. J. C., a man aged 34, a surgeon, had for eight or nine years experienced waves of intense fatigue, which came on most frequently at about 4:30 p. m. Although hunger was not a prominent symptom he had discovered that eating a candy bar would quickly relieve the attack. In recent years such attacks had also been appearing at about 11:30 a. m. They were more likely to appear during a long morning of work in the operating room; he would suddenly feel extremely weak and shaky, notice a tremor of his hands and be unable to concentrate because he felt "all in." On several occasions he was obliged to leave the operating room. There had never been *attacks during the night or before breakfast.* He was fond of sweets and had been eating from 450 to 500 Gm. of carbohydrate a day.

Physical examination revealed nothing of significance, and except for the dextrose tolerance test all laboratory examinations were within normal limits.

The dextrose tolerance test (1.75 Gm. dextrose per kilogram of body weight orally) gave the following results: The fasting blood sugar level was 71 mg.; the level at one hour was 111 mg., two hours 74 mg., two and one-half hours 64 mg., three hours 64 mg., three and one-half hours 30 mg. and four hours 48 mg., per hundred cubic centimeters. Between the three and one-half and four hour specimens the patient experienced symptoms similar to those observed in his spontaneous attacks.

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[35] (*a*) Conn, J. W., and Conn, E. S.: Metabolism in Organic Hyperinsulinism: I. Quantitative Studies of the Variations in the Rate of Combustion of Carbohydrate Produced by Alterations in the Diet, Arch. Int. Med. **68:** 876-892 (Nov.) 1941. (*b*) Conn, J. W.: Functional Hyperinsulinism: A Common and Well-Defined Clinical Entity Amenable to Medical Management, J. Michigan M. Soc., to be published. (*c*) Conn and others.[8]

[36] Izume, S., and Lewis, H. B.: The Influence of Hydrazine and Its Derivatives on Metabolism: II. Changes in the Nonprotein Constituents of the Blood and in the Metabolism of Injected Glycine in Hydrazine Intoxication, J. Biol. Chem. **71:** 33-50 (Dec.) 1926. Underhill, F. P.: Influence of Hydrazine upon the Organism with Special Reference to Blood Sugar Level, ibid. **10:** 159-168, 1911. Bodansky, M.: Production of Hypoglycemia in Experimental Derangement of the Liver, Am. J. Physiol. **66:** 375-379 (Oct.) 1923; Effect of Chloroform and Phosphorus Poisoning on Carbohydrate Tolerance, *J. Biol. Chem.* **58:** 515-522 (Dec.) 1923.

[37] *Conn, J. W.:* The Advantage of a High Protein Diet in the Treatment of Spontaneous Hypoglycemia, J. Clin. *Investigation* ***15:** 673-678* (Nov.) 1936.

[38] John, H. J.: A Case of Hyperinsulinism Treated with Insulin: Preliminary Report, Endocrinology **17:** 583-586 (Sept.-Oct.) 1933.

A diet containing 3,000 calories, 120 to 140 Gm. of protein and 75 to 100 Gm. of carbohydrate (three meals daily) was prescribed, to which the patient has adhered rigidly. Within a few days all signs of the previous attacks had disappeared. He has remained symptom free to date (fifteen months) and has been able to perform his daily tasks efficiently.

Terminology: This type of spontaneous hypoglycemia is by far the most commonly encountered. It accounts for at least 70 per cent of all cases of spontaneous hypoglycemia. Although there is considerable difference of opinion as to what this syndrome should be called (table 1), all agree on two points: 1. It represents a disturbance in the nervous regulation of the blood sugar level (vegetative nervous system): this particular abnormality in the finer neural adjustment of the blood sugar level manifests itself in the form of postprandial hypoglycemia under specific circumstances (following meals average or high in carbohydrate when there concomitantly exist conditions of high physical and/or emotional tension) and does not produce hyperglycemia. 2. A diet high in protein and low in carbohydrate [37] (all other things remaining the same) effectively stabilizes the blood sugar and abolishes the postprandial "dips" which are responsible for the symptoms. From a practical point of view it matters little what the syndrome is called so long as it is recognized by its clinical and laboratory characteristics and treated for what it is. Unnecessary exploration of the pancreas in this type of patient yields no insuloma. Unfortunately, such a patient frequently leaves the operating room minus part of his pancreas.

The term "functional hyperinsulinism" has been criticized on two counts: (1) the word "functional" implies a psychogenic element and (2) excessive secretion of insulin has not been demonstrated in these cases. Thus, such terms as "hypoglycemic fatigue," "nervous hypoglycemia" and "functional hypoglycemia" have been suggested, all of which evade the question of how the hypoglycemia is produced. By functional hyperinsulinism is implied an excessive functional sensitivity and responsiveness of histologically normal islet cells to the normal stimulus for insulin secretion. Lack of a method for determining the concentration of insulin in the blood does not invalidate the large amount of indirect evidence which can be cited for such a stand:

1. High carbohydrate feeding in normal animals increases the production of insulin while low carbohydrate feeding diminishes it.[39]

2. The parasympathetic nervous system (vagus) carries secretory fibers to the islets which control the finer regulation of insulin secretion.[40] (The group of patients under consideration are classified as "vagotonic" persons.[41])

3. A rise of the level of sugar in blood entering the pancreatic artery results in an increased "blood-sugar-lowering effect" of the blood leaving the pancreas.[40b]

4. A short period of carbohydrate restriction diminishes the capacity of normal men and animals to metabolize a test dose of dextrose.[42] This suggests diminished insulin activity.

5. Patients with functional hyperinsulinism respond well and promptly to low carbohydrate feeding. It seems difficult to explain how a diet low in carbohydrate can prevent postprandial hypoglycemia unless insulin activity is diminished by this procedure.

It is considered, therefore, in the light of present knowledge, that the term functional hyperinsulinism is justified and defines the clinical syndrome more sharply than the other nonexplanatory terms now in common use.

Clinical Characteristics: The major clinical characteristics of functional hyperinsulinism in contradistinction to the more serious and severer types are tabulated in table 2. The type of person subject to such episodes, however, is of particular interest. I have come to regard this group as reacting excessively not only to the insulogenic stimulus but to most physiologic stimuli and to consider them as hyper-reactors in general, manifesting instability of the vegetative nervous system in many ways. Vasomotor instability and gastric hyperacidity are common manifestations. As a group they are extremely conscientious; they shoulder responsibilities well but fret about them and react intensely to minor disappointments. It has been indicated by others [13] that functional hyperinsulinism may fall into the group of psychosomatic disturbances. The hypoglycemia, however, which often produces their most troublesome symptoms can be well controlled by dietary means.

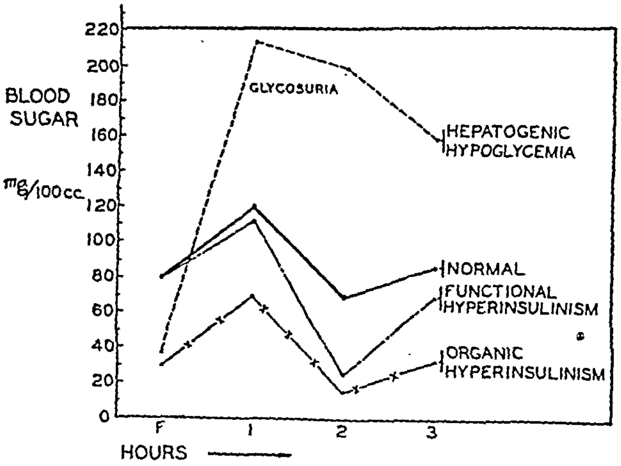

Chart 1.—Dextrose tolerance curves in spontaneous hypoglycemia (three types).

Medical Management: Soon after the recognition of such cases it was found that diets high in carbohydrate were likely to intensify rather than to alleviate the syndrome. It subsequently became apparent that the postprandial rise of blood sugar associated with the absorption of carbohydrate needed to be avoided, since this was apparently the stimulus which produced an abrupt and sharp secondary fall of the blood sugar level several hours later. That avoidance of postprandial hyperglycemia by means of a low carbohydrate, high fat diet on a frequent feeding schedule [44] or by means of premeal insulin administration [38] improved the situation considerably, established the fact that these patients react excessively to the normal postprandial elevation of the blood sugar. In 1936 I [37] reported experimental and clinical evidence indicating the additional advantages afforded by the use of a diet high in protein and at the same time low in carbohydrate. The therapeutic effectiveness of the high protein diet is based on the facts that (1) although protein during its metabolism yields about 50 per cent of its weight as dextrose, the process of glyconeogenesis from protein proceeds at a slow and even rate, resulting, therefore, in no elevation of the blood sugar and consequently no secondary fall and (2) the long period required for the absorption of protein and its conversion to dextrose affords a steady supply of dextrose over a prolonged period of time. These observations on the effectiveness of ingested protein in the prevention of postprandial hypoglycemic symptoms have more recently been experimentally confirmed by Thorn and his associates.[45]

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[39] Best, C. H.; Haist, R. E., and Ridout, J.: Diet and Insulin Content of the Pancreas, J. Physiol. **97**: 107-119 (Nov. 14) 1939.

[40] (a) Cori, C. F.: Mammalian Carbohydrate Metabolism, Physiol. Rev. **11**: 143-275 (April) 1931. (b) Anderson, E.; Long, J. A., and Sutton, V.: Factors Influencing Insulin Production, abstracted, J. Clin. Endocrinol. **6**: 461, 1946.

[41] Wilder.[21a] Alexander and Portis.[21e]

[42] Sheldon, J. M.; Johnston, M. W., and Newburgh, L. H.: A Quantitative Study of the Oxidation of Glucose in Normal and Diabetic Men, J. Clin. Investigation **16**: 933-936 (Nov.) 1937.

[43] Rennie and Howard.[21b] Alexander and Portis.[21e]

[44] Waters, W. C., Jr.: Spontaneous Hypoglycemia: The Role of Diet in Etiology and Treatment, South. M. J. **24**: 249-252 (March) 1931.

I continue, almost without exception, to obtain excellent results in functional hyperinsulinism by the use of a high protein, low carbohydrate diet. Clinical confirmation by others[47] in patients followed for long periods of time is now available. The average therapeutic diet contains from 120 to 140 Gm. of protein, from 50 to 100 Gm. of carbohydrate and maintenance calories. It is given as three meals a day with the occasional addition of a "protein meal" at bedtime.

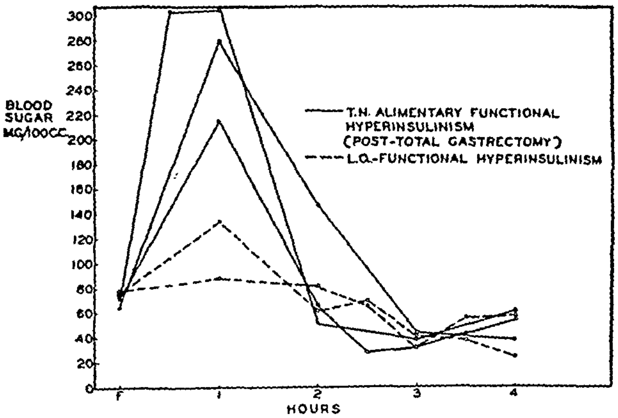

Chart 2.—Alimentary functional hyperinsulinism compared with functional hyperinsulinism by repeated oral dextrose tolerance tests after standard dietary preparation.

Alimentary Functional Hyperinsulinism

A brief discussion of alimentary functional hyperinsulinism (table 1) is apropos at this point, not because this situation should afford any difficulty in clinical recognition but because it helps, by contrast, to clarify several points concerning the mechanisms of the stimulative types of spontaneous hypoglycemia.

Clinicians have been aware for many years that some patients complain after gastroenterostomy of intense fatigue several hours after eating. More recently, this syndrome has been observed even more frequently in patients who have had either total or subtotal gastric resections. An explanation for the symptoms in such patients is apparent when one examines the results of an oral dextrose tolerance test.[47] The curve is characterized by (1) a normal fasting blood sugar, (2) a rapid rise to hyperglycemic levels (usually between 200 and 300 mg. per hundred cubic centimeters) during the first hour after ingestion of dextrose and (3) a precipitous fall to hypoglycemic levels between the second and the fourth hour. Chart 2 contrasts the curve obtained in functional hyperinsulinism of the usual variety with that obtained in most persons after total resection of the stomach. In the latter group it seems clear that the initial hyperglycemic phase results from excessively rapid intestinal absorption of dextrose. Removal of the pyloric valve allows the dextrose to be "dumped" rapidly on the absorbing surfaces of the small bowel. Since abnormal elevation of the blood sugar level in the presence of normal function of the islet cells affords an excessive insulogenic stimulus, the secondary hypoglycemic phase of the curve is understandable. Evensen[22] and others[23] have demonstrated this type of curve in normal persons to whom dextrose was administered by duodenal tube.

I believe that the postprandial hypoglycemia seen in these patients and in those of the group which is called functional hyperinsulinism is the result of a sudden and abnormally large release of insulin into the blood. I wish, however, to make a sharp distinction between the mechanism involved in each type. Functional hyperinsulinism represents an excessive responsiveness of the insulogenic mechanism to the normal physiologic stimulus (no abnormally high initial elevation of the blood sugar level). Alimentary functional hyperinsulinism, on the other hand, represents the normal response of the *normal* pancreas to an abnormally great stimulus (abnormally high initial elevation of the blood sugar level). Thus, it illustrates a functional pancreatic response of another type.

Medical Management: Since abnormally rapid intestinal absorption of sugar accounts for the initial hyperglycemia, which in turn calls forth an excessive insulogenic response, measures designed to prevent abnormal postprandial hyperglycemia should be successful. Excellent results have been obtained with the same type of dietary management as that outlined for functional hyperinsulinism (high protein, low carbohydrate feeding).

Organic Hyperinsulinism

Case 2.—A. P.,[48] a white man aged 25, a single laborer, had been perfectly well until his initial attack in August 1941. While at work at 11:30 a. m. he suddenly became extremely weak and lost consciousness. He awoke spontaneously in thirty minutes and had his lunch. There was no further trouble until a similar episode at 4:30 p. m. occurred in December 1941.

In mid-January of 1942 attacks became more frequent and progressed in frequency and severity until the time of admission to the University Hospital. They began to occur most frequently in the early morning hours (4:00 a. m. to 7:00 a. m.) but often occurred three to four hours after the preceding meal. Premonitory symptoms were hunger, tension, weakness, sweating and visual disturbances. These were followed by a semi-lucid period during which the patient was aware that he could not control his muscular movements. He knew that he was unable to comprehend commands during this period although he heard them. Complete loss of consciousness was often associated with generalized convulsive movements.

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[45] Thorn, G. W.; Quinby, J. T., and Clinton, M., Jr.: A Comparison of the Metabolic Effects of Isocaloric Meals of Varying Composition with Special Reference to the Prevention of Post-Prandial Hypoglycemia Symptoms, Ann. Int. Med. **18**: 913-919 (June) 1943.

[46] Smith, H. L., and Estes, J. E.: Spontaneous Hypoglycemia, J. Michigan M. Soc. **44**: 711-714 (July) 1945. Brown, M. J.: Hypoglycemia and Abdominal Pain, Am. J. Surg. **64**: 276-281 (May) 1944. Dyer.[21c] Wilder.[21a] Schneider and Anconda.[21d] Lieberman.[21f] Harrison, T. R., and Finks, R. M.: Glucose Deficiency as a Factor in the Production of Symptoms Referable to the Cardiovascular System, Am. Heart J. **26**: 147-163 (Aug.) 1943. Greene, R.: Cardiac Neurosis as a Manifestation of Hypoglycemia, Lancet **2**: 307-308 (Sept. 2) 1944.

[47] Evensen.[22] Farris, Ransom and Coller; Conn and Ricketts.[23]

[48] The effects of large amounts of anterior pituitary "diabetogenic" extract were studied in this patient by Conn., J. W., and Louis, L.: A Pituitary *Insulotropic Principle*, J. *Clin. Endocrinol.* **5**: 247-258 (July-Aug.) 1945.

[49] Hoefer, P. F. A.; Guttman, S. A., and Sands, I. J.: Convulsive States and Coma in Cases of Islet Cell Adenoma of the Pancreas, Am. J. Psychiat. **102**: 486-495 (Jan.) 1945.

[50] (*a*) Hoefer, Guttman and Sands.[49] (*b*) Walker, H., and Boger, W. P.: Adenoma of the Islets of Langerhans with Hypoglycemia, Arch. Int. Med. **75**: 109-118 (Feb.) 1945. (*c*) Gorsuch and Rynearson.[30a] (*d*) Bernstein, S. S.: Hyperinsulinism, J. Mt. Sinai Hosp. **12**: 66-78 (May-June) 1945.

He did not believe that convulsions occurred during those attacks in which he was found to be unconscious in bed before breakfast. The patient's sister, with whom he was living, has a diabetic child who receives daily injections of insulin. The sister noted the similarity of his symptoms to those of her child during insulin reaction and found that he, too, could be quickly revived by the administration of orange juice. The patient then learned that he could ward off daytime attacks by the ingestion of food if he acted promptly.

By the time of admission attacks had progressed in frequency to an average of two per week. The patient's weight had been constantly at about 150 pounds (68 Kg.) for several years.

The patient was a well developed, healthy looking young man. The blood pressure was 100 systolic and 60 diastolic. No physical defects were apparent on examination.

Laboratory examinations revealed that blood counts, urinalysis and Kahn tests were negative; the spinal fluid was normal. The basal metabolic rate was minus 4 per cent. The serum proteins totaled 7.8 Gm., with albumin 4.6 Gm. and globulin 3.2 Gm., per hundred cubic centimeters. The sulfobromophthalein sodium test (5 mg. per kilogram of body weight, thirty minutes) showed less than 15 per cent retention. A cholecystogram showed a normally functioning gallbladder without evidence of stone. A roentgen examination of the skull revealed normal conditions. The dextrose tolerance test after standard dietary preparation disclosed the following blood sugar levels: fasting 31 mg., one hour 101 mg., two hours 83 mg., two and a half hours 77 mg., three hours 52 mg., three and a half hours 37 mg., four hours 31 mg., four and a half hours 25 mg., five hours 44 mg., five and a half hours 31 mg. and six hours 29 mg. per hundred cubic centimeters.

Daily fasting blood sugar values ranged from 12 to 60 mg., the majority from 25 to 35 mg., per hundred cubic centimeters. Blood sugar values during spontaneous attacks ranged from 9 to 30 mg. per hundred cubic centimeters.

At operation (Dr. F. A. Coller) a firm, round, well encapsulated mass 1 cm. in diameter was found to be deeply embedded in the body of the pancreas. This with a surrounding portion of pancreatic tissue was removed and proved to be an islet cell tumor.

The morning after operative intervention the level of fasting blood sugar was 115 mg. per hundred cubic centimeters. For the next seven days it was 73, 63, 98, 78, 83, 92 and 82 mg., per hundred cubic centimeters. A dextrose tolerance test (after standard dietary preparation) three months postoperatively was as follows: fasting blood sugar level 72 mg., one hour 90 mg., two hours 73 mg., two and a half hours 64 mg., three hours 52 mg., three and a half hours 66 mg. and four hours 74 mg., per hundred cubic centimeters.

The patient has returned to his job and has remained perfectly well to date.

Indications for Exploration of the Pancreas: The clinical and laboratory characteristics presented by this patient conform to those outlined in table 2 and afford a clear indication for exploration of the pancreas. When such criteria are satisfied one can predict the presence of a pancreatic insuloma in virtually all cases. It must be emphasized, however, that these criteria are severe and that an occasional early case may fail to satisfy them. Since the characteristic course of the disease is one of progression, such a case will eventually give the typical findings. It may be argued that such severe and rigid criteria tend to delay operative intervention and increase the possibilty of complications, such as malignant change in a benign adenoma of islet cells or degenerative changes in the central nervous system. But if such diagnostic criteria are relaxed a large number of patients who harbor no insuloma will be operated on unnecessarily, and many of them will give up to science a part of their pancreas. Furthermore, in the cases thus far reported the duration of the hypoglycemic syndrome bears no relationship to incidence of malignant tumors of islet cells.[49]

The Dextrose Tolerance Test: It is the opinion of many [50] that the dextrose tolerance curve is of little value in differentiating organic hyperinsulinism from other types of spontaneous hypoglycemia. This opinion is based on the fact that some patients from whom a pancreatic insuloma has been removed have responded preoperatively to ingested dextrose with a high, plateau, diabetic type of blood sugar curve. It has been suggested, among other things, that in many cases the abnormal secretion of insulin is paroxysmal rather than continuous. Were this the case one would expect that a short period of fasting or of carbohydrate restriction would not always and in all patients produce a severe degree of hypoglycemia. Yet it is agreed by all that this is the most important single diagnostic criterion and that operative intervention is not indicated unless this criterion is satisfied. Thus, in the fasting state, at least, there appears to be continuous and excessive secretion of insulin. Frazer [51] and I,[35a] with our associates, have concluded from metabolic studiés that insulin secretion is excessive at all times in well established cases. If in the early stages of this disease excessive production of insulin is erratic and intermittent it will obviously be difficult in this period to establish diagnostic criteria which will separate cases of insuloma from other forms of spontaneous hypoglycemia.

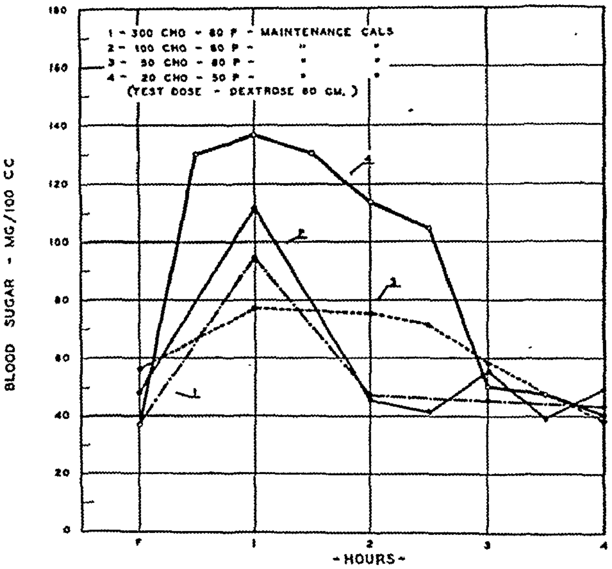

Chart 3.—Effect of previous diet on dextrose tolerance curve in organic hyperinsulinism.

While the question of what may be responsible for the variability in the dextrose tolerance curve in well established cases requires, and is receiving, further investigation, it is known that the composition of the antecedent diet represents one important factor in determining the shape of the dextrose tolerance curve in insuloma patients (chart 3) as well as in normal persons.[53] I believe that the use of a standard preparatory diet [53] will eliminate one cause for the differences obtained in different patients and, in fact, in the same patient.[52]

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51. Frazer, R.; Maclay, W. S., and Mann, S. A.: Hyperinsulinism Due to a Pancreatic Islet Adenoma, Quart. J. Med. 31:115-135 (Jan.) 1938.

52. Hoefer, Guttman and Sands.[49] Bernstein.[50]

The practical importance of the dextrose tolerance curve as a differential diagnostic point lies in the fact that an extremely low fasting blood sugar level followed by a high plateau type curve (after standard dietary preparation) is the response which is expected and found in hepatogenic hypoglycemia, which is discussed later in this paper.

Management: When the diagnostic criteria for organic hyperinsulinism have been satisfied surgical treatment is indicated and should be urged. Medical management of these cases is notoriously unsuccessful. While in the early stages of this syndrome dietary management may afford temporary relief, the disturbance soon progresses to a point where such efforts are in vain. In cases in which operative intervention is refused a worthwhile temporary expedient is the use of epinephrine in oil (1 mg. subcutaneously twice a day).[53]

The brilliant results of operative removal of insulomas in this group of cases marks a most pleasing chapter in the history of surgery. Careful and complete exploration of the pancreas has led to the discovery of insulomas in a large percentage of cases (in Whipple's series,[7a] in 27 of 32 cases in which operation was performed, or 84 per cent). Removal of these tumors results in complete alleviation of the entire disturbance without recurrence in the vast majority of cases.

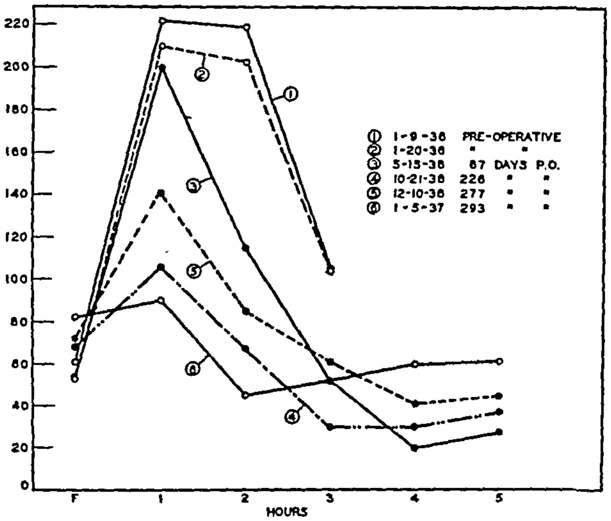

Chart 4.—Glycemic response to the ingestion of 105 Gm. dextrose (same preparatory diet for several days before test).

Points of great importance, particularly to the surgeon, involve the questions of (1) multiple adenomas of islet tissue, (2) indications for partial or subtotal pancreatectomy where no tumor is discovered, (3) sites of most frequent occurrence of aberrant pancreatic tissue and (4) what, short of metastases, constitutes malignancy of islet tumors. All these questions are detailed elsewhere.[54] However, I again wish to express the opinion that a successful result following partial or subtotal pancreatectomy means that an insuloma or a group of microscopic insulomas have been included in the resected portion of the pancreas and that an unsuccessful result indicates the need for further exploration of the remaining pancreatic tissue. In Whipple's series [7a] an overlooked tumor was found at a second operation in 8 patients, and in 7 of these the tumor was located in the head of the pancreas.

Attempts to eliminate excessive islet tissue by nonsurgical means have been made, but to date such efforts have not been successful. "Diabetogenic" anterior pituitary extracts,[49] adrenal cortical extract [55] and alloxan [56] have been tried. Further work along these lines may have promise for the future.

Hepatogenic Hypoglycemia

Case 3.—W. F., a white man aged 47, a laborer, had been in good health until March 1934, when he began to have periodic attacks of unconsciousness. These episodes always occurred between 3 and 7 a. m., which was from nine to twelve hours after the evening meal. The duration of an attack had varied from one to thirty-six hours. There had been no postprandial attacks. Omission of a meal had been noted to precipitate an attack. There had been no symptoms referable to disease of either the gallbladder or the liver. Elsewhere a diagnosis of intracranial tumor had been made because an attack had been terminated quickly by the administration intravenously of a 50 per cent dextrose solution.

Studies at the University Hospital in 1936 revealed the following significant points: (1) dextrose tolerance test after standard dietary preparation: fasting 60 mg., one hour 220 mg., two hours 218 mg., and three hours 105 mg. of blood sugar, per hundred cubic centimeters; (2) provocation of severe hypoglycemia by restriction of dietary carbohydrate (fasting blood sugar levels between 14 and 18 mg. per hundred cubic centimeters on six occasions); (3) decided impairment of hepatic function as indicated by a variety of tests; (4) roentgenologic evidence of cholelithiasis, and (5) prompt relief of attacks by means of a high carbohydrate, high protein diet which included a meal before retiring.

Operation.—The pancreas was normal. The hepatic surface was diffusely granular, and a biopsy showed active chronic cholangiolitis leading to early biliary cirrhosis. A grossly purulent gallbladder containing stones was removed.

The postoperative period was remarkable in that all previous evidence of impaired hepatic function gradually disappeared. Paralleling the improvement of other functions of the liver, the glycogenic and glycogenolytic functions improved (chart 4) and the hypoglycemic syndrome disappeared. The ability to maintain a normal level of the fasting blood sugar without the aid of a bedtime meal returned. No attacks occurred for thirteen months. The patient then died suddenly of acute myocardial infarction.

Management: Hepatogenic hypoglycemia is the result of diffuse degenerative changes in the parenchyma of the liver.[57] In acute degenerative lesions of toxic origin (carbon tetrachloride, cinchophen, hydrazine and smoke) the administration of large amounts of carbohydrate and protein by mouth or parenterally (as dextrose and amino acids) is indicated. If the hepatitis does not prove fatal, the hypoglycemia will have been only temporary, and complete restoration of the function of the liver with respect to blood sugar regulation is likely. In chronic, progressive, destructive and degenerative lesions of the liver the attending hypoglycemia (when present) can be controlled only by preventing long intervals without food. A high carbohydrate, high protein diet arranged to include a meal before retiring at night will usually control the hypoglycemia, which almost always occurs before breakfast.

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[53] Conn, J. W., and Conn, E. S.: Metabolism in Organic Hyperinsulinism: II. Effects of Epinephrine on Glycemic Level and on Combustion of Carbohydrate, Arch. Int. Med. **68**: 1105-1114 (Dec.) 1941.

[54] Footnotes 4, 5, 6 and 7a.

[55] Conn, J. W., and Conn, E. S.: Metabolism in Organic Hyperinsulinism: III. Effects of Adrenal Cortical Extract on Blood Sugar and on Sodium and Nitrogen Equilibrium, Arch. Int. Med. **68**: 1115-1119 (Dec.) 1941.

[56] Brunschwig, A.; Allen, J. G.; Owens, F. M., and Thornton, T. F.: Alloxan in the Treatment of Insulin Producing Islet Cell Carcinoma of the Pancreas, J. A. M. A. **124**: 212-216 (Jan. 22) 1944. Conn, J. W.; Hinerman, D. L., and Buxton, R. W.: Effects of Alloxan upon the Human Pancreas, J. Lab. & Clin. Med. **32**: 347-348 (March) 1947. Conn, J. W., and Hinerman, D. L.: Effects of Alloxan upon Function and Structure of Normal and Neoplastic Pancreatic Islet Tissue in Man, Am. J. Path., *to be published.*

[57] Footnotes 8, 9, 10 and 11.

In a small group of cases of hepatogenic hypoglycemia in which the hepatitis is due to an ascending infection of the biliary tract, removal of the source of the hepatitis (gallbladder) may allow sufficient restoration of hepatic function to completely overcome the hypoglycemic syndrome. The case just described represents a good example of this rare situation.

SUMMARY

A diagnostic awareness of the possibility of spontaneous hypoglycemia represents the first step in the recognition of the relatively large number of patients suffering from this characteristic syndrome. With hypoglycemia established as the cause of the symptoms in question, the next step is to determine, by differential diagnostic methods, the specific etiologic factor in the individual patient. A rational approach to therapy and a successful result are dependent on discovery of the cause, since the indicated treatment (surgical or medical) varies with the specific etiology of the hypoglycemia. Of the many possibilities classified, three have given greatest difficulty in differential diagnosis and comprise 80 per cent to 90 per cent of all cases of spontaneous hypoglycemia. They consist of (1) functional hyperinsulinism, (2) organic hyperinsulinism and (3) hepatogenic hypoglycemia. Clinical and laboratory criteria, helpful in distinguishing one type from another, are available.

A high protein, low carbohydrate diet is successful in the management of functional hyperinsulinism. Organic hyperinsulinism requires pancreatic surgery. A diet both high in carbohydrate and high in protein is indicated in cases of hepatogenic hypoglycemia. Of patients whose disease falls in the latter group, a select few will be benefited by cholecystectomy.

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ABSTRACT OF DISCUSSION

Dr. Howard F. West, Los Angeles: I think that gratitude should be expressed to Dr. Conn, Dr. Newberg and their staff for their contributions to this important clinical subject, and for the clarity with which they have established the subdivisions of the hypoglycemias from the standpoint of etiology and the criteria for treatment. Especially in regard to the so-called functional group, there is evidence that clinicians are too content with a diagnosis of hypoglycemia. One can find a relatively low blood sugar in many patients at times, with or without characteristic symptoms. Many of these persons are unstable in other directions as well. Other factors in their constitutional makeup—including their somatic disorders—should be given full consideration at the same time as an evaluation is being made of the significance, if any, of the blood sugar level. I would like to illustrate the hepatic type of hypoglycemia with one personal experience. The patient, a chronic alcoholic addict, suffered an attack of acute hepatitis with jaundice followed after four years with a chronically enlarged and somewhat damaged liver. There was a disability problem. His insurance carrier sent him to a competent internist for an opinion. This physician, who noted a moderate glycosuria, performed a dextrose tolerance test. Although the fasting blood sugar was within normal limits, after the administration of dextrose it was 200 mg. per hundred cubic centimeters or over for over two hours, with accompanying glycosuria. A diagnosis of diabetes was submitted. The patient's own physician, an equally competent internist, saw him in the late afternoon after the patient had taken a two mile walk. At this time he complained of weakness, tremor, sweating and blurred vision; his blood sugar was found to be extremely low, and a report of hypoglycemia as a cause of symptoms was rendered. These reports were confusing to the carrier so I was asked to review the story. Within certain limitations both physicians were correct, but in evaluating these liver problems one must be sure to consider the blood sugar range through a complete cycle and not to be concerned with certain phases only, which may be misleading.

Dr. E. Kost Shelton, Los Angeles: Physicians owe much to Dr. Conn and his associate Dr. Newberg for their long and comprehensive study of carbohydrate metabolism, especially as it is related to disorders other than diabetes. It was Dr. Conn's work a number of years ago on the effects of protein and carbohydrate ingestion on the dextrose tolerance curve which stimulated my early interest in this subject. His presentation today is up to his usual high standard. Certainly, it is important to differentiate the various etiologic factors in hypoglycemia, especially those of a functional nature. These simple points which Dr. Conn has already mentioned are of value: 1. Nearly all functional hyperinsulin states show normal fasting blood sugar levels. Organic hyperinsulin states show low fasting blood sugar levels, especially after a more prolonged fast. 2. In functional states there is immediate improvement when excess carbohydrate ingestion is terminated, especially when relatively large amounts of protein are added to the diet. This is not true of organic states. The insulin tolerance test has also been found of considerable value in reaching a conclusion in regard to some hypoglycemic conditions, especially those accompanying panhypopituitary states and Addison's disease. In 1 case of fugitive acromegaly the insulin tolerance test was the deciding factor in differentiating between a hyperactive and hypoactive status, and this knowledge completely reversed the treatment. Some years ago I set out to find a common physiologic factor in overweight and must have performed over a thousand four hour dextrose tolerance tests before I realized that they did not represent the true status of carbohydrate utilization at all. However, from these studies and subsequent ones, I gained a few impressions, regarding which I should like to ask Dr. Conn to comment. I consider that there is such a thing as relative hypoglycemia—that some patients have symptoms of hunger or nervousness or other autonomic manifestations when the level of blood sugar falls, after dextrose ingestion, even though it does not fall to so-called hypoglycemic levels. I feel that this is part of the mechanism of hunger and is important in hyperphagia or overeating, and that this hyperphagia subsides to a remarkable degree when carbohydrate, as such, is almost eliminated from the diet and protein is substituted instead. Since the brain only uses carbohydrate and the mechanism for most of these functional disorders is autonomic (probably hypothalamic), is it not possible that there is some relationship between "carbohydratism" and "alcoholism"? Carbohydrate addicts appear to me to be about as emotionally unstable as alcoholic addicts, and I believe they lie more frequently.

Dr. Elmer L. Sevringhaus, Nutley, N. J.: My experience leads me to concur completely with the diagnostic criteria presented. Functional hypoglycemia, which is a common experience, may lead to much discomfort. An anesthetist friend for many years made his own breakfast consist of dry cereal with milk, sugar, fruit and much toast. Between 10:30 a. m. and 1:30 p. m. he had to have another lunch, because he couldn't go on in face of hypoglycemic symptoms. I taught him how to cut down the toast, eliminate cereal and substitute bacon and egg, with complete relief. Experience with 4 cases of pancreatic tumor, cured by removal, has led to the observation that failure to find the tumor at laparotomy should not discourage the surgeon, if the diagnostic criteria are satisfactory. On reoperating in 2 such cases, aberrant pancreatic tumor tissue was found. In 1 of these cases the patient was a woman who had not only convulsive disorders from hypoglycemia, but also profound deterioration of personality and amnesia, which put her in the hands of the neuropsychiatrist and then of the neurosurgeon, who thought he had demonstrated an intracranial tumor. The encephalogram and ventriculogram showed bilateral, extensive cortical atrophy of the brain, but fasting blood sugars were below 40. She was given relief by plentiful amounts of carbohydrates. After two operations the pancreatic tumor was found and removed, and the patient was restored to normal physical and mental health. Another patient had only repeated prebreakfast attacks of a convulsive sort. Her sugar tolerance test was suggestive of a postprandial hypoglycemia at the fourth and fifth hours. She had indifferent results from management by diet. She insisted, against advice, on a laparotomy, although it was thought that the chances of a pancreatic tumor were practically nil. At a very thorough exploratory laparotomy nothing was found. The patient obviously belongs in the group who have some type of epileptic seizure which has no pronounced association with the metabolism of sugar. Since these tumors of the pancreas are, like other neoplasms, tissues out of ordinary physiologic control, it is interesting to notice, also, that the sugar tolerance curves are not predictable and uniform, even in the same patient from day to day. In my experience, this lack of uniformity is characteristic of the tumor case as opposed to the functional case, whether it is due to hepatic difficulty with the high level or to the hyposecretory type with the low level, in which essentially reproducible curves are obtained.

Dr. Arthur A. Herold, Shreveport, La.: The paper of Dr. Conn is of such value to the general practitioner that I wish it could be given more circulation amongst the members of the medical profession. In regard to functional hypoglycemia, whenever I see a patient who has been previously treated and put on a diet, he invariably says, "Doctor, that is not the diet I need; that is a diabetic diet," and I frequently have a great deal of difficulty in convincing him that the low carbohydrate, high protein, high fat diet emphasized by Dr. Conn is what he needs. There is one other type of hypoglycemia which I do not believe Dr. Conn mentioned and which is seen occasionally; I refer to the patient with so-called renal glycosuria. I have had several such patients and recall 1 who had a dangerously low blood sugar level in the mornings, but with sugar in the urine and with the postprandial blood sugar level somewhat elevated but still subnormal and heavy glycosuria. This young man was given a high carbohydrate diet, and when last heard from he was getting along all right. I would like to have Dr. Conn discuss this.

Dr. J. W. Conn, Ann Arbor, Mich.: Dr. Shelton asked about relative hypoglycemia. Is it possible for patients to have symptoms at blood sugar levels which are not ordinarily considered hypoglycemic? Yes, I believe it is possible and that I have occasionally seen it, but I think that the phenomenon is easily understandable. Apart from the fact that there are individual differences as to the level of blood sugar at which symptoms appear, the rapidity with which the blood sugar is falling is important; that is, the more rapid the drop, the higher the level at which symptoms appear. A precipitous fall of the blood sugar, such as occurs in functional hyperinsulinism, is in part the result of an increased utilization of sugar by the tissues. Under conditions of a rapidly falling blood sugar the gradient between the concentration of sugar in blood and tissue is great and the level in the blood is likely to be considerably higher than that obtaining in the tissues. Since hypoglycemic symptoms result from too little sugar in the tissues, particularly in the cells of the central nervous system, one can understand the occasional occurrence of hypoglycemic symptoms at relatively high levels of blood sugar. Dr. Herold asked about the relation of renal glycosuria to hypoglycemia. Several cases have been seen and others have been reported in which severe grades of renal glycosuria have resulted in an inability to maintain a normal glycemia; hence, periodic hypoglycemic attacks occur. The question of why dietary carbohydrate should be reduced in the management of functional hyperinsulinism involves a fundamental element of the disturbance. Whatever the mechanism which brings it about, it is a fact that these patients respond to ingested carbohydrate with an excessive secondary hypoglycemia. In man and in animals high carbohydrate feeding increase the production of insulin while low carbohydrate feeding diminishes it. Hofmeister first observed the latter phenomenon and called it hunger diabetes. Patients with functional hyperinsulinism have much less postprandial hypoglycemia on low carbohydrate diets than on high. I believe that restriction of carbohydrate in these cases dampens the activity of excessively responsive islet cells.

TRIDIONE IN THE TREATMENT OF EPILEPSY

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Boston

A year ago I presented evidence [1] for the belief that pyknoepilepsy, myoclonic jerks and akinetic seizures are members of a petit mal triad, best treated by a new medicine, 3,5,5-trimethyloxazolidine-2,4-dione (Tridione). I am now able to report the results of medication in 166 patients having a petit mal type of seizure and also the results in 93 patients having psychomotor or grand mal seizures. These latter observations are timely because of reports that Tridione is an anticonvulsant, a contention which my own clinical observations do not support.

First I emphasize that the term petit mal is not used for short lived or mild seizures of any sort but is confined to three clinically distinct manifestations; first, petit mal (or pyknoepilepsy) transient but frequent lapses of consciousness; second, myoclonic jerks, and third, akinetic (loss of posture) seizures. All three seizures are usually accompanied by the alternating spike and slow wave of the electroencephalogram.

EFFECT ON PETIT MAL

The beneficial effect of Tridione on seizures of the petit mal triad is demonstrated graphically in figure 1 and in the last column of table 1. Thirty-one per cent of patients became entirely free of seizures; an additional 32 per cent have less than one-fourth the previous number; 20 per cent are improved to a lesser extent; 13 per cent are unchanged, and 4 per cent have experienced an increase in the number of attacks. Thus, of the 166 patients, 83 per cent have had fewer seizures of the petit mal type.

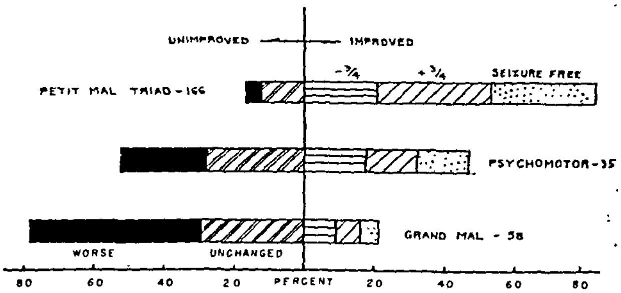

Fig. 1.—Effect of Tridione on petit mal, psychomotor and grand mal seizures. The perpendicular line separates cases which are improved, on the right, from those unimproved, on the left. Portions of the columns, from left to right, indicate the following with reference to seizures: solid, more frequent; double hatched, unchanged; horizontal lines, less than three-fourths improvement; single hatched, more than three-fourths improvement; dotted, seizure free. The figures to the right indicate the number of patients having the specified type of seizure. The abscissa measures percentages of the total.

EFFECT ON GRAND MAL

I shall report the effect of Tridione on seizures other than those of the petit mal triad and then return to an analysis of the results with petit mal. In this report, as in most medical writings, the word "convulsion" implies generalized and severe muscular contractions, in other words "grand mal."

Spielman [2] synthesized 3,5,5-trimethyloxazolidine-2,4-dione to serve as an analgesic, but Everett and Rich-

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Read before the Section on Pediatrics at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

From the Department of Neurology, Harvard Medical School, and the Children's and Infants' Hospital. This is number XLVIII in a series entitled "Studies in Epilepsy."

[1] Lennox, W. G.: The Treatment of Epilepsy, M. Clin. North America **29:** 1114 (Sept.) 1945; The Petit Mal Epilepsies: Their Treatment with Tridione, J. A. M. A. **129:** 1069 (Dec. 15) 1945.

[2] Spielman, M. A.: Some Analgesia Agents Derived from Oxazolidine 2-4 Dione, J. Am. Chem. Soc. **66:** 1244, 1944.

ards[3] found that it had an anticonvulsant effect in animals superior to that of either phenobarbital or diphenylhydantoin sodium (Dilantin). Thorne[4] also hailed Tridione as an anticonvulsant for patients, but study of his data gives the opposite impression. Nine of his 11 institutionalized patients had more convulsions when taking large doses of the new drug than when taking phenobarbital or diphenylhydantoin sodium. Comparison with a medicine-free period was without value, for during this period, which followed abrupt stoppage of anticonvulsant therapy, 3 patients went into status epilepticus. Richards and Perlstein[5] and, later, Perlstein and Andelman[6] reported improvement of patients with grand mal as well as petit mal. Of 26 patients, 10 had fewer grand mal seizures while taking Tridione. From the beginning the drug has acted more as a convulsant than as an anticonvulsant in patients treated by me. Failure of a drug to produce the same results against the spontaneous convulsions of patients and the artificially induced convulsions of animals (for which relatively huge doses are given) is neither surprising nor unusual.

In the entire group of 218 patients, one half had a history of convulsions. Among these, an average duration of seven and a half years had produced a total of 443 grand mal seizures per patient, or 59 per year. In many patients grand mal occurred too infrequently for an absence of convulsions to be significant, though in such patients the reappearance of seizures with the institution of medication was considered significant.

Fifty-eight patients of all ages having grand mal seizures frequently enough to permit judgment of results were given Tridione either alone or in addition to whatever anticonvulsant the patient had been using. As shown in figure 1 and table 2, grand mal seizures are controlled in 5 per cent of patients, are at least three-fourths better in 7 per cent, somewhat improved in 9 per cent, unchanged in 29 per cent and worse in 50 per cent. In other words, results are the reverse of those obtained with petit mal; 79 per cent of patients with grand mal were not improved as compared with 83 per cent of those with petit mal improved. Of the 58 patients, 41 also had a history of petit mal seizures. Of these 41 patients who had both types, 56 per cent were worse and 14 per cent were better as far as the grand mal seizures were concerned, whereas in the smaller group of 17 patients with a history of grand mal only, 35 per cent were worse and 36 per cent were in some measure improved. Thus, the convulsant action of Tridione seems to be less in patients whose grand mal seizures are not complicated by petit mal.

Of the 29 patients who experienced an increased frequency of grand mal, 13 were given only Tridione and 16 received diphenylhydantoin sodium in addition. Of these 29, 6 had not had a convulsion for more than a year prior to starting Tridione therapy; 1 had never before experienced a grand mal seizure. In 3 instances, patients with a history of frequent seizures of the grand mal type went into status epilepticus when they were given this drug in place of previous medicaments. Two of them died. These observations discourage the use of Tridione as a treatment for grand mal. Advertisement of Tridione "for the control of the petit mal triad and other convulsive disorders" is, in my opinion, a double misstatement, for it implies that petit mal seizures are convulsions and that in human beings this drug controls convulsions. The physician must always choose the most effective of many possible remedies for his patient. *Any new drug must do more than demonstrate a positive effect; it must prove to be better than drugs of established value.*

Tridione should not be given to a patient who has only grand mal, but when petit mal seizures are complicated by grand mal, as they are in 55 per cent of the patients in this series, and the grand mal seizures recur more often than yearly, both this drug and an anticonvulsant, such as phenobarbital, N-methylphenobarbital (Mebaral), methylphenylethyl hydantoin (Mesantoin)[7] or diphenylhydantoin sodium, should be tried. Because the last named drug frequently causes an increase of petit mal, one of the other drugs mentioned is usually preferable. Of the 41 patients having both grand and petit mal seizures, 14 per cent had fewer of the grand mal type after starting Tridione therapy. A number of our patients, in spite of an initial increase of grand mal, have persisted in the use of combined medication with attainment of satisfactory results for both petit mal and grand mal. Relief or near relief from the petit mal triad was obtained in 67 per cent of patients with only petit mal and in 59 per cent of those having both petit mal and grand mal (table 1).

TABLE 1.—*The Effect of Tridione on Uncomplicated and Complicated Petit Mal*

	Petit Mal Alone		Petit and Grand Mal		All Patients with Petit Mal	
Petit Mal Triad	No.	%	No.	%	No.	%
Entirely controlled	23	31	28	30	51	31
Three fourths controlled	27	36	27	29	54	32
Somewhat improved	13	18	20	22	33	20
Unchanged	10	14	11	12	21	13
Worse	1	1	6	7	7	4
Total	74	100	92	100	166	100

TABLE 2.—*The Effect of Tridione on Grand Mal and Psychomotor Seizures*

	Grand Mal		Psychomotor		All Non-Petit Mal	
Seizures	No.	%	No.	%	No.	%
Entirely controlled	3	5	5	14	9	9
Three fourths controlled	4	7	5	14	9	9
Somewhat improved	5	9	6	17	11	12
Unchanged	17	29	10	29	27	30
Worse	29	50	9	26	37	40
Total	58	100	35	100	93	100

EFFECT ON PSYCHOMOTOR SEIZURES

The psychomotor type of seizure consists of a period of amnesia without convulsive movement other than possibly some tonic rigidity of muscles. Most experienced physicians agree with Merritt and Putnam[8] that phenobarbital is usually of little value, but that diphenylhydantoin sodium renders signal assistance in hirds of patients having this form of , De Jong[9] has stated that he has failed to relieve psychomotor epilepsy with either diphenylhydantoin sodium or Tridione alone, but in 6 patients he obtained excellent results with a combination of Tridione and phenobarbital or diphenylhydantoin sodium.

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[3] Everett, G. M., and Richards, R.: Comparative Anticonvulsive Action of 3,5,5 Trimethyloxazolidine 2-4 Dione (Tridione) Dilantin and Phenobarbital, J. Pharmacol. & Exper. Therap. **81:** 402 (Aug.) 1944.

[4] Thorne, F. C.: The Anticonvulsant Action of Tridione, Psychiatric Quart. **19:** 686 (Oct.) 1945.

[5] Richards, R. K., and Perlstein, M. A.: Tridione: A New Drug for the Treatment of Convulsive and Related Disorders, Arch. Neurol. & Psychiat. **55:** 164 (Feb.) 1946.

[6] Perlstein, M. A., and Andelman, M. B.: Tridione: Its Use in Convulsive and Related Disorders, J. Pediat. **29:** 20 (July) 1946.

[7] Kozol, H.: Methylphenylethyl Hydantoin in the Treatment of Epilepsy, Am. J. Psychiat. **103:** 154 (Sept.) 1946.

[8] Merritt, H. H., and Putnam, T. J.: Sodium Diphenylhydantoinate (Sodium Dilantin) in the Treatment of Convulsive Disorders, J. A. M. A. **111:** 1068 (Sept. 17) 1938.

[9] De Jong, R. N.: The Effect of Tridione in the Control of Psychomotor Attacks, J. A. M. A. **130:** 565 (March 2) 1946.

Our group comprises 35 patients of all ages. The average duration of epilepsy had been 7.3 years, producing an estimated total of 1,129 psychomotor seizures per patient, or 155 per year. Some of these patients had a history of grand mal also, but in each case psychomotor seizures predominated. The results are shown in figure 1 and table 2. Five (14 per cent) of patients have been free of seizures for a significant period (one to three months); 14 per cent have had less than one fourth as many; 17 per cent are somewhat better; 29 per cent are unchanged, and 26 per cent are worse. In 13 of the 16 patients who were improved, and in 9 of the 19 who were not improved, diphenylhydantoin sodium or phenobarbital was given in addition to Tridione. This group is too small and the period of observation too short to justify definite conclusions. Tentatively, one may say that Tridione alone is ineffective in the control of psychomotor seizures but that the occasional patient will benefit from a combination of this drug and diphenylhydantoin sodium.

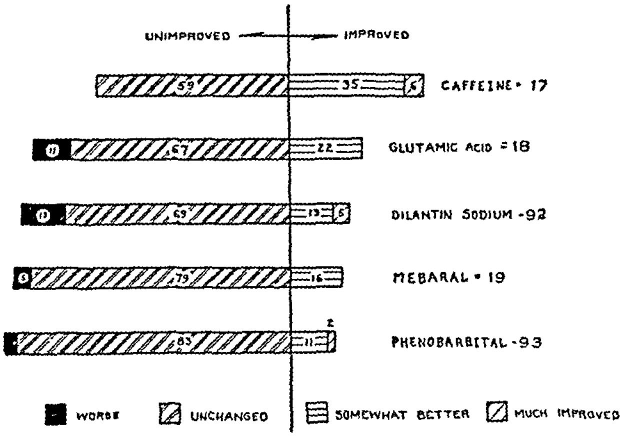

Fig 2.—Effect of previous medication on petit mal. The position of the columns and the symbols have the same significance as in figure 1. The numbers within the columns refer to percentages. The figures to the right indicate the number of patients taking the medicaments

ANALYSIS OF PETIT MAL CASES

Most interest, especially for pediatricians, attends the effect of Tridione on the petit mal triad. The results shown in table 1 are especially startling when viewed against the background of the mediocre results from the use of other medicaments (fig. 2). Naturally, none of this group of 166 patients had secured complete relief from any treatment. The proportion of patients reporting any improvement was: phenobarbital 13 per cent, diphenylhydantoin sodium 18 per cent, N-methylphenobarbital and glutamic acid, each 22 per cent, and caffeine 41 per cent. In this series the number of patients given a certain drug bore no relation to the therapeutic results. Thus, five times as many patients had been given phenobarbital as were given the more effective caffeine. Of the drugs whose use was accompanied by an increase of petit mal seizures, diphenylhydantoin sodium was first with 13 per cent and glutamic acid was second with 11 per cent. A number of other drugs were tried with 1 or more patients. Alcohol and paraldehyde proved of positive benefit in a young woman with myoclonic jerks. Methylphenylethyl hydantoin[10] was of no benefit to 11 patients. Many patients whose petit mal seizures were only partially controlled by Tridione were given phenobarbital, amphetamine sulfate or desoxyephedrine hydrochloride without substantial additional benefit.

Table 3.—*The Effect of Tridione in Petit Mal with Respect to Patient's Present Age*

	Age					
	0 to 9		10 to 19		20 and Over	
Petit Mal Triad	No	%	No	%	No	%
Entirely controlled	23	39	18	24	10	31
Three fourths controlled	14	24	31	41	9	28
Somewhat improved ..	7	25	20	27	6	19
Unimproved ..	15	12	6	8	7	22
Total .	59	100	75	100	32	100

Influence of Age.—The distribution by age of the 166 patients with petit mal was as follows: 0 to 9 years, 36 per cent; 10 to 19 years, 45 per cent; 20 and over, 19 per cent. Thus, 81 per cent of patients were under the age of 20. The proportion of those free of seizures or 75 per cent improved for these three age groups was 63, 65 and 59 per cent, suggesting that age makes little difference in the results obtained. However, on closer inspection, the extremely good and the extremely poor results are found to be concentrated in patients less than 10 years of age. Of patients in the first decade 39 per cent were freed of petit mal, against 24 per cent in the group of those aged 10 to 19. And yet, patients not helped at all formed 12 per cent of the younger group and only 8 per cent of the older. The younger group contained more children with pathologic conditions of the brain, which spoiled what otherwise would have been an extremely good record for this age group (table 3).

Influence of Type of Petit Mal.—Of the 166 patients subject to one or more of the petit mal triad, 131 (79 per cent) had petit mal (pyknoepilepsy); 38 (23 per cent) had akinetic seizures and 39 (24 per cent) had myoclonic jerks. (Some had more than one form.) Results were equally good for all three types; 63 per cent of patients with pyknoepilepsy, 64 per cent of those with akinetic seizures and 70 per cent of those with myoclonic jerks were freed of three fourths or more of their seizures.

Table 4.—*The Effect of Tridione on Pyknoepilepsy with Respect to Duration and Total Number of Seizures*

	A	B	C Average Number of Petit Mal Seizures		
Pyknoepilepsy	Number Patients	Average Years Duration	Total	Per Year	Per Day
Entirely controlled	34	4 32	26,800	6,200	17
Three fourths controlled	48	6 89	17,000	2,500	7
Somewhat improved	28	8 22	27,300	3,300	9
Unimproved	21	5 19	22,100	4,400	12
Total .	131	6 24	22,100	3,540	10

The Duration and Frequency of Petit Mal Seizures.—Akinetic and myoclonic manifestations were too inconspicuous and irregular to permit estimation of their number. Among the 131 patients who gave a history of petit mal seizures (with or without other of the petit mal triad), a rough approximation of the total number of petit mal attacks was attempted. For individual patients this number varied between a few

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10. Lennox, W. G.: Newer Agents in the Treatment of Epilepsy, J Pediat 29: 356 (Sept) 1946.

hundred and 250,000. The period since petit mal began varied from a few months to twenty-five years. Among the 131 patients with petit mal (pyknoepilepsy) the "average" patient during six and one-fourth years had experienced a total of 22,100 petit mal seizures, approximately 3,500 a year, or ten a day. In table 4 these data have been tabulated with respect to the success of therapy. The group of patients who were completely freed of symptoms had had more petit mal seizures than had the average patient, a total of 26,800 against the average of 22,100, or seventeen a day against the average of ten a day. This group had had symptoms for only four and a third years, probably because these children were younger. This tabulation demonstrates that great frequency of pyknoepileptic seizures is no bar to therapeutic success with Tridione.

Among patients improved by treatment there seemed to be correlation between the degree of improvement and the shortness of the history of petit mal (table 4 *B*). The success in patients with a short history is presumably due to their youth rather than to the short duration of the disease. Of the patients with petit mal who were not improved by Tridione approximately one-half revealed evidence of pathologic conditions affecting the brain. For the most part these were young children, a fact which would account for the relatively short history (5.19 years) of those patients who experienced no improvement with Tridione therapy.

These 131 patients in the six and a half years had experienced a total of approximately 3 million petit mal seizures. If present results are a gage of the future, more than half these seizures can be eliminated. On the assumption that there are 100,000 patients with petit mal in the United States, and that a saving of 2,000 of the 3,500 petit mal attacks of the "average" patient (table 4) can be effected, the youth of America could be saved something like 200 million seizures of the petit mal type a year.

Influence of the Electroencephalogram.—Results of the brain wave recordings are available in 137 patients with a history of one or more forms of the petit mal triad. The electroencephalographic diagnoses were as follows: petit mal, 58 per cent; petit mal with slow or fast frequencies, 23 per cent; petit mal variant, 8 per cent; slow or fast frequencies, 7 per cent, and normal electroencephalograms, 4 per cent. Thus 89 per cent of electroencephalograms displayed the spike and wave formations of petit mal or petit mal variant. They were found with least consistency in patients with akinetic seizures. The proportion of patients clinically improved by medicaments was approximately the same for the various electroencephalographic classifications. In general disappearance of clinical petit mal was followed by a sharp reduction or disappearance of spike and wave formations from the record.

Effect of Stopping Medication.—Abrupt cessation of administration of the anticonvulsant drugs, bromide, phenobarbital or diphenylhydantoin sodium; oftentimes is followed by a flood of seizures. With Tridione weeks or months may elapse before the attacks of petit mal return. Indeed, several patients have been without medicaments and free of petit mal seizures both clinically and electroencephalographically for many months, the longest period being eighteen months.

Side Effects.—The low toxicity of 3,5,5-trimethyloxazolidine-2,4-dione and its failure to injure the visceral organs or the blood of animals has been dealt with by Richards and Everett.[11] In the use of new drugs any unusual symptom must be considered suspect. The use of Tridione is followed by unusual and puzzling symptoms, which in some patients neutralize its benefits. Data concerning side effects include statistics on patients who did not continue treatment long enough for the evaluation of therapeutic results.

Among 222 patients who reported adequately, 122 had symptoms which might conceivably be due to the drug. Of these, hemeralopia (photophobia) was by far the most frequent. Sixty-eight patients (31 per cent of those treated) reported some degree of glare when going from indoors into the brightly lighted outdoors. Because of the glare effect, objects at a distance were indistinct and colors faded. The effect diminished on continued exposure to light, but in severe cases patients were required to wear dark glasses when outdoors. The intensity of the symptom was related to the dosage of Tridione. A few patients complained of associated pain in the eyeballs, and 1, of difficulty in focusing the gaze. Photophobia commenced from a few to ten days after the start of medication and disappeared a week or two after its discontinuance. Thorough ophthalmologic examination of several severely affected patients failed to reveal any evidence of defective appearance or function of the eyes not present before medication was begun. The photophobia is as yet unexplained. Simultaneous administration of vitamin A, or of *d*-amphetamine sulfate (Dexedrine) or *d*-desoxyephedrine hydrochloride (Desoxyn), has not been distinctly beneficial. In some patients with only mild symptoms of photophobia tolerance for the drug seemed to develop. Photophobia caused discontinuance of medication in only 5 of the 222 cases. Curiously, children under 6 years of age did not seem to be affected, in spite of the fact that they received larger doses per unit of body weight than did older patients. The proportion of patients affected was 23 per cent in the first decade of life, 34 per cent in the second and 24 per cent in the group aged 20 or over.

Rash was second to photophobia in incidence (32 cases, or 14 per cent of all patients treated) but equally important in forcing the discontinuance of treatment. Unlike photophobia, rash was commoner among young children, 20 per cent in those under and 12 per cent in those over the age of 10 years. The majority of patients, but especially adolescents, complained only of a bad complexion with acne-like papules or small shotlike nodules in the skin of the forehead or face. A generalized measles-like rash appeared in 16 patients (7 per cent). They formed 15 per cent of those under but only 4 per cent of those over 10 years of age. Such a rash required immediate discontinuance of the medicament. However, in most instances, after Tridione was stopped and the rash had disappeared, medication was resumed successfully. Beginning with 0.3 Gm. of the drug a day, or on alternate days, the amount was increased by 0.3 Gm. at two week intervals until the therapeutic dose was reached. One patient had a spreading erythema multiforme with associated fever and leukopenia, which required hospitalization.

The list of unpleasant side effects in the order of their frequency in these 222 patients was as follows: photophobia 68; rash 32; gastric distress or nausea 18; difficult behavior 9; fatigue 7; muscular instability 6;

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[11] Richards, R. K., and Everett, G. M.: Tridione: A New Anticonvulsant, paper read before the Section on Experimental Medicine of the American Medical Association, July 3, 1946.

headaches 5; insomnia, poor appetite and nervousness, 4 each; dizziness, pain in the eyes and nosebleed, 3 each; sleepiness, double vision and poor circulation, 2 each; sneezing, hiccough and aplastic anemia, 1 each. One adult who by mistake took 3.0 Gm. a day for a month experienced mild confusion, which cleared when the dosage was reduced. None had symptoms of psychosis, hypertrophy of the gums or ataxia. However, Walker [12] observed gross ataxia in several epileptic persons whose brains had been severely traumatized in the war. Against the 9 patients with difficult behavior were 20 in whom the behavior was greatly improved; and against 2 with decreased alertness were 15 who became more alert. These last were children whose petit mal and cerebral dysrhythmia had disappeared or were greatly improved.

Effect on the Blood.—In a person allergic to a drug, the blood-forming organs as well as the skin may react to that drug. Some of the most valuable drugs, for example, those of the sulfonamide group, are most troublesome in this respect. My associate Dr. Jean Davis to date has made repeated monthly examinations of the blood of 127 patients who have taken Tridione for from several months to two years. None has had significant decrease of hemoglobin, red cells or platelets. In 6 per cent of the cases the polymorphonuclear leukocytes decreased to 1,600 or less per cubic centimeter and Tridione medication was discontinued. In one fourth of the patients the eosinophils increased to from 6 to 25 per cent. In all cases the hematic picture returned to normal when use of the medicament was discontinued. In most instances medication was then resumed, but the blood was reexamined frequently. (This series of observations does not include the case of aplastic anemia mentioned under mortality.)

The incidence of allergic manifestations of the blood is no greater than such reactions with many other drugs. However, the physician should prescribe Tridione only for patients likely to benefit—those who have one of the petit mal triad. He should attend to complaints of fatigue, weakness, dizziness, pallor, sore throat, fever, coryza or edema, and he should have the blood examined at intervals, preferably monthly. The first evidence of serious trouble would be an obvious diminution in the number of platelets in the stained smear. However, a count of leukocytes below 4,000, together with polymorphonuclears less than 40 per cent, or numbering less than 1,600 are indications for at least temporary discontinuance of medication.

Mortality.—In this series of 218 patients followed for an adequate period there were 3 deaths. Two occurred during status epilepticus in patients with gross cerebral pathology. The first patient had been in status epilepticus frequently before; the second, a girl with frequent psychomotor seizures, had not been in this state previously but went into a prolonged series of convulsions a few days after Tridione was substituted for diphenylhydantoin sodium. The third patient, a girl of 16, had been taking methylphenylethyl hydantoin 0.3 to 0.4 Gm. intermittently for eleven months and Tridione 1.2 Gm. constantly for eight months; aplastic agranulocytic anemia developed, with bleeding which could not be checked. Details and observations at autopsy will be reported by the physicians in another city who attended her.[13] A second similar case is reported from Chicago.[14] In neither case had blood examinations been made. These 2 deaths due to allergic reaction to the drug from among 10,000 or more patients who have taken this medicine should not deprive patients who need it of Tridione but should encourage vigilance on the part of the attending physician.

Reasons for Stopping Treatment.—Among the 80 patients who discontinued medication with Tridione, the largest number stopped because of increased convulsive seizures or failure to control petit mal. The primary difficulty was with grand mal in 20 cases, with psychomotor seizures in 8, with petit mal in 17, and with both petit and grand mal in 4.

A rash caused discontinuance in 5 patients, all but 1 of whom had petit mal. Seven stopped because of neutropenia and 5 because of photophobia. One of these patients had secured release from petit mal of twenty years' duration, but an eye which had been blind from birth became inflamed and painful and was removed. On the resumption of Tridione therapy the remaining eye became hyperemic, and administration of the drug was stopped as a measure of precaution. Increased irritability and refusal of the child to take medicine, each caused discontinuance in 2 instances. Thus less than 10 per cent of patients had to stop treatment because of toxic complications. In addition medication was stopped in 6 patients who were free of seizures as a test of the permanence of the arrest of their disease.

Dosage.—Tridione is dispensed in capsules, each of which contains 0.3 Gm. The beginning dose for infants is 0.3 Gm.; 2 to 4 years, 0.6 Gm., and five years and above, 0.9 Gm. daily. The usual dose for adults is 0.9 to 1.2 Gm. daily. The medicament is given thrice daily with meals. In young children, the contents of a capsule may be placed in food—apple sauce, cream or cereal. If gastric distress follows ingestion a liberal quantity of fluid should be taken with the drug. If after one month seizures are not controlled the daily dose is increased by 0.3 Gm. at monthly intervals until therapeutic relief is secured, toxic symptoms appear or double the initial dose is being taken. Several patients have been free of seizures since the first dose, but maximum improvement usually occurs in from one to four weeks.

The largest period of waiting for relief and the largest dose used was for a child aged 8 who had 50 to 75 petit mal seizures a day. After six months of medication with a final maximum of 2.1 Gm. of the drug a day, and after discontinuance of diphenylhydantoin sodium, petit mal disappeared both clinically and electroencephalographically. She has been free of seizures for a year, but because of the slowness of improvement the administration of Tridione has only recently been discontinued.

An increased dose which does not result in further decrease in the number of seizures, as it may not, should not be continued. Larger amounts than those mentioned have been given by others without ill effect. Patients whose symptoms are not controlled by the usual doses have been hospitalized by Gibbs [15] and given as much as 4.5 Gm. of Tridione a day for a number of days. Seizures of petit mal stopped by these heroic amounts may not return when normal dosages are resumed. In practice, if petit mal seizures have been absent for three months and the electroencephalogram is free of dart and dome formations, the dosage of the medicament is reduced by one capsule (0.3 Gm.) every two months until none is taken or seizures return. If the brain wave tracing, made semiannually, reveals a return of petit mal formations medication is resumed. In the absence of trustworthy [illegible] examinations, dependence must [illegible] reports or on the amount of overventilation required to produce a petit mal seizure.

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[12] Walker, A. E.: *Personal communication to the author.*

[13] Harrison, F. F.; Johnson, R. D., and Ayer, D.: Fatal Aplastic Anemia Following Use of Tridione and a Hydantoin, J. A. M. A. **132:** 11 (Sept. 7) 1946.

[14] Mackay, R. P., and Gottstein, W. K.: *Aplastic Anemia and Agranulocytosis Following Tridione,* J. A. M. A. **132:** 13 (Sept. 7) 1946.

[15] Gibbs, F. A.: Personal communication to the author.

SUMMARY

Treatment with 3,5,5-trimethyloxazolidine-2,4-dione (Tridione) has been evaluated in 218 epileptic patients. It has proved wonderfully effective in controlling the petit mal triad: petit mal (pyknoepilepsy), myoclonic jerks or akinetic seizures. Of 166 patients who had frequent daily seizures of this type, 83 per cent were better and 31 per cent were freed of this form of seizure. The proportion of children who were freed of petit mal, but also (because of cerebral pathology) the proportion of those not helped at all, was greater for younger than for older children. Great frequency of seizures was no bar to success of treatment with this drug.

In contrast, Tridione was helpless against convulsions. Of 58 patients having frequent grand mal seizures (with or without complicating petit mal) 21 per cent had less frequent and 50 per cent had more frequent convulsions. The drug when used alone was ineffective in 35 patients having psychomotor seizures, but in a minority of cases it supplemented the therapeutic action of diphenylhydantoin sodium.

Of the various side effects, rash and hemeralopia (photophobia) were most frequent. The first was most pronounced and the second least pronounced in young children. Most serious is a possible toxic effect on the bone marrow. Monthly blood examinations with discontinuance of medication if neutrophils fall below 1,600 per cubic millimeter seems to provide adequate protection.

Use of this drug is contraindicated for patients who have convulsions (grand mal) only. It must be used circumspectly or in combination with some anticonvulsant if the patient has both petit mal and convulsive seizures. It is clearly the drug of choice in the treatment of the petit mal triad.

ADDENDUM

Recently I have learned of 3 cases of toxic amblyopia (which cleared when medication was stopped) and of 2 additional deaths from aplastic anemia (probably without preceding blood examinations).

On preliminary trial, an experimental homologue of Tridione (dimethylethyloxazolidine dione) seems to be somewhat more effective [illegible]t mal and to exhibit somewhat less [illegible] is cumulative that Tridione is not an anticonvulsant for patients.

ABSTRACT OF DISCUSSION

Dr. Meyer A. Perlstein, Chicago: When Dr. Lennox studies a subject one may be sure that it is thoroughly covered. It would be hard to duplicate a series such as he has presented, and I think that he has shown that Tridione, like taxes, is here to stay. It was gratifying to see Dr. Lennox corroborate observations I happened to make over a year and a half ago. In pediatrics one always thinks of using a new drug for conditions other than that for which it was originally intended. I wanted to mention some of the other conditions for which Tridione has been used. One of its important uses is in cerebral palsy, in which children are tense and rigid and it is often necessary to relax this rigidity or tenseness before one can attempt to train them. In children who are suffering from cerebral palsy of the extrapyramidal, or athetoid type Tridione will often be effective in relieving the tenseness. It is much more effective than phenobarbital or bromides or any other sedatives. In patients with the spastic type of palsy the drug seems to be of less benefit; apparently it has a selective action on the athetoid rather than on the spastic type of cerebral palsy. Dr. Lennox mentioned the changes in behavior incident to the administration of the drug. In some instances behavior became worse, but in several instances it improved. In some children with behavior disturbances without convulsions a decided improvement in this behavior resulted after Tridione therapy. Unfortunately, this improvement is not sustained. In other words, it is not a substitute for psychotherapy or for the removal of the causes of disturbance in behavior; but it is a good sedative, and one will often find it better than phenobarbital and bromides in these behavior disturbances. The use of Tridione against chorea proved disappointing. It was also used in cases of paralysis agitans. (Some pediatricians take care of anybody who has ever been a child.) This group of patients not only did not get better but most of them got worse. The drug was also employed in an attempt to control the convulsions of tetanus and it was quite an effective anticonvulsant in tetanus provided the patient was not one who was an alcoholic addict. For such the drug seemed to result in no benefit at all. It appears that alcoholism engenders a tolerance toward this drug such as is often seen with barbiturates and other such drugs. So far as Tridione itself is concerned, I think Dr. Lennox has pointed out that there are often failures in petit mal epilepsy. Most of the failures I have seen have been in petit mal epilepsy associated with organic disease of the brain. The best results are obtained in the so-called idiopathic form of the disease. In grand mal this drug is less effective. It is best used as an adjuvant or additional drug in those patients who have not responded to therapy with phenylhydantoin sodium or phenobarbital. If cases are divided into lesions of the pyramidal tract and of the extrapyramidal tract, in most of the former cases the patient obtains no improvement at all, whereas those with the extrapyramidal lesions do get improvement.

Dr. Richard K. Richards, North Chicago, Ill.: To my co-workers and myself who had the good fortune to discover the rather unexpected anticonvulsive action of Tridione in animals and to suggest its introduction into the field of epilepsy, it is gratifying to have such competent investigators as Drs. Lennox and Perlstein confirm that the drug has a real place in the therapeutic armamentarium. I presented an outline of the pharmacology of Tridione before another section yesterday. This drug was synthetized as an analgesic, and was found to possess analgesic properties in animals and in human beings. This is in accordance with the remark of Dr. Perlstein that the drug seems to have a subcortical point of action. Some evidence for this can be derived from his clinical experiments and from the fact that pain centers are located, at least partially, in the thalamic region. To my knowledge Tridione is the only drug which can be called both an anticonvulsant and an analgesic. Drs. Lennox and Perlstein also pointed out toxic effects which escape pharmacologic study. Dr. Lennox does not wish to describe the drug as an anticonvulsant in order not to confuse the physician into expecting anti-grand mal action from Tridione. I think his evidence and that of other investigators strongly indicates that the drug should not be used in grand mal alone without other medication. However, the fact that Tridione possesses anticonvulsive effect has been evident by its action against clinical tetanus and its effectiveness in status epilepticus by intravenous injection. In this last indication it has been used successfully by such competent observers as Drs. Erickson and Masten in Madison, Wis., and Dr. Thorne in Brandon, Vt. The toxicity of Tridione in animals and human beings is extremely low. It possesses little if any effect on circulation and respiration in doses which are effective against convulsions or as an analgesic.

Clinical Notes, Suggestions and New Instruments

SPONTANEOUS RUPTURE OF THE SPLEEN DUE TO INFECTIOUS MONONUCLEOSIS

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Infectious mononucleosis may sometimes be difficult to diagnose because of the vague and protean symptomatology which it presents. It may also be the cause on extremely infrequent occasions of a grave complication such as spontaneous rupture of the spleen. Because of more accurate hematologic studies, infectious mononucleosis as a disease entity is now being diagnosed more frequently and accurately than heretofore. Therefore, all complications which occur with the disease should be watched for carefully. Spontaneous rupture of the spleen should not be overlooked if the patient has abdominal symptoms which may be diagnostic of such an occurrence, especially since rupture of the spleen can terminate fatally. This case is being reported so that such spontaneous rupture may not go undiagnosed when symptoms present themselves. That this is a rare complication of infectious mononucleosis can be attested by the literature, in which only 12 cases have been reported to date,[1] 7 of which had just recently been reported by Smith and Custer[2] in the July 1946 issue of *Blood*. This case is, therefore, being reported so as to add to the literature all available instances of this rare complication.

Hematologic Studies

Date	Erythrocytes × 1,000	Hemoglobin, per Cent	Leukocytes	Neutrophils, per Cent	Eosinophils, per Cent	Basophils, per Cent	Lymphocytes, per Cent	Monocytes, per Cent	Heterophils	Blood Platelets × 1,000
6/17/46	3,900	..	9,900	65	..	..	45	1	.....	...
6/20/46*	3,650	71	6,000	..	3	1	34	..	.....	...
6/22/46	3,580	68	15,800	81	2	..	12	5	.....	...
6/24/46	4,000	81	13,500	76	2	..	21	1	.....	...
6/26/46	.....	..	11,500	75	..	..	22	3	1:248	...
6/29/46	3,500	74	9,500	66	2	..	28	4	.....	...
7/ 5/46	4,700	91	13,800	75	2	..	20	3	.....	...
7/13/46	4,143	81	8,500	53	1	..	41	5	.....	312
7/16/46	4,500	84	8,000	50	..	.	42	5	.....	...
7/23/46	4,200	74	7,000	41	..	..	50†	5	.....	180

* Day of surgical intervention. † Abnormal cells, 10 per cent.

REPORT OF A CASE

A white man aged 25, single, a commercial artist, entered the hospital for the first time on June 16, 1946. The patient stated that two weeks prior to the onset of this disease he noticed headache and some malaise. Prior to this for about six months he noticed the loss of 50 pounds (23 Kg.), the development of weakness and upper abdominal pain which was relieved by taking broth and staying in bed. Three days prior to admission there developed a sore throat and about one day prior to admission to the hospital there developed fever and over the left upper abdominal quadrant severe pains, which were worse with deep breathing. He had been coughing a great deal and this aggravated the pain. The chief complaint on entering the hospital was abdominal distress, fever, sore throat and pains in the left upper abdominal quadrant. Examination revealed an acutely ill white man, well nourished, with normal muscular development. The temperature was 99.2 F., the pulse rate 94, the respiratory rate 22. Examination of the nose, throat and mouth revealed some enlarged, red tonsils and a redness of the posterior pharyngeal wall, but no membranes were noted. The cardiovascular system was essentially normal. No abnormalities were noted in the respiratory system except depressed breath sounds in the left lower part of the chest. No lymphadenopathies were noted. There was extreme tenderness over the tenth to the twelfth rib posteriorly and over the seventh rib on the left side anteriorly. No palpable masses were felt. Examination of the blood on June 17, 1946 revealed a total of 3,900,000 erythrocytes and 9,900 leukocytes, with a differential count as follows: polymorphonuclear leukocyte, 55 per cent; lymphocytes, 45 per cent, and monocytes, 1 per cent. The hemoglobin was 68 per cent and the color index was 0.87. The urinalysis performed on the same day was essentially negative, and the complement fixation test and the precipitation test for syphilis were negative. A presumptive diagnosis of diphtheria was made at this time, and the patient was isolated for treatment. The patient was seen again on the following day, at which time it was decided that he did not have any evidence of diphtheria. However, he was still complaining of severe pain in the left lumbar region, which continued to be aggravated by deep breathing. He stated that on June 14, which was two days prior to his admission to the hospital, he suffered agonizing pain in the left upper abdominal quadrant and then fainted. He gave no history of malaria or trauma. On June 19 examination of the lungs revealed impaired resonance posteriorly over the left side of the chest below the eighth rib, with absence of sounds and tactile fremitus in this area. The left base posteriorly lagged in expansion. Examination of the abdomen at this time revealed tenderness and rigidity in the left upper abdominal quadrant and left lumbar region. The liver and spleen were not palpable. There was pain in the left shoulder. A splenectomy was performed on June 20, 1946 with the following notation as to gross observations: The abdomen contained about 1,500 cc. of free blood. Two lacerations of the spleen were present, one located on the central portion and one on the lower pole. There were some subcapsular hemorrhages. The spleen was about three times the normal size and was friable. The postoperative convalescence was somewhat stormy, complicated by the development of fluid within the left side of the chest.[3] Postoperative treatment consisted chiefly of the administration of heparin and Dicumarol (3,3′-methylene-bis-[4-hydroxycoumarin]) for the prevention of thrombi in the splenic vessels, which may be an extremely discomforting complication of this disease. Also repeated aspirations of the chest were performed for the removal of fluid. The prothrombin level was watched closely during the administration of Dicumarol and heparin, and these levels were used as an index in the administration of the anticoagulant therapy. The fluid removed from the chest was sterile in smear and culture and contained about 60 lymphocytes per centimeter. The heterophil antibody test was positive at one time, being 1:248, and the Davidsohn absorption test revealed that not more than three fourths of the heterophil antibody was removed by guinea pig kidney antigen absorption. This is considered confirmatory evidence for the presence of infectious mononucleosis. The leukocyte-lymphocyte ratio is not particularly characteristic. However, the characteristic abnormal mononuclear cell was found on frequent occasions, as shown in the accompanying table.

PATHOLOGIC REPORT

The spleen weighed 695 Gm. and measured 8.5 by 5.5 cm. The vessels of the hilus were small. Only small stumps were shown with no arterial sclerosis or thrombosis in the arteries.

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[1] Darley, W.; Black, d Good, F. A.: Spontaneous Splenic Rupture in Infectious Mononucleosis, Am. J. M. Sc. **208:** 381-384 (Sept.) 1944. Davis, J. S.; MacFee, W.; Wright, M., and Allyn, R.: Rupture of Spleen in Infectious Mononucleosis, Lancet **2:** 72-73 (July 21) 1945. King, R. B.: Spontaneous Rupture of the Spleen in Infectious Mononucleosis, New England J. Med. **224:** 1058-1060 (June 19) 1941. McCarthy, A. M., and Knoepp, E. T.: Spontaneous Rupture of Spleen, Am. J. Surg. **65:** 413-415 (Sept.) 1944. Zeigler, E. E.: Infectious Mononucleosis, Arch. Path. **37:** 196-201 (March) 1944. Best, R. R., and Schmid, J. F.: Ruptures of Malarial Spleen Unassociated with External Trauma, Surg., Gynec. & Obst. **82:** 731-734 (June) 1946. Vaughan, S. L.; Regan, J. S., and Terplan, K.: Rupture of the Spleen and Central Nervous System Involvement, Blood **1:** 334 (July) 1946.

[2] Smith, E. B., and Custer, R. P.: Rupture of the Spleen in Infectious Mononucleosis, Blood **1:** 317 (July) 1946.

[3] Littlefield, J. B.: Spontaneous Rupture of the Spleen, Surg., Gynec. & Obst. **82:** 207 (Feb.) 1946.

The vein was collapsed and contained no thrombosis. The capsule was dark red, thin, transparent and smooth on the hilar or mesial surface. This capsule was also firm and closely adherent to the stroma. On the diaphragmatic surface there was a loose, redundant, dark red, pliable capsular membrane over the major portion of this surface with an absence of the capsule close to one pole. In this latter area shreds of capsule adhered to a blackish red blood clot. There were no other discolorations in the subcapsular area or in the adjacent stroma except as indicated later. There was a recent black-red thrombus adherent to the spleen. On section, the loosened capsule was found to cover a partially firm, blackish red clot, which was 1 to 1.5 cm. thick. Beneath it the stroma was light reddish brown, firm, homogeneous and smooth, with lymphoid follicles visible grossly. The blood vessels in the stroma were unaltered. At the upper pole, where the thrombus was not adherent at all, there was a solution of the spleen involving the capsule for a distance of about 4.5 cm. and extending into a softened area about 1 cm. deep. The stroma was darker red and relatively soft. At the upper pole there was definite dark reddish softening along the mesial aspect in an area 5 by 3.4 cm. No thrombus of the veins in this area and no gross alteration or enlargement of arteries were noted. The subcapsular clot had an approximate weight of 150 Gm. The weight of the spleen 545 Gm. The diagnosis was subcapsular hematoma with rupture of an enlarged spleen.

MICROSCOPIC EXAMINATION

A section taken through the hematoma showed an organizing blood clot which on the margin was subcapsular in location. Near the hemorrhage into the capsule there was an infiltration of cells, comprising polymorphonuclears, fibroblasts and large, pale, round cells. The pulp was extremely cellular. The malpighian follicles were conspicuous, although not particularly enlarged. The germinal centers showed no activity. The white pulp revealed a striking uniformity of cellularity. A large cell in which the nuclei were either rounded, kidney-shaped or elliptic with pale cytoplasm was the conspicuous and predominating cell. These cells were found within the splenic cords, along the endothelial layer of the sinusoids and within the sinusoids proper. The latter were compressed and almost indistinguishable from the cords, particularly because of the uniformity of each component cell. Eosinophilic cells were increased in number. The trabecular veins showed a decided metaplasia of endothelial cells to cells similar to those found in the cords and sinusoids. Within the lumen of these veins there were collections of similar cells. There were no dilated sinusoids, no thrombi, and no areas of infarction. The diagnosis was hyperplasia compatible with infectious mononucleosis.

SUMMARY AND COMMENT

An additional case of spontaneous rupture of the spleen occurring in a case of infectious mononucleosis is reported. The diagnosis of infectious mononucleosis was not arrived at until after the rupture, when a review of the history of sore throat, malaise, fever and pain in the left upper quadrant of the abdomen suggested the cause and a positive heterophil reaction confirmed the diagnosis. The Davidsohn absorption test was performed in conjunction with the heterophil test because this patient had received diphtheria antitoxin at the onset of his illness, and diphtheria antitoxin could also give a positive heterophil reaction. The laboratory findings were not too characteristic as far as the polymorphonuclear, lymphocyte ratio is concerned, although the characteristic mononuclear cell was found.

The pathologic specimen conformed with the findings of others in that the spleen was enlarged, soft and friable and microscopically presented a cellular infiltration of the capsule, trabeculae, sinusoids and follicles—the entire architectural structure was blurred. The characteristic mononuclear cells were found throughout the stained tissue.

Diagnosis of rupture of the spleen is not difficult if it is kept in mind. Pain in the upper left quadrant of the abdomen, shifting dulness and pain referred to the left shoulder blade are all symptoms which suggest the spleen as the etiologic agent. In the course of malaria or infectious mononucleosis, however, it has been our experience that perisplenitis will give all these symptoms except shifting dulness; therefore, some evidence of bleeding must be awaited for confirmation of the rupture. A falling hematocrit reading or blood count in the presence of these other symptoms is sufficient to warrant an exploration.

CONCLUSIONS

1. Spontaneous rupture of the spleen may occur in infectious mononucleosis.

2. The heterophil reaction may be affected by diphtheria antitoxin, and therefore the Davidsohn absorption test should be combined with the heterophil test to make an accurate diagnosis.

3. Patients presenting symptoms of left upper abdominal pain in whom a diagnosis of acute infectious mononucleosis has been made should be observed for rupture of the spleen.

4. Operative intervention should not be undertaken until definite signs of bleeding are present.

5. Pleurisy with effusion is a common complication of spontaneous rupture of the spleen due to infectious mononucleosis, probably because of perisplenitis, diaphragmatitis and pleuritis.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. Howard A. Carter, *Secretary.*

GLASDOWN PILLOWS ACCEPTABLE

Manufacturer: Glasdown Corporation, Wilkes-Barre, Pa.

Glasdown Pillows are filled with microscopically fine fibers of glass (Owens Corning Fiberglas Corporation). Glass fibers are inorganic. Hence the pillows are recommended for relief of persons sensitive to feather dust or to the disintegration or deterioration of products of other organic materials used to fill pillows. The fibers are lightly bonded with a combination of phenolformaldehyde and silicon resins to provide consistency of pack and ease of handling.

Repeated use of the pillows apparently will not cause the fine fibers to penetrate the pillow ticking, and evidence has been submitted to substantiate this claim. In the test a bowling ball 8 inches in diameter weighing 16½ pounds was repeatedly dropped on the pillow under observation. The testing apparatus was so arranged that approximately twenty seconds elapsed between impacts of the bowling ball to allow the pillow to recover essentially its original shape. The pillow was crushed 50,000 times in this manner. Periodic examinations of the pillow during the running of the test disclosed that no fiber penetrated the pillow ticking and no fiber was found in the pillow slip. Indentation in the pillow resulted where the bowling ball came in contact with the pillow but was removed by kneading and "fluffing" the pillow. Examination at the conclusion of the test showed the pillow to be in good condition after 50,000 crushings. The pillow ticking was cut open to allow additional examination of the fibers. The fibers did not break down during the test. The density of the fibers is 0.6 pound per cubic foot and the average diameter of each fiber is 0.00008 inch.

Glasdown Pillow.

Examination by the Council confirmed the results of the investigation and the evidence submitted by the firm. The fact that the fibers did not break down precluded the possibility of air borne glass being formed and expelled when the pillows are in use.

The Council on Physical Medicine voted to accept the Glasdown Pillows for inclusion in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 10, 1947

THE TEACHING OF NUTRITION—III

The ability of animals to withstand the stress and strain of pregnancy and produce healthy offspring depends in large measure on the type of food consumed during the antepartum period. The offspring's ability to grow and resist infection is influenced by the food consumed during the antepartum period. Moreover, specific congenital malformations can be produced almost at will by feeding diets deficient in certain essential nutrients.[1]

Until recently little attention has been paid to the role of nutrition in the pregnant woman, probably because our medical training has been concentrated on the study of definite clinical entities rather than on the state of health of the individual patient. While investigation in recent years has shown that gross deficiency diseases are usually the result of a severe lack of certain nutrients, even a relatively slight food deficiency, particularly during periods of stress, can disturb the normal metabolism of the body, with resultant impairment in health.

Studies[2] have been reported which demonstrate the striking effect of the food intake during the antepartum period on the health of both the mother and the offspring. Pregnant women on a diet that supplied less than the recommended amounts of the essential nutrients[3] had more complications, such as anemia, severe vomiting, preeclampsia and eclampsia, miscarriage, stillbirth, accidental hemorrhage and primary uterine inertia than women receiving what is considered an adequate diet. The duration of labor was longer and complications were encountered more frequently not only during the antepartum period but also during both labor and convalescence. The ability of the mother to nurse her infant was influenced by the antepartum diet.

What may at first glance resemble a "fairy story" are the reports of the effect of the antepartum diet on the health of the offspring. Women who received a poor diet compared with those on an adequate diet had a greater number of stillbirths and prematurely born infants. The number of illnesses and deaths during the first few months after birth was much greater in infants born of mothers who had a poor antepartum diet than in the offspring of those who had received the recommended diet. These observations simply confirm what every one interested in animal husbandry has known for years; namely, that the health of the offspring is affected by the nutritional adequacy of the food eaten before the offspring is born.

During the past thirty years pediatric care has improved, with a striking reduction in the infant mortality rate. However, the reduction in the neonatal mortality rate has not been nearly so ample. For instance, in the city of Toronto the mortality rate for infants over 1 month of age and under 1 year of age dropped from 63 per thousand in 1915 to 9 per thousand in 1945, while the mortality rate for the first month of life dropped only from 46 per thousand in 1915 to 23 per thousand in 1945. Thus in 1945 no less than 72 per cent of all deaths in the first year of life occurred during the first month of life.

The importance of incorporating the study of nutritional requirements during pregnancy into the teaching curriculum of the medical student is obvious. In most medical schools the fundamental principles of nutrition are first taught in the early years of the course in the departments of biochemistry and physiology. In lectures the students are told about the essential nutrients, such as amino acids, carbohydrates, fats, minerals and various vitamins and the part played by these nutrients in the normal metabolism of the body. However, the student usually has little idea how this information is to be applied in the practice of medicine. There is need for closer correlation of this preclinical teaching of nutrition and the teaching of its practical application. The student's interest in nutrition can be increased by incorporating in the early part of the medical course lectures given by clinicians. The practical importance of nutrition in obstetric practice could here be emphasized.

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[1] Warkany, Josef, and Nelson, Rose C.: Science **92:** 383 (Oct. 5) 1940; Anat. Rec. **79:** 83 (Jan. 25) 1941; Skeletal Abnormalities Induced in Rats by Maternal Nutritional Deficiency, Arch. Path. **34:** 375 (Aug.) 1942. Warkany, Josef; Nelson, Rose C., and Schraffenberger, Elizabeth: Congenital Malformations Induced *in Rats by Maternal Nutritional Deficiency*: II. Use of Varied Diets and of Different Strains of Rats, Am. J. Dis. Child. **64:** 860 (Nov.) 1942; J. Bone & Joint Surg. **25:** 261 (April) 1943; IV. Cleft Palate, Am. J. Dis. Child. **65:** 882 (June) 1943. Warkany, Josef, and Schraffenberger, Elizabeth: Proc. Soc. Exper. Biol. & Med. **54:** 92 (Oct.) 1943; J. Nutrition **27:** 477 (June) 1944; Proc. Soc. Exper. Biol. & Med. **57:** 49 (Oct.) 1944. Warkany, Josef: J. Pediat. **25:** 476 (Dec.) 1944; Milbank Mem. Fund Quart. **23:** 66 (No. 1) 1945.

[2] Tompkins, W. T.: J. Internat. Coll. Surgeons **4:** 147 (April) 1941. Ebbs, J. H.; Tisdall, F. F., and Scott, W. A.: J. Nutrition **22:** 515 (Nov.) 1941. Ebbs, J. H.; Scott, W. A.; Tisdall, F. F.; Moyle, Winifred J., and Bell, Marjorie: Canad. M. A. J. **46:** 1 (Jan.) 1942. Ebbs, J. H.; Brown, Alan; Tisdall, F. F.; Moyle, Winifred J., and Bell, Marjorie, ibid. **46:** 6 (Jan.) 1942. Ebbs, J. H., and Kelley, H.: Arch. Dis. Child. **17:** 212 (Dec.) 1942. Interim Report of People's League of Health, Lancet **2:** 10 (July 4) 1942. Burke, Bertha S.; Beal, Virginia A.; Kirkwood, S. B., and Stuart, H. C.: Am. J. Obst. & Gynec. **46:** 38 (July) 1943; J. Nutrition **26:** 569 (Dec.) 1943. Burke, Bertha S.; Harding, Vernette V., and Stuart, H. C.: J. Pediat. **23:** 506 (Nov.) 1943. Balfour, M. I.: Lancet **1:** 208 (Feb. 12) 1944. Stuart, H. C.: Fed. Proc. **4:** 271 (Sept.) 1945. Arnell, R. E.; Goldman, D. W., and Bertucci, F. J.: Protein Deficiencies in Pregnancy, J. A. M. A. **127:** 1101 (April 28) 1945. Burke, Bertha S.: Am. J. Pub. Health **35:** 334 (April) 1945.

[3] Food and Nutrition Board, National Research Council, Washington, D. C. Recommended Dietary Allowances, Reprint & Circular Series No. 122, August 1945.

Most of the teaching on nutrition in obstetric practice should be done in the antepartum clinic and the lying-in hospital. Here the obstetrician can draw attention to the importance of adequate nutrition. Practical instruction on nutrition in obstetric practice should be just as much a part of obstetric teaching as instruction on routine urine examinations, blood pressure records and pelvic measurements. It can be demonstrated how easily and how frequently, even in the best fed areas of the country, pregnant women take diets low in the essential nutrients, particularly protein, calcium, iron and ascorbic acid. Also at the antepartum clinic practical instruction on nutrition can be given to the medical student by the obstetrician and the dietitian. He can be taught how to translate the patient's requirements for the essential nutrients into amounts of ordinary foods and, with a minimum of time and effort, check the nutritional adequacy of the diet by estimating the daily consumption of milk, meat, eggs, vegetables, fruits, whole grain cereals and vitamin D. The application of this knowledge in the practice of medicine is important not only for the patient but also for future generations.

THE METABOLISM OF TRYPTOPHAN

Certain amino acids, including tryptophan, are essential for the growth of young animals and for maintenance in the adult. The necessity for the essential amino acids is not limited to protein for formation of new tissue; the metabolic use of methionine for detoxication and for the formation of such physiologically important substances as choline and creatine exemplifies this fact. Current experimental studies reveal metabolic functions of comparable importance for tryptophan.

Support for the view that the daily requirement for tryptophan may reflect other physiologic functions than formation of tissue protein is found in a recent observation in adult human subjects[1] that only approximately 1 per cent of ingested tryptophan from dietary proteins appears in the urine as such. Since the fecal loss should be small according to the available evidence, a large part of ingested tryptophan must be accounted for by some other disposition. A portion of ingested tryptophan is metabolized to undetermined end products by way of such intermediates as kynurenine and kynurenic acid. Pyridoxine appears to be involved in the metabolic breakdown of tryptophan since, in experimental pyridoxine deficiency, intermediate degradation products, such as xanthurenic acid,[2] appear in the urine.

Recent studies indicate a further pathway in the metabolism of tryptophan, this one being of immediate practical importance. In 1945 a group of workers at the University of Wisconsin[3] reported that rats fed a "pellagragenic diet" containing corn grits showed poor growth and that this was counteracted by either niacin or tryptophan. This striking observation was soon verified by other workers, who succeeded in demonstrating in addition that niacin derivatives were excreted in the urine in increased amounts.[4] Current studies[5] have now confirmed the foregoing work in human subjects. The oral administration of tryptophan produced a prompt and distinct increase in the content of niacin derivative in the urine, thus indicating that some niacin can be synthesized in the body from tryptophan. This conversion explains the puzzling observation of Goldberger and his associates[6] some twenty-five years ago that an increase of the protein allowance of pellagrins brought about an improvement in their condition. In the light of the recent experiments, some of the tryptophan from the additional dietary protein was converted to niacin, thus partially satisfying the niacin requirement of the pellagrous patients and bringing about the observed improvement in their clinical condition. Apparently, however, the human subject is unable to synthesize a sufficient amount of niacin from tryptophan to satisfy completely the daily need. This additional amount, some 12 to 20 mg., must still be provided as the preformed vitamin in the food.

SENATOR SMITH OF NEW JERSEY AND MEDICINE

As a part of the celebration of its one hundredth anniversary the New York Academy of Medicine presented a series of lectures on the relation of health to government and medicine. Dr. Haven Emerson delivered the Herman Biggs Memorial Lecture on "The Hospital Survey and Construction Act and a Nationwide Health Program," and an address was made on "Government and Medicine" by the Honorable H. Alexander Smith of New Jersey. The medical profession of the United States is fortunate in the election of Mr. Smith to the Senate; his father was a physician, a member of the New York Academy of Medicine. In his presentation, Senator Smith stated his credo relative to proposed legislation affecting the medical profession. He indicated his support of the establishment of a National Science Foundation; he endorsed the view that education in the professions can best be left to the institutions of learning, which have long carried this responsibility. He expressed considerable doubt of the value of subsidies to encourage students and endorsed the statement of Dr. Haven Emerson that "it is not at all certain or clear from past experience that paying students to be educated . . . by public subsidy is the best way of securing the highest quality of candidates."

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[1] Schweigert, B. S.; Sauberlich, H. E., and Elvehjem, C. A.: J. Biol. Chem. **164:** 213 (July) 1946.

[2] Lepkovsky, Samuel; Roboz, Elisabeth, and Haagen Smit, A. J.: J. Biol. Chem. **149:** 195 (July) 1943.

[3] Krehl, W. A.; Teply, L. J.; Sarma, P. S., and Elvehjem, C. A.: Science **101:** 489 (May 11) 1945.

[4] Rosen, Fred; Huff, J. W., and Perlzweig, W. A.: J. Biol. Chem. **163:** 343 (April) 1946.

[5] Sarrett, H. P., and Goldsmith, G. R.: J. Biol. Chem. **167:** 293 (Jan.) 1947. Perlzweig, W. A.; Rosen, Fred; Levitas, N., and Robinson, J.: J. Biol. Chem. **167:** 511 (Feb.) 1947.

[6] Goldberger, Joseph, and Tanner, W. F.: Public Health Rep. **37:** 462 (March 3) 1922; **39:** 87 (Jan. 18) 1924.

Senator Smith called attention to the fact that the election in the fall of 1946 shifted the "center of political gravity." "We as a party," he said, "favor the decentralization of responsibility and a plan which contemplates grants-in-aid to the several states in order that they may solve their own problems and act as experimental laboratories in the overall health field."

Senator Smith opposed the philosophic foundation on which the Wagner-Murray-Dingell bill was built. He said:

> Obviously such a measure would be revolutionary in this health field and if it was adopted all at once it might take us over many difficult bridges which would be burned behind us. It is the kind of approach that the so-called "planners" have in mind—a blueprint laid down by the few which must be accepted by the many, a blueprint not made by the trial and error method, but thought through theoretically only, ignoring the trial and error method of building an experience.

Senator Smith also analyzed the Taft-Ball-Donnell-Smith bill and contrasted it with the Wagner-Murray-Dingell bill. He said:

> The Wagner-Murray-Dingell bill calls for compulsion by government, whether federal and state, or federal alone or state alone, whereas the Ball-Taft-Donnell-Smith bill calls for freedom of action by state and local governments, by health and medical professions and by individuals. Our bill has the approach of freedom. As I said before, it aids and encourages but it does not compel. It does not contain rash promises to provide health and medical services for the entire population. In fact it is based on the theory that the vast majority of people would prefer to make their own arrangements for hospital, medical and dental care. The bill, we sincerely hope, will lead to an improvement in the quantity and quality of specified services that will be available to persons having small incomes. It should aid in bringing about a better distribution of services in rural areas through some form of public subsidy to doctors, dentists, nurses and other health personnel in such areas.

Indeed the whole theory of this approach to the health problem of the nation is expressed in a single statement by Senator Smith: "Fundamentally we believe it is wiser to aid the relatively few who need our aid, rather than to coerce the many."

The medical profession, as has already been said, is fortunate by the presence in the United States Senate of one who is familiar with the medical point of view. "The big issue," Senator Smith said, "is between federal paternalism with its overall plan and, on the other hand, federal study and assistance with the maximum of freedom to our various sovereign states to work out their own programs by the trial and error method." The philosophy which caused Senator Smith to arrive at this belief was expressed in his concluding sentence: "No one could have lived as I lived in the environment of my father's home and have seen the service he was rendering to humanity without becoming acutely conscious of the difference between the attitude toward life of those who, on the one hand, are seeking only their own selfish ends, and those who are dedicating their lives, as you all are, to the service of humanity."

Current Comment

FATAL AUDIOGENIC SEIZURES IN MICE

The term "audiogenic seizure" is employed for a pattern of behavior in rats and mice which is produced by auditory stimulation, such as an air blast, Galton whistle or the jingling of keys. The seizure is characterized by frenzied running, terminating in convulsions. In a report on this subject by Hall[1] audiogenic seizures were observed in mice following ringing of a bell inside a wash tub. Two strains of inbred mice were observed with great differences in reaction between the strains. Two mice of the more highly reactive strain died following the production of convulsions by auditory stimuli. Evidence that susceptibility to audiogenic seizures is inheritable had been previously compiled. Hall's experiments, however, appear to be the first in which lethal effects were observed from auditory stimulation. The suggested possibility that there may be a wide variation in inherent susceptibility to noise in human beings warrants investigation.

PHYSICAL STANDARDS FOR PILOTS

The Journal has commented previously on the failure of the Civilian Aeronautics Administration to have its physical examinations conducted by competent physicians. The *Journal of Aviation Medicine* points out that the department ruled that osteopaths could make these examinations a few years ago and now examinations are being accepted even from chiropractors. How many of the persons who observe air transport realize that this is the type of protection afforded by the government agency? When one contrasts the kind of education given to low grade nonmedical healers with the type of examination made by specialists who are really competent in examining the eyes, the ears and the other special senses on which safe flying so greatly depends, the folly of accepting examinations by the incompetent becomes clearly apparent. The *Journal of Aviation Medicine* points out that the bars have not thus far been lowered in the case of commercial and airline pilots, but the tendency to depreciate the quality of the examination makes the hazard of such lowering imminent. Surely here is a responsibility that the administrator cannot dodge.

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[1] Hall, Calvin S.: Genetic Differences in Fatal Audiogenic Seizures, J. Heredity 38:3 (Jan.) 1947.

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following report of the Secretary is respectfully submitted:

MEMBERSHIP

Each year brings a steady growth in the number of members of the American Medical Association. On April 1, 1946 the membership roster contained 126,835 names. During the ensuing twelve months the names of 5,389 new members were added, so that on April 1, 1947 the number of members was 132,224, the largest ever recorded. It is interesting to note in this centennial year of the Association's existence that the "Catalogue of Permanent Members" recorded in 1847 contained the names of 426 physicians!

FELLOWSHIP

The Fellowship roster on April 1, 1947 contained 72,888 names, as compared with 68,366 on the corresponding date in the preceding year. The reduction which occurred during the war years has been largely restored. From April 1, 1946 to April 1, 1947 the deaths of 778 Fellows were recorded, the names of 92 were dropped for nonpayment of dues and 711 resigned for various reasons.

The accompanying table shows the organization of the constituent state and territorial medical associations as of April 1, 1947.

CONFERENCE OF STATE SECRETARIES AND EDITORS

The regular annual Conference of State Secretaries and Editors was held in Chicago on Dec. 7 and 8, 1946. Attendance was exceptionally large, owing probably to the fact that the conference took place on the two days just preceding the supplemental session of the House of Delegates.

The secretaries of all constituent state medical associations and the editors of all state society operated medical journals are invited to attend this conference, and nearly all of them do so. In the past several years many other officers of the state associations and officials of many component county medical societies have been present. A new method of arranging the program was tried out for the December conference and proved acceptable to the members. By this arrangement a committee appointed at the previous conference by the chairman, who is elected from the floor each year, is charged with the duty of preparing the program as to subjects to be discussed and of suggesting desired speakers. The conference is always held at Association headquarters in Chicago.

COMMITTEE TO STUDY REVISION OF THE CONSTITUTION AND BY-LAWS

At the annual session of the House of Delegates in 1946 a committee was appointed to study and recommend revision of the Constitution and By-Laws. This committee has had several meetings and made a preliminary report to the House at its 1946 supplemental session. It is expected that the final report will be made at the Atlantic City session.

RESOLUTION ON ESTABLISHMENT OF GENERAL PRACTICE SECTIONS IN APPROVED HOSPITALS

The House of Delegates at its Supplemental Session in December 1946 adopted a resolution recommending that hospitals be encouraged to establish general practitioner services and directing that copies of the resolution be sent to the American College of Surgeons, the American College of Physicians, the American Hospital Association, the Protestant Hospital Association, the Catholic Hospital Association and every hospital in the country. Since no specific mention was made as to the body which should undertake this effort, the Secretary referred it to the Council on Medical Education and Hospitals for action. It is understood that the Council has complied with the recommendations contained in the resolution.

Organization of Constituent State and Territorial Medical Associations, April 1, 1947

	Number of Counties in State	Number of Component Societies in State	No. of Counties in State Not Organized		No. of Physicians in State 17th Ed. A. M. Directory	No. of Members of State Associations		Number of Fellows in State
			1946	1947		1946	1947	1947
Alabama..........	67	67	..	..	2,123	1,497	1,692	670
Arizona..........	14	14	1	..	615	401	426	275
Arkansas..........	75	59	9	9	1,806	1,120	1,131	444
California..........	58	40	9	9	12,365	8,069	8,613	5,460
Colorado..........	63	27	1	1	1,886	1,185	1,333	725
Connecticut.......	8	8	..	..	2,720	2,069	2,209	1,130
Delaware..........	3	3	..	..	360	239	246	129
Dist. Columbia...	..	..	..	..	4,540	1,003	1,084	812
Florida..........	67	34	16	16	2,391	1,488	1,635	1,025
Georgia..........	159	92	37	37	2,814	2,005	2,012	853
Idaho..........	41	9	..	..	446	328	335	175
Illinois..........	102	92	6	6	12,548	8,874	9,341	4,211
Indiana..........	92	81	1	1	4,165	3,444	3,618	1,720
Iowa..........	99	97	..	..	3,102	2,302	2,342	1,153
Kansas..........	105	71	15	15	2,642	1,481	1,545	854
Kentucky..........	120	113	3	3	2,717	1,880	1,821	772
Louisiana..........	64	39	15	17	2,601	1,527	1,676	905
Maine..........	16	15	..	..	1,011	755	789	358
Maryland..........	23	23	..	..	3,085	1,772	1,869	1,105
Massachusetts....	13	18	..	..	8,085	5,597	5,845	2,901
Michigan..........	83	55	..	..	6,509	4,445	4,598	2,310
Minnesota..........	87	34	1	1	3,614	3,082	3,276	1,762
Mississippi..........	82	21	3	3	1,525	906	911	398
Missouri..........	114	78	7	7	5,183	3,310	3,517	1,892
Montana..........	56	17	21	21	536	422	408	213
Nebraska..........	93	50	16	16	1,637	1,103	1,118	640
Nevada..........	17	5	12	12	174	145	163	75
New Hampshire...	10	10	..	..	687	511	539	277
New Jersey..........	21	21	..	..	6,008	4,474	4,504	2,571
New Mexico..........	31	14	17	17	447	293	312	178
New York..........	62	61	1	1	27,928	10,635	20,932	10,953
North Carolina...	100	67	24	24	2,871	2,020	2,093	1,034
North Dakota....	53	13	11	11	520	388	388	217
Ohio..........	88	86	1	1	9,426	6,932	7,221	3,643
Oklahoma..........	77	62	6	6	2,284	1,538	1,613	762
Oregon..........	36	28	1	1	1,493	1,010	1,142	508
Pennsylvania.....	67	60	5	5	13,593	9,767	10,579	5,810
Rhode Island.....	5	6	1	1	958	791	832	381
South Carolina...	46	38	4	4	1,427	922	1,026	508
South Dakota....	69	12	1	1	493	320	313	196
Tennessee..........	95	50	23	23	2,961	1,832	1,841	800
Texas..........	254	126	..	..	6,952	4,852	5,321	2,410
Utah..........	29	8	4	4	585	530	561	291
Vermont..........	14	11	3	3	551	381	362	192
Virginia..........	100	51	8	8	2,920	1,936	1,991	1,288
Washington..........	39	25	13	13	2,234	1,639	1,765	1,033
West Virginia.....	55	29	5	5	1,834	1,344	1,385	646
Wisconsin..........	71	52	..	..	3,551	2,722	2,806	1,431
Wyoming..........	24	11	11	11	263	173	197	107
Alaska..........	..	..	..	..	79	37	49	26
Hawaii..........	5	4	1	1	395	361	367	126
Isthmian Canal Zone..........	..	..	..	..	181	154	70	36
Philippine Islands	..	..	..	..	4,209	1,247	..	..
Puerto Rico.......	7	7	..	..	526	486	526	78
Foreign..........	..	..	..	..	17	...	...	92
	3,084	2,014	313	314	185,903	126,835	132,224	68,271
Commissioned medical officers..........								4,617
Total..........								72,888

Resolutions and Memorials

In accordance with the action of the House of Delegates at San Francisco, the Secretary requested the secretaries of all constituent associations to send to his office, as far in advance of the meeting of the House of Delegates as possible, all resolutions adopted by those associations which require the attention of the House. Two such resolutions have been received from the Executive Secretary of the Colorado State Medical Society, and are as follows:

RESOLUTION ON CLARIFICATION OF RULES RELATING TO MEDICAL SERVICE FEES RECEIVED FROM THE FEDERAL GOVERNMENT

Whereas, Many members of the American Medical Association are now being remunerated financially by various branches of the Federal Government as the result of pension rights or retirement pay from the Army or Navy and for services rendered as Veterans Administration Consultants, teachers in Veterans Administration Institutions, experts in Federal Compensation cases or as participants in "Hometown Care Plans"; and

Whereas, Much confusion now prevails regarding the numerous rules, regulations and directives of the various branches, bureaus, agencies and commissions of the Federal Government; and

Whereas, The receipt of income from one branch of the Federal Government would seem, in certain instances, to preclude the acceptance of fees from other branches of government, therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct the editor of The Journal of the Association and the Bureau of Legal Medicine and Legislation to collect, annotate, analyze, interpret and publish a digest of all the rules and regulations of the Federal Government pertaining to medical practice and medical service fees.

RESOLUTION ON CHANGE OF POLICY OF AMERICAN SPECIALTY BOARDS

Whereas, Certain of the American specialty boards not only refuse to grant credit for experience and training acquired in the field of general practice but have also recently announced discontinuance of their former practice of according credit for preceptorships with a certified diplomate and have ruled instead that every applicant for certification must serve a lengthy residency following his internship, and

Whereas, This recent change in policy constitutes an unfair imposition on many returned medical veterans and other young physicians who find it impossible to obtain such residencies, and

Whereas, Doctors entering the various specialties without any experience or training in the field of general practice find it difficult, if not impossible, to develop a broad overall understanding of the field of medicine as a whole, and

Whereas, General practice offers unique opportunities for the development of individual initiative, self reliance, personality development and professional growth, and

Whereas, It is the opinion of the American Medical Association that general practice and preceptorships are two of the best methods of teaching the art of medicine, and

Whereas, Qualified and experienced preceptors already certified by these boards are available in all parts of the United States, and

Whereas, The art of medicine is frequently neglected in hospital residencies owing to overemphasis on the science of medicine, therefore be it

Resolved, That the House of Delegates of the American Medical Association requests the Advisory Board for Medical Specialties and the several American specialty boards to review and reconsider their policies in relation to general practice, residencies and preceptorships in accordance with the foregoing statements.

Field Activity

The Secretary has tried during the past year to attend as many annual meetings of constituent state medical associations as possible. This has necessitated absence from the office for several days at a time, so that correspondence sometimes has been somewhat delayed. It is thought, however, that the best interests of the Association are served by personal contact with the constituent associations.

In Appreciation

The Secretary wishes to express his appreciation for the assistance given him by the officers and members of official bodies of the Association. The directing heads of councils, bureaus and departments and the personnel at the headquarters offices are deserving of praise for loyal contributions to the successful administration of the Association's affairs

Respectfully submitted,
George F. Lull, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted to the House of Delegates. The activities of the various councils, bureaus and departments of the Association during 1946 and a part of 1947 are covered in this report.

Resignation of President-Elect

Under date of March 18, 1947 Dr. Olin West tendered his resignation as President-Elect of the American Medical Association. It is fitting that the members of the House of Delegates, by whose unanimous vote Dr. West became President-Elect at the San Francisco session in July 1946, should have before them his letter of resignation.

Dr. R. L. Sensenich
Chairman, Board of Trustees
American Medical Association

My dear Doctor Sensenich:

Because of continued and possibly permanent impairment of health, I feel compelled to submit to the Board of Trustees, through you as its Chairman, my resignation as President-Elect of the American Medical Association, to take effect immediately.

I take this step with the greatest possible regret, because of having been signally honored by the action of the House of Delegates in electing me to this high office, as well as because of my devotion to the Association and to its ideals. It has been my most earnest desire and my strongest intention to do all that I could do to promote the great cause that the Association has served so well for nearly one hundred years. I sincerely hope that even as an humble member in the ranks I can make some small contribution toward the success of the very worthy aims of our great society.

I am now firmly convinced that I cannot properly perform the duties of the President-Elect and, later, those imposed on the President and that, in all fairness to the Association, my resignation should be submitted and officially accepted.

It now seems probable that I shall not be able to attend the Centennial Session to be held in Atlantic City, in which case I hope you, as Chairman of the Board of Trustees, will present my apologies for my failure in office. I hope that the House of Delegates will believe that "the spirit was willing but the flesh was weak."

I have an abiding faith in the A. M. A. and in the sincerity, integrity and soundness of judgment of those who have served and now are serving as members of its official bodies. May the richest of blessings come to all of them!

Very truly yours,
Olin West.

It was with the greatest regret that the Board, by mail vote, accepted Dr. West's resignation.

Under the provisions of the Constitution and By-Laws, Dr. Edward L. Bortz of Philadelphia, Vice President, succeeded Dr. West as President-Elect and will be inaugurated as President at the Atlantic City session.

Income and Expenditures

The official reports of the Treasurer and of the Association's auditors are appended as a part of this report.

In 1946 the net income of the Association amounted to $106,368 33, as compared with $990,708 81 in 1945, a difference of $884,340 48

During the past year the cost of both material and personnel service has increased enormously. The accompanying tabulations show the more important items, together with the increase in cost over the previous year.

The budgets submitted by the various councils and bureaus for the year 1947 were given very careful consideration by the Board of Trustees. The budgets had to be reduced to a point in keeping with estimated income. During the past several years, new projects have been instituted which continue to grow, and their growth naturally is accompanied with additional expense. The submitted budgets for some of these activities, motivated by actions of the House of Delegates, are as follows:

	Submitted Budget for 1947
Bureau of Medical Economic Research	$127,380.00
Department of Public Relations	122,088.00
Committee on Rural Medical Service *‡	2,838.57
Committee on National Emergency Medical Service *	10,857.61
Council on Medical Service, including Washington office	134,265.00
Bureau of Information	21,225.00
Total	$418,654.18

* No budget. Figures are 1946 expenditures.

‡ Includes work done in Bureau of Information.

Comparative Statement: Periodical Publications—Costs and Expenses

	1946	1945	Increase
Wages and salaries	$1,138,859.02	$872,540.79	$266,318.23
Paper stock	422,060.73	298,666.07	123,394.66
Engravings and illustrations	57,004.88	45,326.28	11,678.60
Ink	25,373.73	20,994.52	4,379.21
Miscellaneous factory supplies	27,342.70	22,534.59	4,808.11
Express and cartage	13,374.69	11,851.48	1,523.21
Power and light	15,488.27	14,713.79	774.48
Building maintenance, insurance and taxes	* 151,157.37	86,875.64	64,281.73
Editorial news and reporting	30,722.76	16,034.43	14,688.33
Postage—first class	70,806.03	48,022.07	22,783.96
Postage—second class	83,669.73	60,479.69	23,190.04
Commissions and promotion expense	190,505.04	121,474.23	69,030.81
Discounts and exchange	79,832.86	77,272.78	2,560.08
Office supplies, telephone and telegrams and miscellaneous expense	98,559.58	64,021.53	34,538.05
Employees group hospital and life insurance	11,869.11	11,001.53	867.58
Departmental adjustment	— 7,038.30	15,765.77	— 22,804.07
	$2,409,538.20	$1,787,575.19	$622,013.01
Depreciations	48,083.04	47,128.38	954.66
	$2,457,671.24	$1,834,703.57	$622,967.67
Deduct proportion of overhead expenses charged to other publications and departments	43,507.80	26,322.21	17,185.59
Total periodical publications—costs and expenses	$2,414,163.44	$1,808,381.36	$605,782.08

* Includes 1945 real estate and personal property taxes and accrual for 1946.

	1946	1945	Increase
Total wages and salaries for all purposes	$1,916,310.69	$1,342,149.45	$574,161.24

Comparative Statement: Combined Expenses of Councils, Bureaus, Association and Special Committees

	1946	1945	Increase
Salaries and wages	$552,097.84	$328,699.82	$223,398.02
Office supplies	31,985.90	23,911.15	8,074.75
Postage	11,438.15	13,796.41	— 2,358.26
Telephone and telegraph and miscellaneous expense	33,334.71	35,574.06	— 2,239.35
Educational material distributed	5,246.44	6,854.20	— 1,607.76
Radio broadcasting and electrical transcriptions	30,074.78	23,985.84	6,088.94
Inspection of hospitals and medical schools	7,712.51	3,706.93	4,005.58
Educational exhibits	10,097.29	7,188.27	2,909.02
Grants, tests and investigations	44,010.96	22,649.75	21,361.21
Conferences, committees, council meetings, travel	164,180.41	71,245.23	92,935.18
Total	$890,178.99	$537,611.66	$352,567.33

The Journal of the American Medical Association

The Journal of the American Medical Association has continued to gain in circulation, advertising and prestige. As a contribution to the celebration of the centennial, The Journal published serially a "History of the American Medical Association." Following the end of the war the foreign correspondence has been extended so that The Journal now has its own regular correspondents in London, Paris, Rome, Naples, Madrid, Geneva, Brussels, Amsterdam, Copenhagen, Oslo, Stockholm, Moscow and Ankara and also in Australia, Tokyo, Mexico City, Puerto Rico, Rio de Janeiro, São Paulo, Buenos Aires, Santiago (Chile) and La Paz (Bolivia). For coverage from the nation's capital The Journal maintains a regular correspondent, and a weekly letter referring to news from Washington is published in The Journal.

Table 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List Jan. 1, 1946, Showing Gain or Loss*

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	574	487	1,061	138	
Arizona	273	212	485	85	
Arkansas	371	331	702	76	
California	4,804	5,674	10,478	1,122	
Colorado	614	487	1,101	145	
Connecticut	1,060	1,006	2,066	331	
Delaware	130	129	259	49	
District of Columbia	664	1,077	1,741	188	
Florida	895	778	1,673	262	
Georgia	650	733	1,383	96	
Idaho	139	105	244	20	
Illinois	4,193	4,383	8,576	1,306	
Indiana	1,562	1,060	2,622	391	
Iowa	1,056	625	1,681	220	
Kansas	736	510	1,246	188	
Kentucky	675	566	1,241	178	
Louisiana	704	698	1,402	166	
Maine	312	230	542	106	
Maryland	945	1,221	2,166	181	
Massachusetts	2,657	2,525	5,182	740	
Michigan	2,142	2,183	4,325	689	
Minnesota	1,299	1,053	2,352	352	
Mississippi	283	297	580	57	
Missouri	1,624	1,342	2,966	231	
Montana	188	139	327	67	
Nebraska	566	421	987	86	
Nevada	70	53	123	24	
New Hampshire	250	141	391	38	
New Jersey	2,315	2,124	4,439	819	
New Mexico	151	169	320	52	
New York	9,097	10,141	19,238	2,164	
North Carolina	853	888	1,741	194	
North Dakota	192	131	323	61	
Ohio	3,442	2,240	5,682	831	
Oklahoma	587	523	1,110	111	
Oregon	495	486	981	169	
Pennsylvania	5,465	3,753	9,218	1,063	
Rhode Island	336	265	601	87	
South Carolina	355	358	713	61	
South Dakota	160	135	295	34	
Tennessee	777	781	1,558	223	
Texas	1,975	1,876	3,851	546	
Utah	244	266	510	107	
Vermont	162	123	285	9	
Virginia	1,105	890	1,995	203	
Washington	810	829	1,639	272	
West Virginia	567	382	949	102	
Wisconsin	1,275	938	2,213	267	
Wyoming	93	70	163	28	
U. S. Army	..	1,958	1,958	..	662
U. S. Navy	..	1,400	1,400	..	1,100
U. S. P. H. S.	..	109	109	..	8
Alaska	16	42	58	11	
Canada	9	1,317	1,326	143	
Cuba	4	419	423	12	
Hawaii	103	163	266	37	
Mexico	4	432	436	49	
Panama	17	57	74	16	
Puerto Rico	132	118	250	75	
Virgin Islands	...	3	3	1	
Foreign	66	6,502	6,568	2,578	
Advertisers and agents	..	.....	326	45	
Exchanges	..	.....	295	70	
Complimentaries	..	.....	106	9	
			129,324	17,981	1,770

As new departments and bureaus have developed in the headquarters office, it has become necessary to provide space for their interests in THE JOURNAL. The demand for space has been far beyond the available paper supply, so that it became necessary to diminish somewhat the space allotted to original scientific articles. It is hoped that more paper may become available in the near future, since THE JOURNAL must now reject almost 80 per cent of all manuscripts submitted for publication, many of them simply on account of lack of space.

The special issues during each year include educational, hospital, state board (licensure), annual session and industrial health numbers, as well as three index numbers.

TABLE 2.—*Percentage of Physicians Receiving The Journal* *

State	Number Receiving Journal	Physicians in A. M. Directory	Approximate Percentage Receiving Journal
Alabama	1,061	2,123	50
Arizona	485	615	77
Arkansas	702	1,806	39
California	10,478	12,365	85
Colorado	1,101	1,886	58
Connecticut	2,066	2,720	76
Delaware	259	360	72
District of Columbia	1,741	4,540	38
Florida	1,673	2,391	70
Georgia	1,383	2,814	49
Idaho	244	446	55
Illinois	8,576	12,548	68
Indiana	2,622	4,165	63
Iowa	1,631	3,102	54
Kansas	1,246	2,042	61
Kentucky	1,241	2,717	46
Louisiana	1,402	2,601	54
Maine	542	1,011	54
Maryland	2,166	3,085	70
Massachusetts	5,182	8,085	64
Michigan	4,325	6,509	66
Minnesota	2,352	3,614	65
Mississippi	580	1,525	38
Missouri	2,966	5,183	57
Montana	327	556	59
Nebraska	987	1,637	60
Nevada	123	174	71
New Hampshire	391	687	57
New Jersey	4,439	6,008	74
New Mexico	320	447	72
New York	19,238	27,928	69
North Carolina	1,741	2,871	61
North Dakota	323	520	62
Ohio	5,632	9,406	60
Oklahoma	1,110	2,284	49
Oregon	981	1,493	66
Pennsylvania	9,218	13,503	68
Rhode Island	601	958	63
South Carolina	713	1,427	50
South Dakota	295	493	60
Tennessee	1,558	2,961	53
Texas	3,851	6,952	55
Utah	510	585	87
Vermont	285	551	52
Virginia	1,995	2,920	68
Washington	1,639	2,234	73
West Virginia	919	1,834	52
Wisconsin	2,213	3,551	62
Wyoming	163	263	62

* This table gives the number of physicians (based on the 17th edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

THE JOURNAL has carried on the campaigns for which it has achieved great repute against nostrums and charlatans, cultists and inferior institutions of education. Among all the medical periodicals of the world THE JOURNAL is most frequently quoted in both medical and lay periodicals.

The net paid weekly average circulation in 1946 was 121,122 as compared with 111,407 in 1945, and the weekly average of copies printed in 1946 was 122,835, compared with 112,460 in the preceding year.

The accompanying table 1 shows the number of Fellows and subscribers on the mailing list of THE JOURNAL as of Jan. 1, 1946. Table 2 indicates the number of physicians in each state, the number receiving THE JOURNAL and the approximate percentage of subscribers in each state.

Field Service of the Editorial Staff

Many calls come to the editorial staff of the American Medical Association for addresses on a great variety of subjects to audiences of both the medical profession and the public. They are requested as well to conduct courses in educational institutions on scientific publications and other medical subjects.

Dr. Edwin P. Jordan, an associate editor, edits the "Standard Nomenclature of Disease and Standard Nomenclature of Operations" and attends the sessions of the American Association for Advancement of Science and of the American Association of Medical Record Librarians and has also spoken before several county medical societies and similar groups.

Dr. Johnson F. Hammond, an associate editor, has made several addresses annually for groups of physicians interested in problems related to medical writing and similar subjects.

The Editor of THE JOURNAL delivers many addresses each year to county and state medical societies, business clubs, forums and educational institutions. The Editor also serves on the medical advisory boards of the American Red Cross, the National Foundation for Infantile Paralysis and the Division of Medical Sciences of the National Research Council. He has also served as consultant to several national organizations and publications.

Special Journals

In spite of adverse conditions—shortage of help in the manuscript editing and mechanical departments, inability to procure sufficient paper and restrictions placed on the use of paper by the government—the Association has maintained the high quality of the special periodicals. With the January 1946 issue the format of all the special journals published by the Association reverted to that prevailing in 1944.

The number of pages in the special journals has not been greatly increased on account of paper restrictions and shortage of help, and consequently some have not yet caught up with the accumulated material awaiting publication.

Featured in the special journals are the collective reviews. In the ARCHIVES OF INTERNAL MEDICINE reviews have been published on blood, syphilis, neuropsychiatry, allergy, gastroenterology and infectious diseases. Reviews have appeared in the ARCHIVES OF OTOLARYNGOLOGY on allergy, advances in the understanding of rhinologic and otologic conditions related to the nervous system, otitis media and complications, peroral endoscopy, functional examination of hearing, the paranasal sinuses and contributions to plastic surgery. The ARCHIVES OF OTOLARYNGOLOGY took over publication of the yearly instalment of the review on otosclerosis prepared under the auspices of the Central Bureau of Research of the American Otological Society and is reprinting it in loose leaf form with an index of authors according to subjects. In the AMERICAN JOURNAL OF DISEASES OF CHILDREN there have been reviews on coronary occlusive disease in infants and children, the gastric phase of milk digestion in childhood, the relationship of pediatrics and psychiatry, the role of psychiatry in children's hospital service, the recurrence of infection following therapy with sulfonamide compounds and penicillin, and carcinoma of the adrenal cortex with the adrenogenital syndrome in children. The ARCHIVES OF OPHTHALMOLOGY published a review on ocular complications of malaria, one on alkali burns of the eye and one on metabolism of the retina. In the ARCHIVES OF SURGERY the series of articles under the heading "Progress in Orthopedic Surgery," prepared by an editorial board of the American Academy of Orthopaedic Surgeons, has been continued, and reviews of the literature on urologic surgery have also appeared. The ARCHIVES OF PATHOLOGY published a general review on tropical diseases, particularly the involvement of the nervous system. This periodical has also carried many excellent and helpful suggestions under the heading "Laboratory Methods and Technical Notes." The ARCHIVES OF NEUROLOGY AND PSYCHIATRY has published excellent articles on disturbances in sleep mechanism, studies in diseases of muscle, electric shock therapy, behavior disorders, neurologic diseases following infections of throat and skin, and the incidence of diphtheritic infections. In the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY there was a symposium on Diagnosis and Treatment of Cutaneous Cancer, which was presented at the New York Academy of Medicine, Section of Dermatology and Syphilis. This periodical continues to receive for publication practically all the papers read at the annual meeting of the American Dermatological Association. The publication of WAR MEDICINE was discontinued with the issue of December 1945, and the publication of OCCUPATIONAL MEDICINE was begun in January 1946. There has been a shortage of material for publication because the initial announcement regarding the establishment of the periodical was not made until November 1945. However, much progress is being made, and comments on this periodical have been most favorable.

Requests for the use of kodachromes and other colored illustrations presented in all of the special journals have increased.

To relieve stress on the Association's mechanical departments, permission has been given to authors and to commercial firms provided they have the author's consent also, to have reprints made by other printers in instances in which more than 2,000 copies are desired.

Circulation of all the special journals increased in 1946, from an increase of 152 for the ARCHIVES OF NEUROLOGY AND PSYCHIATRY to 1,826 for the ARCHIVES OF INTERNAL MEDICINE. As of Jan. 1, 1947 there were 2,253 names on the mailing list of the new journal OCCUPATIONAL MEDICINE.

Hygeia

The increasing demands on the American Medical Association Press and on the staff made necessary transfer of the printing of HYGEIA from the headquarters office to Kable Brothers, Mount Morris, Ill. By this transfer it became possible to have many more colored pages in each issue of HYGEIA and to assure regular appearance of the magazine at a definite date each month.

HYGEIA is the most quoted of all periodicals in the field of health, and many of its articles are reproduced widely in the digest magazines, in house organs of various industries, in the general press and on the radio. Its influence extends widely throughout the nation. Several state medical societies have arranged to provide a subscription to HYGEIA to each of the representatives and senators in their state legislatures. In other states, through efforts of the Woman's Auxiliary, HYGEIA has been provided to most of the leading educational institutions. The pages of the periodical are constantly sought by federal agencies in the field of health education, and the periodical cooperates completely with practically all national voluntary agencies in the field of health.

CIRCULATION

For the past five years the circulation of HYGEIA was held down because of the shortage of paper. Early in 1946 a small increase in paper tonnage was granted, so that it was possible to print an average of 164,537 copies a month, with the press run varying monthly from 155,450 in January to 192,000 in December. During 1947 an average monthly circulation of 200,000 or better will be maintained, depending on how much more paper can be purchased, as an advertising guaranty of 195,000 net paid circulation for 1947 must be met.

HYGEIA is greatly in need of additional reading pages, and as soon as feasible the number of pages in each issue will be increased from the present 80 to 96 or 112.

Most of the increased circulation of HYGEIA was obtained from selected fields, including physicians, dentists, schools, libraries, nurses and other health teaching groups. In the educational field the high school Group Study Plan was initiated whereby HYGEIA is furnished as an auxiliary text for classroom use at a special rate of fifteen cents a copy on school orders for ten or more copies. In a recent survey covering these groups, it was found that each copy of HYGEIA is read by an average of four students and that the magazine is used in classes on public health, physical education, biology, personal hygiene, first aid, physiology and science.

During 1946 HYGEIA was exhibited at the annual session of the American Medical Association and at the annual conventions of the American Nurses Association and the American Public Health Association.

In 1931 the House of Delegates urged the Woman's Auxiliary to the American Medical Association to recognize as one of its chief activities the promotion of the distribution of HYGEIA through parent-teacher associations, boards of education and similar groups interested in health education. The bulk of this work has been carried on principally by a comparatively small number of auxiliaries. With 600 organized county units reported last year, 90 per cent of the orders came from 25 per cent of the county auxiliaries; another 25 per cent showed interest, but more than 50 per cent took no part in the promotion of the magazine. Many of the county auxiliaries that were active did excellent work in introducing the magazine to new readers and in raising funds to present HYGEIA to schools, libraries, reading rooms and other organizations in their counties. The final figures for orders received from the Woman's Auxiliary during 1946 showed 15,631 years of subscription as against 11,383 for the preceding year.

At the end of the first year HYGEIA was published, 1923, the circulation of the magazine was 23,687, of which 14,175 subscribers were physicians. In December 1946 the circulation was 192,000, and of that number only 17,181, or 9 per cent of the subscribers, were physicians. Although the number of physicians in the United States has increased from 145,966 in 1923 to 196,881 in 1946, an increase of 28 per cent, subscribers to HYGEIA among the medical profession have failed to keep pace with the increase in circulation or with the increase in the number of physicians. It seems reasonable to believe that HYGEIA should have at least 50,000 circulation, or 25 per cent of the profession, among physicians. For several years the Minnesota State Medical Association has renewed 198 subscriptions placed for senators and representatives in the state legislature, while in Wisconsin the state medical society has renewed 220 subscriptions for legislators and distinguished citizens. HYGEIA, however, may need a reindorsement by the medical profession. The magazine could be a tremendous influence as a voice of the medical profession to the public if there were a larger circulation in the reception rooms.

For the sixth consecutive year HYGEIA showed, in 1946, a profit. A new high was reached in advertising income and in net paid circulation. The financial statement shows a profit of $56,876.26, compared with $108,214.21 for 1945 and $68,117.81 for 1944.

American Medical Directory

It is now almost five years since the Seventeenth Edition of the American Medical Directory was published in 1942. The delay in publishing the new edition is due to the shortage of clerical help in the Chicago area. It is hoped, however, that compilation will be started within the next few months so that the Eighteenth Edition will be ready for delivery by at least the middle of 1948. Since publication of the 1942 edition, information on more than 32,000 new physicians has been added to the files, and the names of more than 15,000 physicians who have died have been deleted. Reports have been received that more than 53,000 physicians have terminated their service with the government. Of this number more than 50,000 have furnished information concerning their present locations. About 7,000 physicians are still listed as serving in the armed forces.

Book Publications

The American Medical Association Press has issued more than a score of books which have attained tremendous circulation among the medical profession. Many of these books originate from articles published serially in THE JOURNAL. Others originate with the individual councils and bureaus of the Association. The increasing demands made on the American Medical Association Press by the expansion of circulation of THE JUORNAL and of the special periodicals and also for the publication of material developed by the various departments and councils made necessary the transfer of the printing and publication of these books to private medical publishers. The History of the American Medical Association and the Intern's Manual have been assigned to the W. B. Saunders Company, Philadelphia.

New and Nonofficial Remedies, Epitome of the U. S. Pharmacopeia, Useful Drugs and Fundamentals of Anesthesia will be published by the J. B. Lippincott Company, and Standard Nomenclature of Disease and Standard Nomenclature of Operations and Medical Writing by Blakiston. Negotiations are in process with other publishers for some of the other books published by the American Medical Association. Each of the books thus published will bear on its title page the statement "Published for the American Medical Association."

By this arrangement the Board of Trustees believes it will be possible to secure for these books an even wider circulation than has been possible through publication by the Association itself.

Library

The usual type of library service was maintained during the past year under much more difficult conditions than heretofore, owing to a shortage of personnel.

The package library department prepared and lent 2,865 package libraries. More requests were received for material on the Rh factor during the past year than on any other subject. Other popular subjects were anesthesia, undulant fever, arthritis, neostigmine therapy, treatment of poliomyelitis, penicillin and treatment of hypertension.

Various types of general reference questions were answered by the library staff, such as the preparation of recommended lists of books, the compilation of short bibliographies on recent literature of many different subjects and requests for the location of vast numbers of articles appearing in past issues of The Journal of the American Medical Association. Exact figures are not kept for the number of questions answered each year by the library department, but the number of requests exceeds 5,000.

Through the periodical lending service 11,401 periodicals were lent. This type of service seems to be increasingly popular and to be greatly appreciated by the physicians using it. The fact that the American Medical Association Library does not bind its periodicals has had a great influence on the number of requests received for periodical loans. In practically all libraries of the country periodicals are bound, and because of conditions in book binderies for the past two years the length of time taken in binding has greatly increased. Libraries are therefore denied the use of their periodicals while they are being bound. The fact that all the periodicals received in the library of the American Medical Association are available for loan during this "binding period" has been of great help to physicians.

In order to serve all of the members of the Association as promptly as possible regardless of their geographic location, the Library rules require a written request for the package library service. The bulk of reference work is therefore conducted by mail. In spite of this fact, approximately 500 visitors last year requested library service.

Three separate volume indexes to The Journal of the American Medical Association were prepared, as usual, in the Library and the total number of pages for the indexes in 1946 was 135.

Quarterly Cumulative Index Medicus

It is to be regretted that a report of the 1946 Quarterly Cumulative Index Medicus cannot include a brighter picture regarding a return to the normal printing schedule. As the January-June 1945 bound volume of the Index was not ready for mailing until Feb. 2, 1946, the only other issue of the Index Medicus issued in 1946 was volume 38, July-December 1945. Volume 39, January-June 1946, of the Index Medicus was sent to the bindery late in December 1946 but was not ready for mailing to subscribers until Feb. 10, 1947. It was possible to include in the 1946 volumes much more literature from European countries. Whereas 64 per cent of the foreign language material included in the 1942 Index covered Spanish and Portuguese periodicals, this percentage dropped in the 1946 issues of the Index Medicus to 51.5 per cent. Numerous requests have been received from medical periodicals published in Italy, France, Belgium and the Scandinavian countries for the establishment of exchanges with publications of the American Medical Association, and practically all requests for exchanges have been granted. The Library, therefore, was receiving in 1946, through exchange, about 180 medical periodicals from European countries. Many other foreign periodicals, of course, are purchased for indexing purposes. In volume 38, July-December 1945, 7,612 foreign language articles were included in the Index Medicus. In volume 39, January-June 1946, 10,461 foreign language articles were included. Thus there is beginning to be a gradual return to the normal amount of foreign language material included in the Index. A shipment of discarded periodicals covering the years 1933 and 1934 was sent to the Army Medical Library in accordance with an agreement between the Board of Trustees of the American Medical Association and the Army Medical Library.

Order and Mailing Departments

The Order Department in 1946 handled a total of 60,522 orders for 402,382 individual units. This rather small increase over the 386,844 units distributed in 1945 is attributed to many items being unavailable because of printing difficulties. The greatest demand was for material issued through the Bureau of Health Education and the Council on Medical Education and Hospitals. In handling the orders over 6,000 mail bags were used having a total content-weight of more than 186 tons.

The total number of pieces of letter mail handled by the Mailing Department in 1946 was 1,708,181, including 622,666 pieces of first-class metered mail, 39,875 pieces of air, foreign and overweight first-class mail and 1,045,640 pieces of third-class mail.

Employment Department

During 1946 new employees placed through the activities of the Employment Department totaled 307 as compared with 123 new employees during the year 1945. The value of the "screening out" process of the employment activity is indicated by the fact that the 307 placements represent the desirable applicants out of a total of 1,093.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau, established thirty-two years ago, has continued since its reorganization in 1945 to increase its service and revenue to the state medical associations for their official publications. The Bureau earned $148,071.59 in commissions during its fiscal year December 1945 through November 1946. Cash discounts allowed on payments amounted to $12,425.84 and costs of operation to $22,781.78, permitting rebate to the participating journals of $112,863.97.

During 1946 the Bureau placed the largest amount of advertising in its history with the thirty-five state medical journals it serves, thereby making possible the largest returns to the journals in their annual refund, exceeding that of the previous year by $35,063.97. Including the monthly remittances, the net revenue to the state journals amounted to $557,049.18.

After distribution of the annual rebate checks to the member journals in December 1946, expressions of gratitude were received from practically every member for the increased portions derived from the added earnings of the Bureau.

Contracts on hand for 1947 indicate that an equal amount of business will be placed in state journals by the Bureau as was submitted for 1946, with a possibility of an increase unless present contracts are curtailed for economic reasons. Billing for December 1946 and January 1947 shows an increase of $10,236.21 over the corresponding months of the previous fiscal year.

Several meetings of the Advisory Committee were held during the year, at which matters pertaining to the work of the Bureau were discussed. Dr. Julian Price, Editor of the *Journal of the South Carolina Medical Association,* was elected a member of the Advisory Committee to succeed Dr. John S. Bouslog of Colorado, whose term expired.

Council on Pharmacy and Chemistry

An interim report on the work of the Council on Pharmacy and Chemistry was presented to the House of Delegates at its Supplemental Session in December 1946. The present report includes Council activities up to March 15, 1947.

REORGANIZATION OF WORK

The Council on Pharmacy and Chemistry, the Council on Foods and Nutrition, the Council on Physical Medicine, the Chemical Laboratory and the Bureau of Investigation form the Division of Therapy and Research of the American Medical Association. Each office has its own peculiar problems but there is a certain amount of overlapping medical consideration that encourages and, in fact, makes necessary at times an exchange of information and interchange of professional personnel. In the past, professional assistance has been made available for each office, but during the war most of this help was called into service by the armed forces or to perform other special duties. With the return of peacetime activities a plan was devised whereby the work of the units of this division at headquarters could be more closely integrated and overlapping and duplication reduced to a minimum. As a result of the plans now in effect, while the work of each council or bureau is maintained as a separate entity, the routine adopted to put into effect the work of these offices permits from an overall picture a new solidarity of effort. In this way each office contributes to the other, enhances the value of the units of the Division and increases the amount of work that can be done by this section of the American Medical Association.

MEMBERSHIP

Dr. Torald Sollmann and Dr. Isaac Starr were reelected to membership on the Council. Dr. Robert F. Loeb and Dr. C. Guy Lane were elected to fill the vacancies created by the resignations of Dr. Harold N. Cole and Dr. Elmer Sevringhaus. Dr. W. W. Palmer, who has served as a member of the Council for twenty-seven years, resigned because of plans for retirement and has been appointed a member emeritus of the Council. Dr. Palmer is the third individual to have been made a member emeritus of the Council, the other two being Dr. George H. Simmons and Dr. Robert A. Hatcher. Dr. Paul R. Cannon has been elected to fill the vacancy created by Dr. Palmer's resignation.

MEETINGS OF THE COUNCIL

At the meeting of the Council on Nov. 1, 1946 a conference was held with representatives of the American Pharmaceutical Manufacturers' Association and the American Drug Manufacturers' Association to discuss the rules of the Council. Suggestions were presented, following which there was open discussion. The Council was requested to assist manufacturers in the coining of protected and generic names. It was explained that the Council's Committee on Nomenclature already does this. Other suggestions discussed at the meeting were the exemption of certain official articles from the scope of Council consideration, the consideration of mixtures by the Council, the expediting of the Council's consideration of submitted products and the further exchange of information between the Council, the American Pharmaceutical Manufacturers' Association and the American Drug Manufacturers' Association. Immediately following this conference, the Council instructed its Secretary to prepare a redrafting of the rules incorporating the changes agreed on at the meeting with the manufacturers' representatives.

The discussions at the November meeting of the Council included warnings on labels of prescribed drugs, the responsibility of physicians in prescribing drugs known to have inherent dangers for their patients, the use of human plasma and plasma products, the advertising of products to the public, atomic fission products, preliminary reports on new substances and technics, the status of sulfobromophthalein and of BAL, specialty representation on the Council and the Therapeutic Trials Committee, the status of demerol hydrochloride, desirable dosage forms of drugs, the legal significance of the Council's seal of acceptance, medical patents, distribution of copies of New and Nonofficial Remedies to the American University of Beirut, liaison with organizations such as the National Institute of Health, Federal Food and Drug Administration and the U. S. Department of Commerce, the providing of assistance to the Technical Industrial Intelligence Committee of the U. S. Department of Commerce, and the status of high potency vitamin D preparations. At this meeting there were also presented reports of the Therapeutic Trials Committee and the Therapeutic Research Committee, two standing committees of the Council.

THERAPEUTIC RESEARCH COMMITTEE

During 1946 the Therapeutic Research Committee approved twenty-five grants to aid investigators in medical research. Approximately thirty-two articles were published during the year as a result of work done under the Council grants. A detailed report of the investigations conducted under the sponsorship of this committee will be found in the Addenda to the report of the Board of Trustees.

THERAPEUTIC TRIALS COMMITTEE

The Therapeutic Trials Committee, which was activated in April 1946, held its first formal meeting on Oct. 31, 1946. The Committee started its work by obtaining information with regard to available clinical investigators and facilities and, at the time of the meeting in October, the Committee had secured information from nineteen institutions following personal interviews with 89 investigators and had collected information on 311 investigators. Since that time the number of institutions has extended to twenty-seven and the investigators to 583. Six projects have been presented for the Committee's consideration, exclusive of numerous projects which were obviously unacceptable for consideration.

Dr. Chester S. Keefer is chairman and Dr. Stuart Mudd vice chairman of the Therapeutic Trials Committee. The membership, besides Dr. Keefer and Dr. Mudd, now consists of Dr. David Barr, Dr. Windsor C. Cutting, Dr. E. M. K. Geiling, Dr. Keith S. Grimson, Dr. Perrin H. Long, Dr. J. E. Moore, Dr. W. W. Palmer, Dr. Ralph M. Waters and Dr. W. Barry Wood, with Drs. Morris Fishbein, Austin E. Smith, Torald Sollmann and Walton Van Winkle, Secretary, as ex officio members.

An advisory subcommittee has been appointed to consider the technical aspects of a proposed investigation of testosterone and mammary cancer.

The Therapeutic Trials Committee has planned several reports for publication dealing with general problems related to clinical research. One such report, "The Cost of Clinical Research," was published in THE JOURNAL, Jan. 4, 1947, page 30. Among the projects undertaken by the Committee is the preparation of a series of articles on the statistical methods for clinical investigators.

To aid clinical investigators and to facilitate the rapid development of knowledge concerning new therapeutic agents and procedures, conferences have been planned to permit research workers in certain fields to meet and exchange information. Such conferences will be held of course only if there is a reasonable possibility that the meetings would facilitate the research and provide substantial benefit both to the investigators and to the medical profession.

The Committee is engaged in a joint project with the Council on Industrial Health, namely the evaluation of aluminum in the prevention and treatment of silicosis. The Committee has also been approached by other departments at Association headquarters and by organizations outside the American Medical Association to obtain its facilities for joint medical research. It is hoped that it will be possible to report in the near future on some of the joint efforts.

The Committee has rendered advice to manufacturers of pharmaceuticals regarding the scope of laboratory investigations of new remedies, has criticized plans of investigation submitted to it by sponsors of research and has assisted investigators desiring support for research problems by bringing them in touch with possible sources of funds.

PUBLICATIONS AND REPORTS

During 1946 the Council made available New and Nonofficial Remedies 1946 and began revision for the 1947 edition. Revision also was begun for Useful Drugs, the Epitome of the U. S. P. and N. F., and the A. M. A. Interns' Manual. During the early part of 1947 the revisions for these books were completed so that the publications would be available at the Atlantic City session in June.

During 1946 and up to March 15, 1947 the Council published ten status reports. Included in the reports were statements on BAL (British Anti-Lewisite) in the Treatment of Arsenic and Mercury Poisoning; Clinical Toxicity of Thiouracil; Histamine and Antihistaminic Agents; Human Immune Serum Globulin; Penicillin Facts and Rumors; Rutin; a joint report with the Council on Industrial Health on Aluminum in the Prevention and Treatment of Silicosis; Status of Methionine in the Prevention and Treatment of Liver Injury, and Possible Dangers of Tetrathionate Therapy of Thromboangiitis Obliterans.

The Council has long been known for its efforts in exposing widely exploited preparations with misleading claims. With the cessation of war activities, more attention could be given to this problem and as a result the Council prepared several articles on products that fall into this class, e. g. Cabasil, Formula A-N-1, Ethylene Disulphonate and a joint report with the Council on Industrial Health on Pyogen. More of these articles are now in preparation.

COUNCIL EXHIBITS

The Council office has prepared a number of exhibits for loan to state medical associations and to scientific sessions of allied professions. During 1946 and until March 15, 1947 exhibits were made available on fourteen occasions. Among the exhibits are displays relating to the barbiturates, chemotherapy, malaria, tropical diseases and endocrine products, and others relating to the work of the Council and its publications. When the exhibits are on display there is usually in attendance a physician from the Council office.

PROFESSIONAL RELATIONS

Representatives of the Council met with representatives of the American Pharmaceutical Association to discuss the control of barbituric acid compounds and to consider preparation of a "model bill," a bill designed to permit control at the state level. Such a bill has been prepared and generally agreed on. Copies may be obtained from the office of the Director of the Bureau of Legal Medicine and Legislation of the American Medical Association, from the office of the Secretary of the Council or from the office of the secretary of the American Pharmaceutical Association.

The Secretary and other members of the Council met with members of U. S. P. committees and subcommittees to discuss a variety of problems, including tests and standards for amino acids and the development of effective dermatologic ointments. The Secretary was elected to the U. S. P. Revision Committee. Several Council members are also members of a number of U. S. P. committees. There is close liaison between these two organizations, as there is between the Council and the American Pharmaceutical Association, which is responsible for the publication of the National Formulary, and between the Council and the Council on Dental Therapeutics of the American Dental Association, which publishes Accepted Dental Remedies.

The Council continued to make available its facilities and information for other departments at Association headquarters. It made a special attempt to provide assistance for the Cooperative Medical Advertising Bureau, as it has much sympathy for the problems of the constituent state medical associations.

The Council also continued its close relation with other organizations, including state and federal departments, and particularly with voluntary organizations such as the American Red Cross and the National Foundation for Infantile Paralysis.

The Secretary of the Council was one of three delegates from the American Medical Association to the Pan American Medical-Social Congress held during the first week in December in Havana, Cuba. The congress was called to discuss methods of promoting better exchange of information between the United States, Canada and the Latin American countries.

Chemical Laboratory

The close of 1946 marked the completion of forty years of service by the Chemical Laboratory of the American Medical Association in the interest of rational medicine. During this period, in seeking to discharge its primary function of assistance to the Council on Pharmacy and Chemistry, the Laboratory has enjoyed the cooperation of an ever increasing number of drug manufacturers in the drafting of suitable standards of identity and purity for new medicinal products.

Originally established to help the Council on Pharmacy and Chemistry in the disclosure of the nature of ingredients of products of doubtful merit, the work of the Laboratory has kept pace with the tremendous improvement in scientific medicine brought about by the combined efforts of the Councils of the American Medical Association, manufacturers and federal and state agencies. Today, as in earlier years, the Laboratory must confine its work to problems of general interest. It cannot undertake analyses for individual physicians and, of course, it does no commercial work.

WORK FOR THE COUNCIL ON PHARMACY AND CHEMISTRY

In connection with the consideration of new medicinals by the Council on Pharmacy and Chemistry, the Laboratory is called on to make chemical examinations of many active ingredients and finished dosage forms each year. Its findings are reported to the Council and are incorporated into tests and standards which are published in the book New and Nonofficial Remedies.

In 1946 the Laboratory examined the following products, for which tests and standards were drawn up with the cooperation of the manufacturers: Benadryl Hydrochloride, an antihistamine compound; Ceepryn Hydrochloride, a quaternary ammonium germicide; Demerol Hydrochloride, an analgesic and antispasmodic; Estinyl, an estrogen; Furacin, a topical antibacterial agent; Monocaine Hydrochloride and Monocaine Formate, anesthetics for local and spinal application; Sulfathalidine, intestinal antibacterial compound; Thiouracil, a synthetic antithyroid compound, and Tridione, synthetic anticonvulsant.

A considerable amount of time was spent in the examination of a large number of products for which standards are currently described in New and Nonofficial Remedies or in the U. S. Pharmacopeia and National Formulary.

The Laboratory continued to assist the Council on Pharmacy and Chemistry in connection with the preparation of monographs and descriptions of dosage forms of various products, published in THE JOURNAL during the year. Assistance was also provided in connection with the revision of N. N. R., 1946, and with correspondence on chemical subjects.

WORK FOR OTHER DEPARTMENTS OF THE ASSOCIATION

The Laboratory was of assistance to the Bureau of Investigation, the Library staff, the Editorial Department, the Advertising Committee and other departments through technical advice and a limited amount of chemical work.

Members of the staff have attended a number of scientific and technical conferences during the year.

Council on Physical Medicine

The successful employment of physical medicine during World War II has had a great influence on the acceptance of physical medicine by the general practitioner. As a result, physical medicine has gained in stature.

In 1946 the Council on Physical Medicine voted to strengthen its position in the branches of ophthalmology and otolaryngology. The move is in keeping with the trend of activities and problems coming to the attention of the Council.

Since the name of the Council was changed in 1944 from Council on Physical Therapy to Council on Physical Medicine, increasingly more apparatus for therapeutic and diagnostic purposes has been presented for consideration. Some of the appliances requiring immediate consideration are contact lenses, ophthalmic training equipment and hearing appliances for therapy and testing. The Council on Physical Medicine has been considering hearing aids and audiometers for more than ten years, and this work will be continued

As an indication of the return to civilian production, the work of the Council during the year has increased tremendously. Raw materials have become more plentiful and some of the materials are finding their way into the production of apparatus for therapeutic and diagnostic purposes. Approximately fifty appliances were submitted for consideration during the year. These devices included hearing aids, an epilation unit, sunlamps, respirators, allergenic devices, contraceptives, heat lamps and ultraviolet equipment. Investigations of approximately twenty devices were completed and reported on in The Journal.

PUBLICATIONS

The Manual of Occupational Therapy was revised and reprinted during the year. The Council now contemplates the revision of the Handbook on Amputations and the Manual on Physical Medicine. Four articles were published during the year: Radium, What Is Orthoptics? Eye Discomfort Caused by Improperly Shielded Black Light Ultraviolet Lamps and Requirements for Acceptability of Contraceptive Devices.

ATOMIC ENERGY

The discovery of the release of the energy within the atom has augmented the work of the Council. During the year the Council held a joint meeting of its recently appointed Consultants on the Medical Aspects of Atomic Energy, the Consultants on Roentgen Rays and Radium and the Council on Industrial Health. This joint meeting was held in December prior to the regular meeting of the Council. Briefly, the following decisions were reached:

1. To gather all available information regarding isotopes in use at the present time as related to medicine;
2. To prepare a statement regarding the dangers of radiant energy and methods of guarding against them;
3. To appoint a subcommittee to consider questions of thorium-X and radon ointment; and
4. To appoint a committee to consider the editorial usage for names of terms used in the field of atomic energy.

ARTIFICIAL RESPIRATION

The Council is continuing its survey of methods for artificial respiration which are being currently employed by lay organizations, life-saving crews, the Coast Guard and police and fire departments. Since undertaking these surveys the Council has clarified several controversial aspects of artificial respiration. A research project to investigate in the laboratory various methods of artificial respiration has been supported by funds allocated by the Board of Trustees. This research is being carried out by Dr. Henry Schwerma under the direction of Dr. Andrew C. Ivy.

PRODUCTS CONSIDERED

Several ultraviolet lamps recommended for disinfecting purposes have been considered. In general, the claims advanced for the efficacy of these products are exaggerated. The Council has found it necessary to withdraw acceptance of one of the disinfecting ultraviolet lamps which had been on the accepted list.

The Council voted to undertake the consideration of thermometry in the practice of medicine. The accuracy of calibration, manner of use and other problems related to clinical thermometers will be studied. A committee has been appointed, and this work is now going forward under the direction of Dr. George Morris Piersol.

The Council gave consideration to products for the relief of allergic hypersensitiveness. Several mattress and pillow covers were considered and accepted.

Radon ointments have been marketed to the profession for the treatment of radiation injuries, skin diseases and rheumatism as well as other conditions. A report has been prepared jointly with the Council on Pharmacy and Chemistry. It is the opinion of the Councils that unwarranted, exaggerated and misleading claims have been made, in the past, for the ointment. The investigation is being continued.

Ultraviolet irradiation of the blood: Although many therapeutic claims are made, the chief claim is the alleged successful treatment of asthma. In the opinion of the Council, this device is not efficacious and does nothing which cannot be accomplished by simpler means.

SEAL OF ACCEPTANCE

In the course of the year the Council voted to adopt a seal which has a format comparable to the seals of the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition.

COUNCIL CONSULTANTS

Consultants on Audiometers and Hearing Aids: The article "Tentative Standard Procedure for Evaluating Percentage of Hearing Loss in Medicolegal Cases" has been released for publication. The revised audiogram chart was adopted and published. Six hearing aids were accepted and one was rejected.

Consultants on Contraceptive Devices: "Minimum Requirements for Acceptability of Contraceptive Devices" were adopted by the Council and sent to manufacturers of contraceptive devices for comment and suggestion. The requirements were referred to The Journal for publication. Three devices have been submitted for consideration, and one was accepted.

Consultants on Education: The consultants recommended that an American Board of Physical Medicine and a Section on Physical Medicine of the American Medical Association be established. Special study was focused on the training of a physical therapist. The Council has cooperated with the Council on Medical Education and Hospitals in studying this problem.

Consultants on Electrocardiographs: "Minimum Requirements for Acceptable Electrocardiographs" were compiled in rough draft and sent to six manufacturers of electrocardiographs for comment and criticism. The requirements are not complete and are still undergoing revision. One electrocardiograph has been submitted for consideration, but the report is not complete.

Consultants on Occupational Therapy: The "Manual for Occupational Therapy" has been revised and released for publication. It was ready for distribution Jan. 1, 1947.

Consultants on Ophthalmic Devices: An article entitled "What Is Orthoptics?" has been published. Consultants have voted to sponsor articles on contact lenses, artificial eyes and orthoptics. Articles on contact lenses and orthoptics are being considered at the present time.

Consultants on Respirators: Three respirators have been submitted for consideration. They are undergoing investigation at the present time.

Consultants on Roentgen Rays and Radium: A joint meeting of the Consultants on Roentgen Rays and Radium and the Consultants on the Medical Aspects of Atomic Energy with the Council on Industrial Health and the Council on Physical Medicine was held Dec. 12, 1946. The present status of the therapeutic efficacy of radium, radon and radioactive isotopes and an outline of the Council's future activities in these fields were discussed. On the agenda will be the compilation of requirements for acceptance of radium, radon and radon products.

Committee on American Health Resorts

The Committee on American Health Resorts continued as in 1945 with only four members instead of five. It is expected that a new member to fill the vacancy will be appointed in the near future.

On Jan. 2, 1947 the files and functional activities of the Committee were transferred from the Bureau of Health Education to the office of the Council on Physical Medicine. During the seven years of its existence the Committee has learned that much of its work is akin to problems of the Council on Physical Medicine.

Since the last annual report was published, the following health resorts have been listed by the Committee as meeting its official rules:

Saratoga Spa, Saratoga Springs, N. Y.

The Homestead, Hot Springs, Va.

The report on the acceptance of the Saratoga Spa appeared in The Journal for Aug. 3, 1946. The report on the Homestead has not been published but has been released for publication.

Council on Foods and Nutrition

The Council on Foods and Nutrition endeavors to promote improvement in the quality of foods through the application of scientific knowledge to the problems of the food industry. It encourages accuracy of labeling and advertising. It endeavors also to keep the medical profession informed of important advances in the field of foods and nutrition. It is concerned deeply with nutrition education for the medical student, for the practicing physician and for the public.

In reporting the work of the Council, it is necessary to retell occasionally what the Council's seal is intended to signify. When the Council's seal is used by a food company, it is intended to signify that the food product is as represented and that its label and the nutritional claims made for it are consistent with established knowledge or the best authoritative opinion. Acceptance is intended to signify further that the manufacturer, distributor or sponsor has complied and has agreed to continue to comply with the Rules and Regulations and the General Decisions of the Council on Foods and Nutrition.

To make Council acceptance mean these things requires constant vigilance on the part of the Council and the full cooperation of the medical profession. The work and the responsibility are far too heavy for the Council alone. Therefore it is urged that physicians as well as the sponsors of accepted foods and others notify the Council of violations of its Rules and Regulations and General Decisions. This cooperation will greatly assist in maintaining the Council's food acceptance program as an important factor in the maintenance of the nation's health.

In general, the makers of accepted foods and their advertising agencies have cooperated splendidly. This is due to an improved spirit of cooperation and the realization that the physician in practice expects labels and advertisements to mean what they say. The work of checking facts involves the full time of two staff members and part of the time of others together with a great deal of voluntary assistance by members of the Council and consultants.

One of the constructive efforts of the Council has been the stimulation of continued voluntary cooperation of food processors and advertising agencies in the food acceptance program. This entails the expenditure of many hours each week at the Council's office in consultation with representatives of the food industry from all parts of the United States.

ORGANIZATION

The decisions, policy and work of the Council are guided by its members, while responsibility for carrying out policy rests with the central office. Although a system has been established for the handling of routine problems, it is an interesting fact that most of the work requires individual attention and study.

Examples of important projects that have had to be temporarily rejected because of lack of personnel in the headquarters office are the preparation of a workbook dealing with intravenous feeding, the revision of the book "Protein Nutrition in Health and Disease," the preparation of short reports on the nutritive merits and uses of special purpose foods and expansion of the scope of the Council's food acceptance program.

The rapid development of the science of foods and nutrition demands the expansion of the scope of the Council and the preparation of more reports of advances in this field for the use of the profession.

MEMBERSHIP

Dr. Harold C. Stuart of Harvard University was elected to fill the vacancy created by the resignation of Dr. A. A. Weech. Dr. C. A. Elvehjem and Dr. Philip C. Jeans were reelected to membership to succeed themselves.

These three men are eminent in their respective fields of endeavor and it is the energy, experience and scientific integrity of these men and of the others who comprise the membership of the Council that has made the work of the Council an important contribution to the stature of the American Medical Association.

MEETINGS

Two meetings were held during the past year. Dr. James S. McLester and Dr. Howard B. Lewis were reelected chairman and vice chairman respectively. The following is a partial list of matters taken up at Council meetings and continued by means of its biweekly Bulletin: flour enrichment, corn meal enrichment, improvement of the nutritive merit of fruit juices, iodized salt, specific foods and brands, the essentiality of fats, balance in nutrition, the food requirements of the aged, misleading comparisons of wet and dry weights, the vitamin deficiencies, nutritional merits of strained foods and a consideration of particle size, the use of DDT on fruits to be canned, protein hydrolysates, nutrition teaching methods in medical schools and the Handbook of Nutrition.

RELATED PROGRAMS FOR PUBLIC WELFARE

Some of the great public health movements are concerned with matters of foods and nutrition, advancements in the development of which have led to improved public health and welfare. Some of the movements in which the Council has played an important role are as follows:

1. The Council gave continued support to the enrichment program for flour and its products. Two reports, on the enrichment of 80 per cent extraction flour and on the enrichment of macaroni, were published. The Council on Foods and Nutrition assumed an important role in starting this great public health movement and has consistently given its support to the program.

2. The Council reaffirmed its approval of iodized table salt at the level of 0.01 per cent of potassium iodide and recommended that legislation should be encouraged with a view to the establishment of a definition of table salt which should include the incorporation of a specified amount of iodine. It is assumed that pure sodium chloride will always be available for those who require plain salt. The iodized salt program is regarded as one of the important public health programs of this generation. During the past year the Council has reexamined nearly all the iodized salts bearing its seal of acceptance.

3. The vitamin D milk programs, another of the important public health movements, continues to receive the support of the Council. The routine work of this program requires the full time of one member of the office staff. Council accepted vitamin D milk is now produced and sold in the form of whole bottle milk, evaporated or dry milk in every part of the United States. To those who recall the high incidence of rickets twenty-five years ago, the scarcity of rickets today is little less than a miracle. That vitamin D milk plays an important part in this can hardly be doubted.

4. The Council encourages the production of fruit juices containing high natural levels of ascorbic acid (vitamin C) by offering acceptance to products that meet its standards. The tomato juice and the production methods of a large packer have been carefully studied and accepted, because by careful selection and good packing methods the producer is able to produce regularly juice which meets the Council's standard for vitamin C.

In addition, the product of two producers of fresh frozen orange juice has been accepted. Both of these brands of frozen juice meet the Council's standard for vitamin C. All companies producing Council accepted juices have accepted suggestions of the Council relative to containers and labels and have agreed to abide by the Council's rules with reference to advertising claims. The Council is studying other brands of juice at the present time.

Vitamin C standards set by the Council are, for tomato juice, 20 mg. per hundred grams; for grapefruit juice, 35 mg. per hundred grams; for orange juice, 40 mg. per hundred grams.

MISCELLANEOUS FOODS

Preliminary consideration has been given to a study of sanitary measures in cheese manufacture. The importance of this problem has long been known, and it is presumably true that cheese manufacture should be governed by measures which will make it as safe as pasteurized milk. It is believed that this subject is worthy of further study by the Council.

A joint committee of the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition was appointed and met for the preliminary consideration of problems related to the protein hydrolysates.

During the year the Council again started the review and reconsideration of foods bearing the Seal which have been on the accepted list for more than two years. The reconsideration of accepted foods at regular intervals is essential in order to keep current knowledge of accepted products alive and up to date. The reexamination of foods will continue.

FIELD SERVICES

In addition to its normal activities the Council provides answers to inquiries on food and nutrition problems. Many of the questions come from the medical profession, and the Council office sincerely hopes that its facilities will be increasingly used by physicians and others. Evidence of the recognition given to this assistance is the frequency with which individuals visit the Council office.

Some of the meetings which the Secretary attended during the past year were the Canadian Red Cross Conference on the School Lunch, the Conference of the Children's Fund of Michigan, the meeting of the Food and Nutrition Board of the National Research Council and a public hearing of the New York State Joint Legislative Committee on Nutrition. The Secretary has also met with representatives of the Food and Agriculture Organization of the United Nations, the World Health Organization and other groups for discussion of matters of common interest. At the Council office an article was prepared for the December issue of the *Food Drug Cosmetic Law Quarterly* entitled "The Food Acceptance Program of the Council on Foods and Nutrition of the American Medical Association."

PUBLICATIONS

Basic material has been secured from eminent authorities for the preparation of reports on the teaching of nutrition in four branches of clinical medicine, namely medicine, surgery, pediatrics and obstetrics.

New printings with minor revisions were made of the Council's booklets "Rules" and "General Decisions." It is hoped that more extensive revisions may be made at a later time.

Of special interest has been the publication of a syllabus of the vitamin deficiencies called "Vitamin Deficiencies: Stigmas, Symptoms and Therapy." More than two hundred thousand have been printed. Permission was granted for a Spanish translation of "Protein Nutrition in Health and Disease."

The Council has sponsored publication of six reports in The Journal on special subjects and has made minor reports on other matters.

Handbook of Nutrition.—An important work of the Council in 1947 will be the extensive revision of the Handbook of Nutrition. The arrangement of sections and chapters is new. Many of the chapters will be entirely rewritten. Distribution will be made to the practitioner and the medical student.

NUTRITION EDUCATION IN MEDICAL SCHOOLS

It has been suggested by a number of interested groups that a survey of nutrition teaching methods should be made. The matter was taken up therefore with the Council on Medical Education and Hospitals, which gave its support. This is one of the most important of the Council's present activities, and it its hoped that it will give some assistance and guidance to a worldwide survey which is anticipated by the Food and Agriculture Organization of the United Nations. A pilot study has been authorized and started and will be completed in preliminary form in 1947.

As part of an effort to find new methods of intensifying the interest of medical students in the science of foods and nutrition and its relation to the maintenance of health, the Council has secured the assistance of Dr. C. G. King of the Nutrition Foundation in a cooperative project. The Council arbitrarily selected eight medical schools and two schools of public health and secured permission of their deans to supply all of the fourth year students of the medical schools and all of the students in the two schools of public health with *Nutrition Reviews*, which is widely and favorably recognized both in this country and abroad for its reporting of recent advances in the science of nutrition. The Nutrition Foundation has made this publication available gratis to the students.

Council on Industrial Health

During 1946 and the first quarter of 1947 the work and efforts of the Council on Industrial Health developed in many important ways.

PUBLIC RELATIONS

International Affairs.—A much greater interchange of experience needs to be developed by industrial physicians and hygienists in the Americas and Europe on a scientific nonpolitical level. A new form of international conference is proposed to include leading representatives of medicine, engineering, psychology and sociology who need to be mutually aware of developments occurring in these collateral fields. In the same direction a plan for the interchange of corresponding editors between principal American and foreign publications, covering industrial and forensic medicine, has been developed and is now awaiting approval. The Council on Industrial Health is prepared to facilitate these developments in all practical ways in anticipation of renewed activities in the field of industrial hygiene by the International Labor Organization and the World Health Organization.

Health and Welfare Programs.—The exact status of health and welfare programs for industrial workers remains unsettled, pending federal legislation defining labor-management relations, final disposition of the United Mine Workers employment contract and the appearance of the Boone Report, descriptive of working and living conditions in the soft coal mining districts. Meanwhile the Secretary of Labor, in his annual report to Congress, has advocated the increased use of health welfare programs in labor-management agreements as an effective and flexible means of providing greater social security through collective bargaining. He has indicated that these programs will assure greater industrial harmony and workers' security.

Union officials have met recently to discuss social security problems, including medical care and disability insurance. A tripartite study of health and industrial welfare programs for industrial workers is to be undertaken by the U. S. Department of Labor, the Social Security Administration and the Industrial Hygiene Division of the U. S. Public Health Service.

In view of the increasing participation of labor organizations in plans for industrial medical service and general medical care, the Council has instituted a series of visits to union health centers and will extend this type of field service into the existing types of medical care programs provided by industrial corporations.

Health Service for Federal Employees.—Public Law 658, passed by the 79th Congress, makes available to government employees emergency treatment of on-the-job illness, preemployment and periodic health examinations, health counseling, referral of employees to private physicians and dentists and a general program of preventive medicine. The federal offices intending to develop a service of this kind must either request personnel from the U. S. Public Health Service or operate under standards acceptable to that agency. The actual number of employees likely to come under the provisions of this law is still to be determined and may range from two and one-half million to four million people.

Labor-Management Relations.—The proceedings of the Supplemental Session of the House of Delegates called attention to the great public relations contributions which could be made by the Council on Industrial Health and recommended that every possible encouragement and facility be extended to the conduct of its work. The Council has under consideration at the present time several proposals intended to improve its contact with management and labor. These plans will be integrated into the overall public relations program of the American Medical Association.

SCIENTIFIC DEVELOPMENT AND EDUCATION

Medical Education.—The Council believes that every medical student should be acquainted with the essential details of industrial health and that every medical graduate should have sufficient knowledge of the subject to assure an intelligent attitude toward its relation to general and special practice. Visits are now being made to medical schools and to schools of public health to gather as complete information as possible about current educational practices in the industrial health field. Previous data, collected by questionnaire methods, have proved unreliable as a basis for constructing practical and realistic course outlines. Results so far indicate greatly improved appreciation of the importance of industrial medical education in both the undergraduate and the graduate field, but much remains to be done.

Residencies in Occupational Medicine.—At the request of the Council on Medical Education and Hospitals, criteria for residencies in occupational medicine have been developed. These are as follows:

"ESSENTIALS OF A RESIDENCY IN OCCUPATIONAL MEDICINE"

"The principal components in a training program for occupational medicine are as follows:

"1. Health Conservation:

"The physician in industry is expected to maintain and improve health, fitness and productive capacity through physical, mental and emotional appraisals, job evaluation and placement, health counseling and health education and through the application of medical and psychiatric technics to industrial human relations.

"2. Medicine and Surgery:

"Medicine and surgery in industry deal with occupational diseases and the surgery of trauma (including disability evaluation, rehabilitation and medicolegal aspects), control of preventable illness, the industrial implications of the medical and surgical specialties and emergency care.

"3. Environmental Hygiene:

"Environmental hygiene is concerned with the detection and control of occupational exposures, general plant sanitation and housekeeping, personal hygiene of workers, accident prevention, the application of regulatory codes and factory inspection laws.

"4. Administrative Methods:

"Administration includes industrial medical department planning and operation, integration with related in-plant functions, maintenance of adequate records and statistics and correlation with community medical, hospital and health services.

"To provide adequate training, several types of facilities are necessary:

"1. In-plant Services.

"The industrial medical department shall be of sufficient size and scope to accommodate the requirements of the plant and shall be under full time medical direction. The medical director should derive his authority in the plant from the officer directly responsible for policy and operations. It shall provide facilities and equipment and teaching material required for the training of a resident physician. Dressing and examination rooms, clinical and x-ray laboratories, wards and departments of physical medicine shall be available. Physicians in training should become familiar with records pertaining to (1) individual medical services and examinations, (2) plant inspections and technical industrial hygiene studies and (3) absentee analysis and control measures. A well equipped laboratory of industrial hygiene shall be readily accessible in the plant or through close affiliation. Monthly and annual summary reports shall be prepared outlining the work of the department.

"A competent accident prevention service is essential. Close correlation should be maintained with agencies in the plant responsible for hiring, job analysis, training courses and the maintenance of personnel policies.

"2. Hospital Services.

"Affiliated hospitals shall meet the general requirements for residency approval. There shall be organized services in the hospital under competent staff direction in internal medicine, dermatology, ophthalmology, traumatic surgery, neurology and psychiatry. A well equipped rehabilitation center should be supplied. Wherever possible, the hospital should be affiliated with a medical school or school of public health."

These criteria were developed with the assistance of the Committee on Medical Education of the American Association of Industrial Physicians and Surgeons. Approval of these essentials by the Council on Medical Education and Hospitals will be the first considerable step toward the realization of the certification program in occupational medicine.

Atomic Energy.—Atomic energy in medicine is of great interest to the Council on Physical Medicine and the Council on Industrial Health. Consultants have been appointed to advise these Councils relative to the use of radiant energy in diagnosis and treatment and respecting the development of necessary safeguards as atomic energy comes into general use as a practical source of power in industry and transportation.

Aluminum Therapy.—The Council is undertaking inspections of aluminum therapy installations in the foundry and pottery industry in order to arrive at a satisfactory estimation of the prophylactic and therapeutic value of this procedure. This is a joint undertaking with the Council on Pharmacy and Chemistry. Personnel from the Therapeutic Trials Committee of that Council are participating in the surveys.

Food Service and Sanitation.—A report on sanitary food handling having direct application to food service and nutrition in industrial plant cafeterias has been prepared jointly with the Council on Foods and Nutrition and is now ready for publication.

Research Activities.—Research in industrial hygiene and toxicology is essential to progress. Visits are being made to laboratories and other institutions engaged in investigative work. The facilities and specific interests of these agencies will be tabulated as a means of correlating research and mobilizing special resources when the need arises.

PROFESSIONAL RELATIONS

Field Activities.—Field activities have been mainly directed at improving the effectiveness of the committees on industrial health in the state and county medical societies. Many are doing excellent work, others are not. Regional conferences have been held, attended by physicians, industrialists, labor leaders and others as a means of promoting industrial health activity at community levels. At these conferences emphasis has been placed on health service to small industries. The Medical Society of the County of New York has authorized its special committee on industrial medicine to organize and conduct a three year program the objective of which is to bring modern health service to every industrial plant in that area. The Council has examined these proposals and has approved them.

Congress on Industrial Health.—The Seventh Annual Congress on Industrial Health was held in Boston with the Council of New England State Medical Societies and the Massachusetts Medical Society as co-sponsors. The satisfactory character of this meeting has convinced the Council of the wisdom of conducting these meetings in various parts of the country.

Speakers Panel.—Lists of speakers have been established, made up of physicians and others in various parts of the country able and willing to express the point of view of organized medicine in matters of industrial health. This activity has been conducted as a part of the general public relations program of the American Medical Association.

WORKMEN'S COMPENSATION AND REHABILITATION

Workmen's Compensation.—The Council has continued to participate actively in the work of the National Workmen's Compensation Conference Committee in company with representatives of industrial commissions, casualty insurance companies, labor and management. Preliminary reports have been completed outlining the need for investigation and reform in the several fields of report forms, statistics, medical testimony, hearings and appeals, disability evaluation and rehabilitation. Consultants have been invited to assist in the consideration of these important matters. The medical profession needs to be adequately represented in all discussions of workmen's compensation and rehabilitation.

Disability Evaluation.—A series of conferences on disability evaluation is in preparation. Industrial commissions, and physicians as well, are greatly concerned over the unsatisfactory and unscientific methods currently employed to measure disability. Excellent work has already been accomplished along these lines by the Section on Ophthalmology and the consultants on otolaryngology to the Council on Physical Medicine. Much of the proposed activity will fall in the fields of traumatic surgery and orthopedics.

Bureau of Health Education

The year 1946 represented a turning point in the history of the Bureau of Health Education. After almost six years of wartime and postwar retrenchment and marking time, it became possible at last for the Bureau to realize some of the progress which had been planned during the war years. The study of the Bureau made as a part of the Rich survey of the Association as a whole supported many of the recommendations already in the minds of the Director and Associate Director of the Bureau. As far as this Bureau was concerned, the Rich Report was, in the main, helpful, although it was evident that the Rich Associates did not have an adequate conception of the functioning of this Bureau in its liaisons or an understanding of the purpose of its radio programs.

During 1946 the Board of Trustees authorized two very important organizational changes in the Bureau. One was the creation of a position entitled Administrative Assistant to the Director; the other was a position entitled Pamphlet Editor. The former was intended to relieve the Director of routine administrative work and permit him to devote more time to direction, study and liaison relationships, and the latter was created for the purpose of correcting deficiencies in pamphlet publications pointed out in the Rich Report, though fully realized previously and remaining uncorrected only because of lack of personnel.

Other important additions to the Bureau personnel were made during the year. The establishment of the Health and Physical Fitness Project in the Bureau of Health Education necessitated two additions: Dr. Dean F. Smiley functions as the medical adviser in this project, and Fred V. Hein, Ph.D., is the educational consultant. Dr. Smiley became a member of the staff on Aug. 15, 1946 and Dr. Hein on Sept. 15, 1946. A complete and full description of their duties is contained in that portion of this report entitled "Health and Physical Fitness."

BUREAU PUBLICATIONS

The Bureau reviewed six books for THE JOURNAL and sixteen for HYGEIA and prepared seven other contributions to THE JOURNAL and ten to HYGEIA, including editorials, radio announcements, articles and news items.

The Bureau originated twenty-one articles published in periodicals other than those of the American Medical Association. Advice and consultation on manuscripts were furnished twelve organizations.

RADIO BROADCASTING

Radio broadcasting was begun in January on the NBC network under the title "Doctors at Home" and continued for twenty-six weeks. It proved to be the most successful series thus far broadcast in the twelve years of dramatized broadcasting.

Special broadcasts were made over the three major networks in connection with the annual session of the Association at San Francisco in June.

The script library continues to shrink both in number of available talks and in demand for local usage. This library now offers 219 fifteen minute and 170 ten minute talks. Six county medical societies and auxiliaries, one state medical association, three local health departments and two miscellaneous agencies used these scripts in 1946, requesting only 142 talks. There is no record of how many of these scripts were broadcast.

ELECTRICAL TRANSCRIPTIONS

Electrical transcriptions continued to form a major part of the Bureau's activity. It is estimated that during 1946 there were between 4,000 and 4,500 local broadcasts of these transcriptions on approximately 120 outlets, mostly those not reached by network programs. These figures are estimated because the exact number of broadcasts made through local outlets could be ascertained only by a time consuming and expensive survey. The figures published are based on the number of transcription loans made and the assumption that unless the Bureau was notified to the contrary each of the recordings was broadcast.

The following new series of electrical transcriptions was added by the Bureau during the year:

Melody of Life. Thirteen quarter-hour interludes, with music of great composers. The life stories of musical masters and what medicine could do for their health problems today.

Keeping Your Baby Well. Thirteen quarter-hours with pediatricians selected by the Section on Pediatrics, interviewed by Harriet Hester about everyday problems in child care.

Fair and Cooler. Thirteen quarter-hours of delightful piano selections, with suggestions for health and comfort in the good old summer time.

Time Out! Thirteen quarter-hour programs of organ music, with brief health suggestions by Dr. W. W. Bauer and Dr. William W. Bolton.

That Wonderful Feeling! Health as a fundamental necessity to physical, mental and emotional fitness; thirteen dramatized scripts by William J. Murphy.

TELEVISION

On April 2, 1946 the first of a series of health education television programs was presented over station WBKB, Chicago. This venture has been continued, and through December a total of nineteen telecasts had been given. It has been demonstrated that television offers an excellent medium for health education. With the helpful cooperation of the WBKB staff a satisfactory method of presentation has been developed. Included in this are dramatic episodes enacted by professional actors. It has also been found helpful to utilize portions of health education films. Perhaps the most difficult obstacle has been getting away from the "lecture" type of presentation. One method that has proved of help is the interview form of program. It is recognized that, in order to sustain audience interest and attention, various aspects of the subject must be considered in turn. Another obstacle has been the fact that, unlike radio, the participants are not able to read their contributions from a prepared script. In spite of these problems it is felt that the possibilities for health education over television are excellent.

HYGEIA LOAN COLLECTIONS

An increase was noted in the requests for HYGEIA loan collections from this Bureau. Eighty-two such collections were sent out during the year, as compared with fifty-eight for the previous year. A definite shift in the source of requests for these collections, which contain material that can be incorporated into discussions before lay groups, has been observed. Of the eighty-two requests, only thirty-eight came from physicians. The remainder were from professional workers engaged in health education. These included teachers, nurses and directors of local health units. In addition there were some requests from individuals connected with various civic groups. It is believed that the requests from physicians are no longer as numerous because increased activity at the state society level has made it possible for physicians to obtain this material from these sources. In addition to this encouraging conclusion, the fact that nonmedical individuals are finding the loan collections helpful might well be considered concrete evidence that health education is making definite progress.

The loan collections went to twenty-five different states. The subjects most in demand were cancer, medical advances, health education and sex education.

HEALTH AND PHYSICAL FITNESS

The establishment of the Health and Physical Fitness Project in the Bureau of Health Education was an added step forward in the efforts of the American Medical Association to contribute to the promotion of health. The Board of Trustees early in 1946 authorized the establishment of this project in the Bureau of Health Education to work under the supervision of the American Medical Association's Committee on Health and Physical Fitness.

The project includes the health and fitness problems of the preschool child, the school child, the college student, the adult, both rural and urban, and the industrial worker. Though the Committee contemplates cooperation with all other health agencies working toward health improvement in home, school, industry and community it has expressed the belief that the most immediate and practical approach to the problem lies first in the schools and second in industry. The efforts of the consultants in the project are therefore directed primarily to these fields.

The Committee did not attempt to set up any master plans or "ideal" programs and then to foster their widespread adoption in the schools and industries. Rather will it be the purpose to implement as far as possible plans already recommended by the various professional groups and to accumulate information on the varied health programs now in use with the purpose of making both reports on these programs and advice and counsel available, on invitation, to boards of health, boards of education, employers, employee groups, medical societies and women's organizations.

The project is, in a sense, a continuation of the work carried on by the Association in conjunction with government agencies and other interested groups during the late war. Including the project in the total health education program of the Association and staffing it with a physician who has had wide experience in health education and an educator experienced in the health and physical education fields will give it a permanence and a practicability lacking in the previous organization.

Covering the period from Aug. 15, 1946 to Jan. 1, 1947, the following work has been undertaken and brought to completion or carried to the point of progress described:

A source file was prepared which includes materials on school health and physical education from over forty states and many voluntary and official health organizations. Materials concerned with curriculum planning from several states were reviewed by the consultants. The manual "Health Inspection of School Children" has been revised under the title "Standards for Determining the Health Status of School Children" and has been submitted to the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.

Contemplated legislation relative to school health and physical education was studied and the proper department at Association headquarters advised in regard to the nature and content of projected bills. The consultants have also been called on to review a considerable number of films and other audiovisual aids for use in school health and physical education instruction.

With the approval of the Board of Trustees, the consultants have begun work as members of the following national committees:

National Committee on Standards for Interscholastic Athletics of the American Association for Health, Physical Education and Recreation.

National Committee on Standards and Surveys in Health Education of the *American Association of Teachers Colleges.*

Committee on Health Education for All College Students of the Third National Conference on Health in Colleges.

Subcommittee on Tuberculosis, National Research Council.

The Council of the American Student Health Association.

A series of thirteen radio transcriptions on health and physical fitness, "That Wonderful Feeling," was prepared for use by state or local medical societies or by other groups having the approval of the medical societies. A television program on physical fitness was broadcast over station WBKB Nov. 7, 1946.

The consultants served as participants in working conferences and gave talks at health and physical education conferences or other group meetings in Arizona, Illinois and Wisconsin. Each consultant prepared and submitted material to be used as a basis for one chapter of the book "Health Education" now being revised under the auspices of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Each month the consultants prepare a series of "Suggested Discussion Topics" for the classroom use of HYGEIA, the Health Magazine, in secondary schools.

During the third of a year in which the project has been functioning the consultants have necessarily devoted a considerable amount of time to familiarizing themselves with the organization and operation of the American Medical Association. There has also been considerable orientation required in properly establishing the project as an integral part of the function of the Bureau of Health Education. An attempt has been made to bring about worth while working relationships with other committees and with the various Bureaus and Councils of the American Medical Association.

PAMPHLETS

Thirteen new pamphlets were added during the year to the Bureau's list of publications, and three were discontinued. Distribution of Bureau publications through the Order Department was 182,989; the Bureau sold 47,100 reprints direct to quantity purchasers, making a total of 230,089. Because of the paper shortages and the large amount of work in the printing department, permission was granted in a number of instances for local reproduction of articles in HYGEIA. A total of 1,450 copies of different HYGEIA articles were reproduced locally, according to reports sent to the Bureau of Health Education.

MEETINGS AND CONFERENCES

The Bureau staff traveled 64,851½ miles to attend meetings or address audiences in twenty states. Audiences numbered ninety-three and totaled 18,995 persons. The Bureau staff participated in seventy-nine conferences and committee meetings. It was necessary to decline twenty-nine engagements because of previous commitments or travel difficulties.

COOPERATIVE RELATIONSHIPS

Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.—The 1946 meeting of the Joint Committee was held for the third successive year at American Medical Association headquarters. The Committee reelected Dr. Thurman B. Rice chairman, Miss Bernice Moss was elected vice chairman and Dr. W. W. Bauer was reelected secretary.

The principal items dealt with by the Committee were as follows:

1. Standards for Determining the Health Status of School Children. A mimeographed statement about the minimum health program for school children; the objective in the health observation by the teacher, and the reasons for further observation and investigation. It sets forth the conditions which the teacher should note daily and deals with special problems.
2. The proposed procedure for establishing the American Medical Association Physical Fitness Project.
3. Statements on (1) the ultraviolet radiation for disinfecting purposes in schools, (2) hearing aids for children and adults, and (3) eye testing appliances, presented by Mr. Howard Carter of the Council on Physical Medicine.
4. Cancer control as a major health problem in the United States, a statement concerning which was authorized. Scientific facts about cancer should be taught to high school students.
5. The use of tampons. Adoption of any specific stand in relation to the use of vaginal tampons does not appear desirable to the Committee and a statement was issued to that effect. The Committee feels that the subject is in danger of becoming exaggerated. Questions should be answered by teachers referring inquirers to a physician for individual advice based on physical findings.
6. A Nutritional Program for Schools. The Committee gave careful consideration to this report, prepared by Dr. Glenville Giddings, and a subcommittee was appointed to condense and modify the Giddings manuscript.

U. S. Children's Bureau Advisory Committee.—No meeting of this committee was held during the year.

National Committee for Boys & Girls Club Work (4-H Clubs).—The work of this committee proceeded as usual, with meetings in December. The great importance of this work from the health standpoint resides in the local effectiveness of health instruction, dietetics, home economics and the like. This appears to grow stronger year by year. The disturbing feature about this relationship is the increasing reliance on federal subsidies, but those concerned in the work seem to regard such subsidies as necessary and do not appear to be alarmed by their practical application.

National Congress of Parents and Teachers.—The National Congress of Parents and Teachers is reorganizing its health work on a broader basis, in which the health interests in general are emphasized more than the Summer Round-Up of the Children, which was formerly the principal emphasis. In its health work the National Congress continues to declare itself in favor of private enterprise, but its Washington representatives also continue to support the extensions of the Children's Bureau work into the fields of private medical practice.

American Public Health Association.—The term of the Director of the Bureau of Health Education on the Governing Council expired and he was not renominated. In view of his outspoken opposition to the adoption by the association of its declaration in favor of compulsory federal health services, this was not unexpected. The Director continues to serve as a member of the Committee on Professional Education. He is now in his second term and presumably will be ineligible for reappointment at the end of that term. The work of this committee is thoroughly scientific and professional and should have a fine constructive influence in public health circles. The most interesting and significant of present projects before the committee is the accreditation of schools of public health issuing the degree of Master of Public Health and Doctor of Public Health. In this work the pioneering of the American Medical Association Council on Medical Education and Hospitals is having a definite though unobtrusive influence.

American Cancer Society, Educational Committee.—This committee is in the developmental phase. It is a large committee, representing much advisory ability and a great deal of potential power. Like all advisory committees, its ultimate effectiveness depends on how its advice is received.

United States Government Agencies.—The Bureau continues to cooperate, largely by correspondence, with government agencies. Materials or information have been furnished during 1946 to many branches of the government departments and agencies.

War Department.
Navy Department.
Federal Security Agency.
Department of Agriculture.
Department of the Interior.
Federal Works Agency.
Pan American Sanitary Bureau.
Institute of Inter-American Affairs.
Veterans Administration.
House of Representatives.

MISCELLANEOUS

The Bureau continued to compile information about attacks on and defense of medical research and to distribute it in response to requests.

The Bureau furnishes questions and answers to Hygeia for publication and checks all galley and page proofs for medical accuracy.

The Bureau continues its cooperation with the Woman's Auxiliary.

Eight students from Yale University spent four days during June observing the health education work of the American Medical Association.

APPRECIATION

The Director of the Bureau wishes to express his appreciation to the Trustees and to the General Manager for the confidence which they have placed in this Bureau and for the opportunities for increased constructive service which they have granted in the course of the year 1946 and by advance authorization for 1947 activities.

Appreciation should be recorded for the physicians and members of other professional faculties in the many universities and for the physicians in private practice and in public health work who have been called on for answers to questions and for advice and consultation.

Bureau of Investigation

In 1946 the Bureau of Investigation had one of its busiest years in carrying on its part of the Association's activities. Correspondence showed the largest increase in three years, and the Bureau almost doubled its 1945 contributions to The Journal in number and column space.

INQUIRIES

Special groups whose inquiries were particularly numerous were teachers and students, newspapers, radio stations, federal agencies, Better Business Bureaus and farm publications. All possible assistance was given to them, as well as to other inquirers, who included physicians, state licensing boards, welfare organizations, research workers and the general public. Every day brought inquiries from newspapers and Better Business Bureaus, and nearly as frequent were those coming from state boards and the federal Food and Drug Administration, the Federal Trade Commission and the Post Office Department. There were also some from the Federal Bureau of Investigation. In many instances the Bureau gave considerable time to personal interviews with representatives of these agencies. In return, the latter have cooperatively given the Bureau new and valuable information for its files.

SPECIAL SERVICE GIVEN

The Bureau has seen its work bear fruit in the legal actions brought against quacks and "patent medicine" promoters by federal and state agencies whose attention has been turned toward such offenders by this department. Numerous fraud orders issued by the Post Office Department and prosecutions of medical practitioners and nostrum exploiters have been the result of the Bureau's being the first to furnish information about them to various government departments and state licensing boards.

ASSISTANCE TO SCHOOLS AND OTHER GROUPS

The Bureau increased its service to teachers and students seeking light on nostrums and cosmetics, inviting them to send lists of such products, on which helpful reports were supplied. The pupils ranged from those having "projects" in grade school classes to college students writing theses. Many of the recipients expressed their gratitude for the assistance given them.

Information on many subjects has been given to women's groups, including clubs, the W. C. T. U., student nurses and Red Cross home nursing classes, though the latter division is less numerous since the close of the war.

The vigilance of the Better Business Bureaus over the country demands prompt information from this department on quacks, impostors, nostrums, cosmetics and various medical schemes, and these bureaus have warmly acknowledged the assistance furnished, which can be obtained from no other source. Newspapers and magazines have been similarly served. Much information has been given to inquirers about three especially conspicuous medical promotions—the Kaadt "diabetes cure," the Koch "cancer cure" and the "Spectro-Chrome Therapy" of Dinshah P. Ghadiali. All of these have been in the courts in the past year.

PUBLICATIONS AND MISCELLANEOUS SERVICES

Sales of the Bureau's pamphlets in 1946 amounted to 700 copies, an increase of 50 over 1945, and many were sent free to teachers and students. The book "Nostrums and Quackery and Pseudo-Medicine" sold in 1946 to the number of 134 copies. Thirty-five columns of material were contributed to The Journal, representing twenty-nine articles based on the Bureau's investigations and abstracts of government actions.

In August 1946 the Acting Director of the Bureau took part in a television broadcast on "Medical Fakes."

The Bureau's lantern slides and film strip dealing with the nostrum evil and quackery were lent to physicians and educators over the country.

Bureau of Legal Medicine and Legislation

The report of the Bureau submitted to the supplemental session of the House of Delegates last December reflected the more important laws of medical interest enacted during the closing days of the Seventy-Ninth Congress. That report was published in The Journal for Dec. 21, 1946, and a repetition of its contents in this report would serve no useful purpose. It will be more timely if a summary is given of legislation of concern to medicine that has been introduced in the Eightieth Congress to date and in the legislatures of the several states now in session.

FEDERAL LEGISLATION

The Eightieth Congress convened January 3 of this year, and although it has been in session for a period of only about three months, a manifest interest in problems of health is already reflected in the considerable number of bills that have been introduced relating to various aspects of such problems. Hearings have already been scheduled on some of the bills, and indications are that others will receive the consideration of committees between now and the time of the meeting of the House of Delegates in June.

Federal Department of Health.—Four days after the Congress convened, Representative Miller of Nebraska, a doctor of medicine, reintroduced his bill, as H. R. 605, to establish at the seat of government an executive department to be known as a Department of National Health. At the head of this department would be a Secretary of National Health, appointed by the President by and with the advice and consent of the Senate. It is contemplated that in this department will be centralized all activities of the federal government related to health, and the President will be authorized to transfer to it such existing agencies and functions as he may determine to be appropriate.

Another pending bill, S. 140, introduced by Senator Fulbright, Arkansas, for himself and Senator Taft, Ohio, proposes the creation of an executive department of the government to be known as the Department of Health, Education and Security. A similar bill is pending in the House, H. R. 573, introduced by Representative Harris, Arkansas. The Senate bill provides for the appointment by the President by and with the advice and consent of the Senate of a Secretary of Health, Education and Security to act as the head of the new department. The bill does not set forth the qualifications to be possessed by the Secretary. There would be three main divisions in the department, each under the immediate supervision of an Under Secretary, a Division of Health, a Division of Education and a Division of Security. The Under Secretary of Health would be a doctor of medicine licensed to practice medicine or surgery in one of the states or territories of the United States or in the District of Columbia. Provision is made for the appointing by the Secretary of advisory committees to advise and consult with him. The Office of the Federal Security Administrator and the Federal Security Agency, and its constituent units, together with all their functions, would be transferred to the new department. To the Division of Health would be specifically transferred the U. S. Public Health Service, the Freedmen's Hospital, the Food and Drug Administration and the Federal Board of Hospitalization. To the Division of Security, the Under Secretary of which will be a person experienced in the field of social security and welfare, will be transferred the Committee on Economic Security and the Children's Bureau. While the House of Delegates has repeatedly urged a National Department of Health, it has recognized the dangers incident to mingling in one department health and other functions. At a special meeting held in 1937 at a time when a reorganization of governmental activities in the executive departments was under consideration, the Board of Trustees prepared a statement expressing the opinion that "health activities of the government, except those concerned with the military establishments, should not be subservient to any other departmental interests." This action of the Board of Trustees was approved by the House of Delegates at its meeting in Atlantic City in June 1937. A preliminary hearing has been held on this bill by the Senate Committee on Expenditures in the Executive Departments, and additional hearings have been scheduled at which the points of view of various interested groups will be presented, including the point of view of the American Medical Association.

A third bill, S. 712, introduced by Senator Aiken, Vermont, proposes that the Federal Security Agency be constituted an executive department in the government and that its name be changed to the Department of Health, Education and Security. At its head would be a Secretary of Health, Education and Security, and there will be in the department an Under Secretary and two Assistant Secretaries. The qualifications to be possessed by the Secretary, the Under Secretary and the two Assistant Secretaries are not prescribed. A duty will be imposed on the new Secretary to foster and promote the general welfare of the people of the United States in matters pertaining to their health, education, social welfare and social security.

There is also pending a fourth proposal, a part of S. 545, introduced by Senator Taft, Ohio, for himself and Senator Smith, New Jersey, Senator Ball, Minnesota, and Senator Donnell, Missouri, which would create in the executive branch of the government an independent agency to be known as the National Health Agency. This agency would be administered by a National Health Administrator appointed by the President, by and with the advice and consent of the Senate. This Administrator, it is proposed, will be a doctor of medicine licensed to practice in one or more of the states and outstanding in the field of medicine. There will be centralized in this agency the activities of the federal government relating to health except that no power, function or duty exercised by the Army, the Navy or the Veterans Administration will be transferred to the Agency. In the Agency there will be the following constituent units: (1) the Office of the Administrator; (2) the Public Health Service; (3) the Office of Medical and Hospital Care Services; (4) the Office of Dental Care Services; (5) the Office of Maternal and Child Health; (6) the Office of Health Statistics; (7) the Food and Drug Administration; and (8) such other constituent units as the Administrator finds necessary. The Director of the Office of Medical and Hospital Care Services will be a doctor of medicine licensed to practice medicine in one or more states, who has had at least five years of active medical practice and who is outstanding in the field of medicine.

Cancer and Other Medical Research.—Senator Pepper, Florida, has reintroduced his bill, S. 93, which would authorize the President to undertake to mobilize at some convenient place or places in the United States an adequate number of the world's foremost experts and coordinate and utilize their services in a supreme endeavor to discover means of curing and preventing cancer. An appropriation of $100,000,000 would be authorized to enable the President to carry out the provisions of the bill. Similar bills are pending in the House of Representatives, H. R. 292, introduced by Representative Rooney, New York, and H. R. 780, introduced by Representative Douglas, California. Another bill, H. R. 100, introduced by Representative Dirksen, Illinois, would make a similar request of the President but would authorize only $50,000,000.

There is still another bill, H. R. 977, introduced by Representative Stevenson, Wisconsin, which suggests the creation of a National Medical Research Foundation to initiate, conduct and support scientific research with respect to the cause and cure of cancer, poliomyelitis, rheumatic fever, Bright's disease, asthma, arthritis, leukemia, encephalitis, arteriosclerosis, aplastic anemia, rheumatic heart disease, diabetes and other degenerative diseases of the human race. To enable the foundation to carry out its powers and duties, there is suggested an appropriation of $10,000,000 annually.

A section of S. 545, the Taft-Smith-Ball-Donnell bill, would authorize an annual appropriation of $10,000,000 to enable the Surgeon General of the Public Health Service to develop more effective measures for the prevention and control of cancer and to assist, through grants, states, counties, health districts and other political subdivisions of the states in establishing and maintaining adequate measures for the prevention and control of cancer.

The draft of still another bill relating to research in cancer has been prepared and will shortly be introduced by Senator Taft, who may be joined by other senators in sponsoring the legislation. It will create a National Cancer Research Commission consisting of fifteen members, ten of whom will be eminent scientists, expert in the field of medicine or the basic sciences, and five of whom will represent the public, all appointed by the President by and with the advice and consent of the Senate. There will be authorized to be appropriated, for the fiscal year ending June 30, 1948, the sum of $5,000,000; for the fiscal year ending June 30, 1949, the sum of $10,000,000; for the fiscal year ending June 30, 1950, the sum of $15,000,000; for the fiscal year ending June 30, 1951, the sum of $20,000,000; and the fiscal year ending June 30, 1952, the sum of $25,000,000. This commission will be authorized to formulate a program designed to provide for and to coordinate scientific research directed toward the discovery of the cause or causes of cancer and means for its prevention by eminent experts in such research from the United States and abroad. It is contemplated that grants will be made to not more than ten large public or private research centers in the continental United States and possibly to additional smaller public or private research facilities. Fellowships for research at institutions in the United States will be authorized, and the commission will have authority to make grants for individual research projects at institutions in the United States. There will be a National Administrator of Cancer Research to be appointed by the Commission.

Another bill relating to medical research, S. 720, introduced by Senator Pepper, Florida, follows the pattern of his cancer research bill. It would authorize the President to mobilize in the United States the world's foremost experts and coordinate and utilize their services in an effort to discover new means of treating, curing and preventing diseases of the heart and arteries. An appropriation of $100,000,000 would be authorized.

National Science Foundation.—In the report of the Bureau submitted to the House of Delegates in 1946 at San Francisco, reference was made to the proposals being considered by the Congress to create a National Science Foundation. There were two particular bills that occupied prominent positions, the Magnuson bill, S. 1285, pending before a subcommittee of the Senate Committee on Commerce, and the Kilgore bill, S. 1297, pending before a subcommittee of the Senate Committee on Military Affairs. As a result of the joint efforts of these two subcommittees, a compromise measure was evolved, S. 1850, which was passed by the Senate on July 3, 1946 after the provision establishing a Division of Social Sciences had been eliminated. No action was taken on this bill by the House of Representatives, and it died with the adjournment of Congress.

This legislation has been reintroduced in the Eightieth Congress. In the Senate, S. 525, introduced by Senator Thomas, Utah, is identical with S. 1850 of the Seventy-Ninth Congress, as that bill passed the Senate. In the House H. R. 942, introduced by Representative Celler, New York, is the same as S. 1850, as that bill was reported to the Senate and includes a provision for a Division of Social Sciences. A third bill has been introduced, S. 526, by Senator Smith, New Jersey, for himself and Senator Cordon, Oregon, Senator Revercomb, West Virginia, Senator Saltonstall, Massachusetts, Senator Magnuson, Washington, and Senator Fulbright, Arkansas. There are four companion bills to the Smith bill pending in the House, H. R. 1815, introduced by Representative Case, New Jersey, H. R. 1830, introduced by Representative Mills, Arkansas, H. R. 1834, introduced by Representative Priest, Tennessee, and H. R. 2027, introduced by Representative Hays, Arkansas. Essentially, then, there are two principal proposals pending, the Thomas bill and the Smith bill.

Both bills provide for the creation of a National Science Foundation in which will be specified divisions and divisional committees. The Thomas bill provides for a one man administrator appointed by the President by and with the advice and consent of the Senate and a National Science Advisory Board also appointed by the President. The Smith bill provides for a foundation composed of forty-eight members appointed by the President by and with the advice and consent of the Senate. The foundation, it is proposed, will elect biennially from its own membership an executive committee of nine members, which in turn will appoint a director of the foundation subject to the approval of a majority of the members of the foundation.

Both bills will authorize such appropriations as may be needed. The Thomas bill specifies a certain minimum percentage of funds to be devoted to research and development in the fields (1) of national defense and (2) of health and medical sciences. The Smith bill has no similar provision. The Thomas bill sets forth specific standards for the disposition of inventions, findings and patent rights. The Smith bill provides that each contract or other arrangement executed by the foundation which relates to scientific research "shall contain provisions governing the disposition of inventions produced thereunder in a manner calculated to protect the public interest and the equities of the individual or organization with which the contract or other arrangement is executed."

It is contemplated that contracts may be made with individuals under the provisions of the Smith bill but not under the Thomas bill. Neither bill provides for a Division of Social Sciences, as does the Celler bill.

As this report is being prepared, hearings are under way on the House bills which were referred to the House Committee on Interstate and Foreign Commerce. The Senate bills are pending in the Senate Committee on Labor and Public Welfare.

Health of School Children.—A Senate joint resolution introduced by Senator Morse, Oregon, S. J. Res. 66, would authorize the Secretary of Labor in cooperation with federal, state and local agencies and qualified institutions of higher education, to (1) make studies of the health and physical status of children of school ages, (2) make studies of the facilities and services offered by schools for the correction of physical defects of children of school ages and (3) recommend the use of and demonstrate in representative urban and rural areas methods of conducting school health examinations and providing school health services. To defray the expenses of the Department of Labor in carrying out the provisions of this joint resolution and providing funds for direct grants by the Secretary of Labor to state departments of health, state departments of education and qualified institutions of higher learning, cooperating with him in carrying out the provisions of the joint resolution, there will be authorized to be appropriated $100,000 for the fiscal year ending June 30, 1947, $450,000 for the fiscal year ending June 30, 1948 and $450,000 for the fiscal year ending June 30, 1949.

Another bill, H. R. 1980, introduced by Representative Howell, Illinois, proposes to enact the "National School Health Services Act of 1947." This bill would make available an appropriation of $12,000,000 for the first fiscal year; $18,000,000 for the second fiscal year and for each succeeding fiscal year such sums as may be necessary to enable the Federal Security Agency, through the Children's Bureau, to cooperate with each state in providing and maintaining school health services for the prevention and diagnosis of physical and mental defects and conditions and, especially in rural areas and in areas suffering from severe economic distress, the treatment of such defects and conditions, including demonstrations and the training of personnel for state and local health services.

A third bill, S. 199, introduced by Senator Aiken, Vermont, would authorize the appropriation of funds to assist the states in more nearly equalizing educational opportunities. Title II of this bill proposes assistance to nonpublic tax-exempt schools of secondary grade or less for necessary transportation of pupils, school health examinations and related school health services, defined to mean services of physicians, dental hygienists, nurses, nutritionists and similar health service personnel employed by the school authorities to provide preventive and diagnostic health services, other than actual medical, surgical or reparative dental treatment.

National Health Bill.—Senator Taft, for himself and Senator Ball, Minnesota, and Senator Smith, New Jersey, introduced in the Seventy-Ninth Congress a bill proposing to enact a National Health Act. It was not anticipated that the Congress would take action on this bill but that it would be studied by the various interested groups with a view to perfecting its provisions. No action was taken on it. The House of Delegates at the San Francisco session in 1946 referred this bill to the Council on Medical Service for study. It authorized the Council, in conjunction with the Bureau, to confer with the sponsors of the bill and report back to the Board of Trustees the results of the conference. As indicated in the report of the Council submitted to the House last December, suggestions as to amendments were sought from state medical associations. Preliminary conferences were held with representatives of the American Hospital Association and of the American Dental Association, following which a meeting with the sponsors of the legislation was held in Washington.

Shortly after the Eightieth Congress convened, a revision of the bill was introduced as S. 545, with Senator Donnell, Missouri, as an additional sponsor. A factual analysis of the new bill has been prepared by the Bureau for publication in an early issue of THE JOURNAL. Elsewhere in this report reference has been made to sections in S. 545 (1) proposing the creation of a National Health Agency and the centralization in it of the activities of the federal government relating to health and (2) authorizing federal funds for the prevention and control of cancer.

Title II of the bill provides, as did the earlier bill, for assistance to the states to enable them to provide general health, hospital and medical services for families and individuals with low incomes. An appropriation of $3,000,000 will be authorized to assist states in making a statewide inventory of existing medical, surgical and hospital care preparatory to the formulation of a plan for extending such care. For each of five fiscal years there will be further authorized an appropriation of $200,000,000 for allotment to the states that have approved plans for providing general health, hospital and medical services for families and individuals with low incomes. Any state desiring to participate in this program may submit a plan to the Director of the Office of Medical and Hospital Care Services. To be approved, such a plan must (1) designate a single state agency as the sole agency for the administration of the plan or designate such agency as the sole agency for supervising the administration of the plan "providing that on or before 1949 such agency shall be the state health agency"; (2) provide for the designation by the governor of a state medical and hospital care advisory council; (3) contain satisfactory evidence that the state agency will have authority to carry out the plan; (4) set forth a statewide program designed and calculated to provide, within five years, (*a*) hospital services, surgical services and medical services for all those families and individuals in the state having insufficient income to pay the whole cost of such, and (*b*) periodic physical examination for all children in elementary and secondary schools in the state. Such a program may, (1) at the option of the state, provide medical care services in institutions, in the home or in physicians' offices; (2) provide for the furnishing of such services to such families and individuals by means of payments in the nature of premiums or partial premiums or reimbursement of expenses or otherwise by the state, to any voluntary health, medical or hospital insurance fund, or other fund, operated not for profit, in behalf of those families and individuals unable to pay the whole cost of such services or insurance therefor; (3) include and take account of services rendered or to be rendered by governmental subdivisions of the state, and by private organizations operating not for profit, and may provide for the payment to such institutions by the state or subdivision for care to such families and individuals; and (4) include payments to physicians practicing in areas which, without such payments, would be unable to provide sufficient income to attract a practicing physician. The program must provide for the collection of proper charges of less than the total cost of such services from persons unable to pay in whole but able to pay in part therefor. A plan must furthermore describe the financial contribution for the support of the plan to be made by the state, its local subdivisions and its private institutions, must set forth the relative need of the various proposals required to carry out the plan and provide for the proper priority between such proposals, must be based on a statewide inventory of existing medical, surgical and hospital care and provide for the making of reports and for the periodic review of the plan by the state agency.

The bill incorporates comparable provisions relating to dental health services, for dental research and concludes by providing that on the direction of any officer or employee of the government of the United States, requesting the government to deduct from the salary of such employee a fixed sum or percentage to be paid to a voluntary health insurance fund, such sum or percentage shall be deducted from the salary and paid as directed by the officer or employee.

This bill thus briefly outlined is pending before the Senate Committee on Labor and Public Welfare, of which Senator Taft is chairman. It is understood that hearings will be scheduled on it to begin sometime during the month of April.

The Hospital Survey and Construction Act.—Section 622 of this act requires that within six months after enactment the Surgeon General shall promulgate regulations describing general policies to be followed in setting up and administering state plans for construction of public and other nonprofit hospitals after such regulations have been approved by the Federal Hospital Council and the Administrator of the Federal Security Agency. These regulations have been promulgated and a condensation of them has been prepared by the Bureau for publication in THE JOURNAL. On the state level, a number of additional states are considering legislation this year so that they will be able to qualify for participation in this construction program. Model state legislation has been formulated by the Council of State Governments and bills following rather closely that model have, to date, been enacted in Arkansas, Tennessee and Virginia and are pending in Arizona, California, Colorado, Connecticut, Delaware, Idaho, Iowa, Montana, Nebraska, New Jersey, New Mexico, Rhode Island, South Dakota, Utah, Washington, Wisconsin and Wyoming.

As pointed out in the report of the Bureau submitted to the House last December, growing out of the enactment of this federal law is a movement to promote the enactment of uniform state hospital licensure laws. The federal law does not require a participating state to enact a hospital licensing law but it does require the enactment by July 1, 1948 of legislation providing that compliance with minimum state standards of maintenance and operation shall be required in the case of hospitals which receive federal aid under the law. Apparently it is felt that this requirement can be more readily complied with by the enactment of a state licensing law in which provision is made for the establishing of adequate standards and through the mechanics of which such standards can be effectively enforced. A model state hospital licensing law has been formulated under the sponsorship of the Council of State Governments. The Assistant Secretary of the Council on Medical Education and Hospitals, the Director of the Washington office of the Council on Medical Service and the Director of the Bureau participated in the formulation of this model bill, which has been submitted to the several states for enactment. Hospital licensing laws have since the first of the year been enacted in Montana, Tennessee, Virginia and West Virginia and are pending in Arizona, California, Delaware, Idaho, Illinois, Iowa, Kansas, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oregon, Texas, Utah, Washington and Wisconsin. Most of this legislation follows closely the model recommended by the Council of State Governments.

Barbiturates.—Congresswoman Rogers, Massachusetts, has reintroduced her bill, as H. R. 588, to bring the barbiturates within the coverage of the federal narcotic laws. The House of Delegates has on a number of occasions recommended that the retail sale of these drugs be limited to sales on prescriptions but that the restriction should be imposed by state rather than federal legislation. The Director of the Bureau has collaborated with the Committee on Legislation of the American Pharmaceutical Association in the development of uniform state legislation to control the over-the-counter sale of the barbiturates, and copies of this legislation may be obtained from the Bureau on request. During the present legislative season, state legislation proposing to limit the sale of barbiturates to sales on prescriptions is being considered in Idaho, Illinois, Maryland, New Mexico, Ohio and South Dakota. The New Mexico bill also includes aminopyrine, cinchophen, sulfanilamide and dinitrophenol and their derivatives. A Delaware bill applies only to penicillin, the sulfonamides and thyroid and their compounds.

Streptomycin.—Legislation has been enacted by the Eightieth Congress (Public Law No. 16) amending the Federal Food, Drug and Cosmetic Act by providing for the certification of batches of drugs composed wholly or partly of any kind of streptomycin or any derivative thereof. This law was enacted at the request of the Federal Security Agency. Prior to its enactment, samples from each batch of streptomycin produced were being tested by the Food and Drug Administration before release for distribution. This service was being carried on through cooperative arrangement with the War and Navy departments, who were purchasing most of the output, and under an order by the Civilian Production Administration operating through the authority of temporary legislation. Since the Civilian Production Administration order was expected to expire shortly, the enactment of the law was necessary. Two other drugs are subject to pretesting and certification, insulin and penicillin.

Medical Aid Act of 1947.—Senator Lodge, Massachusetts, has introduced as S. 678 a bill to provide assistance to the states in furnishing certain medical aid to needy and other individuals. This bill, which will be cited as the "Medical Aid Act of 1947," would authorize an appropriation of such sums annually as may be necessary to carry out its provisions, namely, to enable the several states to provide or to assist in providing certain medical services and medicines, which are standardized in their nature but which because of their high cost are not used in many cases in which their use is desirable. The term "medical aid" is defined to mean making available, free to needy persons and at a minimum cost to other persons, x-ray services, respirators and any drug which is of substantial, accepted and specific value in the treatment or prevention of pneumonia, streptococcic infections, diabetes, pernicious anemia and other anemias, congestive heart failure, glandular and nervous disorders, nutritional deficiency and typhoid and various other infectious diseases. In order to participate in this program, a state must submit a plan for approval by the Surgeon General of the United States Public Health Service.

Industrial Health Hazards.—Representative Norton, New Jersey, has reintroduced her bill as H. R. 475, providing for cooperation with state agencies administering labor laws in establishing and maintaining safe and proper working conditions in industry and in the preparation, promulgation and enforcement of regulations to control industrial health hazards. The House of Delegates in 1945 adopted resolutions in opposition to a similar bill for the reason that it would permit labor departments "to undertake industrial hygiene activities now being done by federal and state public health agencies." A Senate bill, S. 101, introduced by Senator Johnston, South Carolina, for himself and Senator Morse, Oregon, has a title identical with the title of H. R. 475 but does not relate specifically to the control of industrial health hazards in its text.

Animal Experimentation.—Representative Lemke, North Dakota, has reintroduced his bill as H. R. 462, declaring it to be a misdemeanor for any person to experiment or operate in any manner whatsoever on any living dog, for any purpose, except operations normally performed for the convenience of the owner and the welfare or curing of said dog, in the District of Columbia. The antivivisectionists are also active in the legislatures of California, Massachusetts, New York and Wisconsin.

Miscellaneous.—Legislation is pending proposing to revise the Medical Department of the Army, S. 504, introduced by Senator Gurney, South Dakota, and H. R. 1982, introduced by Representative Smith, Maine. This legislation, among other things, would create in the Medical Department of the Regular Army a Medical Service Corps consisting of the Pharmacy Section, the Medical Allied Science Section, the Optometry Section and such other sections as may be deemed necessary by the Secretary of War.

The establishment of a permanent Nurse Corps of the Army and the Navy and of a Women's Medical Specialist Corps in the Army is contemplated by a bill introduced by Representative Smith, Maine, as H. R. 1943. The Women's Medical Specialist Corps will consist of a Dietitian Section, a Physical Therapist Section and an Occupational Therapist Section.

An extension of water pollution control activities in the United States Public Health Service is contemplated by H. R. 123, introduced by Representative Mundt, South Dakota, H. R. 315, introduced by Representative Spence, Kentucky, and H. R. 470, introduced by Representative Elston, Ohio.

Another pending bill, H. R. 496, introduced by Representative Hébert, Louisiana, proposes a program for the rehabilitation of alcoholic addicts and for the medical and scientific treatment of persons found to be alcoholic addicts by the courts of the District of Columbia.

The establishment of a United States Commission on Physical Fitness is proposed by H. R. 220, introduced by Representative Buchanan, Pennsylvania, to promote the physical fitness of the inhabitants of the United States through physical training, competition in all athletic sports, camping and kindred activities.

The enactment of a "Federal Insecticide, Fungicide and Rodenticide Act" is proposed by H. R. 1237, introduced by Representative Andresen, Minnesota.

A bill introduced by Senator Pepper, Florida, as S. 326, proposes to amend the Servicemen's Readjustment Act of 1944 with respect to the education and training of veterans. This bill, among other things, would provide that any veteran who has completed his work while pursuing a preprofessional or professional course would be entitled to such further additional period of education or training as may be necessary to enable him to complete his preprofessional and professional courses, with the limitation that the total period may not exceed nine years.

STATE LEGISLATION

During 1947 the legislatures of forty-four states will meet in regular session. At the time this report is being prepared, forty-two states have already convened, and judging by the number of bills of medical interest that have been introduced so far, it promises to be a busy legislative year. Reference can be made here only briefly to two developments. A more detailed report on state legislation will be prepared after the legislatures have adjourned and will be published in THE JOURNAL.

For many months there has been under way an investigation in Tennessee concerning the manner in which licenses to practice naturopathy have been issued. Apparently a number of irregularities have been discovered and as a result criminal action has been instituted against two members of the state board of naturopathic examiners and against a number of other naturopaths, charging a conspiracy to violate the naturopathic act and the basic science act. This action is pending at the present time.

Following this investigation and apparently because of the conditions disclosed by it, the legislature early this year repealed the naturopathic act and declared of no force or effect all licenses issued under it. Tennessee has thus righted a mistake made in 1943, when the naturopathic act was passed over the veto of the governor. Adherents of this cult are active in a number of other states seeking legislative sanction of their practice, including California, Colorado, Idaho, Indiana, Iowa, New Mexico, Texas, Utah, Washington, Wisconsin and Wyoming.

Shortly after the G. I. Bill of Rights was enacted, the Bureau directed a letter to each state medical association calling attention to the fact that in the federal law were provisions under which veterans could be assisted in pursuing educational courses and cautioning that cult schools might attempt to be certified to the Veterans Administration as qualified to offer educational courses to veterans. Subsequently the Committee on Postwar Medical Service directed a letter to the governor of each state urging the importance of maintaining educational standards, particularly in the field of the healing arts.

As anticipated, accrediting agencies of some of the states have certified schools of chiropractic and of naturopathy, and ex-servicemen are now being enrolled in such schools and are being educated at government expense. It is understood that in one chiropractic school alone about 600 students are enrolled under the G. I. bill. These students are urging that, because they are being assisted financially to pursue their courses by the government, state licensure should be permitted. In a number of states they have importuned veterans' organizations to aid their cause. This is a legislative problem that will remain for many years.

Bureau of Medical Economic Rsearch

The greater part of the report on the Bureau of Medical Economic Research that was presented to the House of Delegates at the supplemental session is included in this report.

At its September 1946 meeting the Board of Trustees changed the name of this Bureau, established in 1931, from the Bureau of Medical Economics to the Bureau of Medical Economic Research and appointed Frank G. Dickinson, Ph.D., as the new Director of the Bureau, succeeding Dr. R. G. Leland. The Board also stated that the Bureau would be reactivated and expanded and that research would be stressed.

In reactivating the Bureau it has been necessary to add to the economic books, pamphlets and bulletins needed for research. Building a library requires a good deal of time. The new director has studied the previous publications of the Bureau and desires to report that he regards them as extremely fine studies. Every week a number of these are mailed in answer to the numerous and varied queries received. Plans were initiated in the fall of 1946 for reviewing and bringing the pamphlets up to date, provided there is a current need for such modification. The Director has worked in close cooperation with the Council on Medical Service, attending its meetings and being a member of its Subcommittee on Cooperation with Insurance Industry in the Development of Prepayment Medical Care Plans and of its Committee on Rural Problems on Medical Care Insurance. The Director addressed the Association of Medical Care Plans at its first annual meeting in October and attended the meeting of its Commissioners in Omaha, November 14 and 15. It is hoped that its organization and the Director of the Bureau working with the Council on Medical Service will be able to develop comprehensive actuarial data on the operations and possible expansion of the different medical care plans in the various states. It will probably be necessary to employ an actuary in the Bureau to perform this function efficiently. An actuary is also needed to help with some of the research program planned by the Bureau.

The staff operating the I. B. M. equipment at Association headquarters was transferred to the Bureau in September, and the Director has devoted a considerable portion of his time to reorganizing this group. He found that the punch card inventory was not adequate and that some pieces of equipment were lacking. The Bureau has been called on to furnish information for several agencies, including the Coal Mines Administration in Washington. This information could not have been furnished without the I. B. M. equipment. It should be stressed that for the most part the Bureau in this capacity acts as a service agency for the Councils at American Medical Association Headquarters, especially the Council on Medical Service, and for local and state medical societies.

Research work, almost completed by Dr. Leland, for the preparation of a life table for physicians which will be presented at Atlantic City by the Statistical Bureau of the Metropolitan Life Insurance Company has been continued. A later study of deaths among physicians during the war period has been started and it is hoped that a fairly comprehensive picture of mortality among physicians during the whole war period can be presented. This study will not be completed before 1948.

The Director has observed that the studies made here and elsewhere on the supply of medical service use county data; that is, the population of a county is divided by the number of physicians in that county, and this ratio is called the physician-population ratio. Economic data do not follow county boundary lines, although the county may be an excellent unit for organizing a professional society. A physician is not a county coroner, and his patients often reside outside the county. The accessibility of medical service has undergone many changes in the last generation, and a study of the supply of medical service must recognize the changes wrought by hard roads and other improvements in transportation. Hence the Bureau is attempting to develop medical service areas which cut across county boundary lines and circumscribe the area served by the physicians in the community. These physician-population ratios for medical service areas, when completed, will indicate the actual supply of medical service to the people in all sections of the United States. It is estimated that it will require at least two years to mark out the entire map of the United States into medical service areas as has been done for retail trading areas by several research organizations. A questionnaire has been sent to the county medical societies which asks the respective secretaries to draw on a state highway map a line around the area served by the physicians located in the medical center of the county. The Bureau hopes that the answers to this questionnaire by the county societies' secretaries will be helpful in preparing the medical service areas of each state.

The Director was asked by the General Manager to assist the Committee on National Emergency Medical Service in the preparation and mailing of a postwar questionnaire to 50,000 discharged medical officers and to code, tabulate and analyze the returned questionnaires. This work has proved to be a much more formidable task than was anticipated. Twenty-six thousand or more questionnaires are being studied.

Bureau of Exhibits

Normal activities in the Bureau of Exhibits were resumed in the first postwar year, with expansion of the work in several lines. The personnel of the Bureau, which had consisted of three persons for many years, was increased to seven, and additional office space was obtained.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the San Francisco session was held in the Civic Auditorium, occupying several small halls and corridors on the first and second floors. The exhibits dramatized the advances made in medicine during the war years, constituting an intensified course in graduate medical instruction. Every available corner was used for one activity or another, and the aisles were crowded beyond their capacity in many parts of the building. In addition, five rooms in the Veterans Building, three blocks distant from the Auditorium, were used for motion pictures.

Section Exhibits.—Active cooperation was maintained with the seventeen sections of the Scientific Assembly, each of which appointed representatives to the Scientific Exhibit.

The section representatives rendered valuable assistance to the Committee on Scientific Exhibit in securing exhibits of exceptionally high caliber and in giving freely of their time and energy throughout the year.

There were 184 applications for space, of which 109, 60 per cent, were accepted. This is a smaller number of exhibits than is usually shown at the annual session, but no more could be accommodated and some excellent material had to be omitted.

United States Army.—It was the desire of Surgeon General Norman T. Kirk, United States Army, to portray at the San Francisco session advances that medicine had made during World War II. The exhibit included thirty-seven subjects relating to medicine in the war. A large group of medical officers was present to act as demonstrators, assisted by enlisted personnel. Lieut. Col. Edward M. Gunn was in charge.

Other activities of the Army included participation in the Special Exhibit on Physical Medicine and maintenance of two motion picture theaters in the Veterans Building.

The Committee on Awards issued a Citation of Merit to the United States Army for these contributions.

United States Navy.—The United States Navy presented a small but spectacular group of exhibits. Dr. Dean F. Smiley was in charge and was assisted by a competent group of medical officers who served as demonstrators.

In addition, the Navy participated in the Special Exhibit on Physical Medicine and showed a group of motion pictures in the Veterans Building.

The Committee on Awards issued a Citation of Merit to the United States Navy for these contributions.

Special Exhibit on Fractures.—This feature of the meeting was presented for the fifteenth time over a period of twenty years. Except for the first two years, Dr. Kellogg Speed has been chairman continuously, and it is due to his initiative and energy that interest has been maintained. There were thirty demonstrators from different parts of the country, with a group of medical students acting as "patients." Continuous demonstrations were conducted in six booths to audiences that strained the facilities of the area to accommodate them. A pamphlet was prepared for distribution.

Special Exhibit on Physical Medicine.—This exhibit was shown for the first time this year under the guidance of Dr. Frank H. Krusen, Rochester, Minn., chairman, Dr. Winfred Overholser and Dr. Howard A. Rusk, assisted by a large group of experts from various universities, insurance companies, the Army, the Navy, the Veterans Administration and the Baruch Committee on Physical Medicine. Other assistants included Army and Navy personnel and medical students.

The exhibit included physical therapy, occupational therapy and rehabilitation, occupying twelve booths. The "live" exhibits of amputees and paraplegics, together with active demonstrations in the other booths, drew audiences far beyond the expectation of the Committee, the second floor hallway being solidly packed with people during the entire week. Motion pictures were shown continuously in a room adjoining the exhibits. A pamphlet was prepared for distribution by the Committee, while numerous pamphlets from other sources dealing with various phases of physical medicine were likewise distributed. The success of the exhibit indicated the interest in this specialty of medicine.

Motion Pictures.—Motion pictures in the Scientific Exhibit were not shown in exhibitors' booths because of the problem created in congestion of the aisles. Special theaters were arranged where the audiences could be seated in comfort. There were forty-eight applications to show motion pictures, of which thirty-eight were accepted. Most of the films had been produced during 1946, many of them being shown in connection with exhibits or with papers read before the sections. Other motion pictures included 37 films shown by the Army, 8 by the Navy and 21 by the Exhibit Committee on Physical Medicine, making a total of 104. Each of the films was shown daily. There were six motion picture theaters each seating 100 to 125 persons. Often the audience far exceeded this number, many persons standing.

Authors were encouraged to comment on their films as they were being shown or to make remarks immediately before or after the showing. The sustained interest of the audiences attested to the popularity of this type of program.

Committee on Awards.—The Committee on Awards consisted of Dr. O. P. J. Falk, chairman; Dr. H. J. Corper, Dr. Leo F. Rigler, Dr. Curtice Rosser and Dr. J. Ross Veal. All the members worked conscientiously and diligently over a period of three days, including two night sessions, and returned a report that received much commendation.

Twenty-three awards were presented: six medals, six certificates of merit, eight honorable mentions, two citations of merit and one special commendation. In addition, the Committee extended itself beyond its regular sphere of activity and awarded a gold medal to the Director of the Scientific Exhibit.

The Committee on Awards has a difficult task in that a large amount of material must be surveyed in a short time. The members must have a broad knowledge of medicine and must be sufficiently well known to command respect. The Association has been fortunate in the caliber of men who have served in this capacity. The knowledge that their decisions are final and not subject to review make them additionally cautious.

Recommendations.—The Committee on Awards recommended that a new medal be prepared for the Scientific Exhibit. It was felt that the present medal, which portrays the features of Dr. Frank Billings, is not symbolic of the spirit of the Scientific Exhibit. It was the opinion of the Board of Trustees, however, that the Billings medal is of historical significance and should not be given up at the time of the Centennial Celebration.

Members of the Advisory Committee of the Scientific Exhibit recommended that a public exposition be held in Atlantic City at the time of the annual meeting to promote public relations and health education. The Committee on Scientific Exhibit investigated the feasibility of the matter and requested an appropriation for expenses, which was granted by the Trustees. The difficulty of obtaining suitable space for such an undertaking, together with numerous other duties of the staff during the Centennial Celebration, made it necessary to postpone the matter to a more propitious time.

Numerous suggestions have been received concerning methods by which a permanent record can be made of the exhibits shown at each annual session. The Committee on Scientific Exhibit voted that photographs be taken showing the detail of especially meritorious exhibits at the Atlantic City session. Copies will be sold to interested physicians.

At various times there have been requests for a pamphlet containing instructions for the preparation of exhibits. The committee on Scientific Exhibit favored a pamphlet that would give basic information, and this will be prepared.

Comments and Remarks.—Numerous encomiums were received at San Francisco concerning the value of the Scientific Exhibit as a factor in graduate medical instruction. The credit, of course, goes to the exhibitors, who gave so freely of their time and effort with no thought of reward. The demonstration of an exhibit for a week at the annual session is almost a superhuman task, straining to the limit the energies of persons who undertake it. The Association is in deep gratitude to such persons.

Centennial Celebration.—Plans for the Centennial Celebration at Atlantic City in 1947 have been given much time and study. Close contact has been maintained with the Council on Scientific Assembly and with the sections, each of which has appointed a representative to the Scientific Exhibit. Arrangements have been made for four special exhibits, together with a considerable amount of historical material. These features, added to the numerous applications for space from individual physicians, and the motion pictures which are contemplated, will make the Scientific Exhibit at Atlantic City the most striking one in the history of the Association.

ASSOCIATION EXHIBITS

The Association exhibits depict the work of the various Councils and Bureaus of the Association Headquarters on subjects in which those departments are interested. About forty exhibits are maintained for loan purposes, some of which are used for medical meetings and other scientific groups, while the remainder are used for fairs and expositions. During the year several old exhibits were discarded because they were no longer serviceable; others are in the process of repair and rebuilding. Lack of personnel in many of the departments has retarded the building of contemplated exhibits, while the difficulty of obtaining materials has still further delayed the program. New subjects already completed include "The Ten Point Program," "Hormones," "Electrically Transcribed Program for County Medical Societies," "Trichinosis" and "Amebiasis." Other exhibits which will soon be ready include "Tuberculosis" and "Industrial Health."

Difficulties in transportation and housing during the abnormal times following the war have interfered with participation in many meetings. A considerable number of requests for exhibits were canceled because of these reasons. During the year, however, one hundred exhibits were sent to fifty-three meetings in twenty-five states and the District of Columbia. There were twenty-four medical and scientific meetings which used thirty-eight exhibits, each accompanied by a member from the headquarters staff. The Director of the Bureau of Exhibits attended many of the meetings personally. The time consumed in such work is considerable because the attendant must arrive before the meeting opens and remain at his task until the close. The results are worth the effort, however, since a much more intimate contact is made with the members of the respective organizations through the exhibit than could be made by a speaker on the regular program.

Fairs and expositions which were canceled during the war opened again in 1946 to a considerable extent. Sixty-two exhibits were lent to twenty-nine local groups in many different states. The opportunity for contact with the public through health exhibits in promoting better public relations is excellent. The Woman's Auxiliary of the Medical Society of Milwaukee County promoted a Health Week with gratifying results in connection with the centennial celebration of the society.

MUSEUMS

Health exhibits have been maintained in the Chicago Museum of Science and Industry, in the Cleveland Health Museum and in the Toledo Museum of Science. A large group of exhibits was lent to the Dallas Health Museum which opened in October, and the offer of cooperation has been extended to the proposed San Diego Health Museum. Other museums using the facilities of the American Medical Association include the Newark Museum at Newark, N. J., and the Cayuga Museum of History and Art at Auburn, N. Y.

A question and answer service has been a feature at several of the museums, with the questions answered by mail from the Bureau of Health Education. The questions have become so numerous, however, that the service has been temporarily curtailed.

The opportunity for health education in institutions such as museums should not be overlooked. Visitors come in a receptive mood and many thousands of people are reached annually from all social levels.

COMMITTEE ON MEDICAL MOTION PICTURES

The American Medical Association has been actively interested in medical motion pictures for many years. In 1928 and again in 1930 the House of Delegates appointed committees to study the problem. The Bureau of Exhibits developed a source file of motion pictures and has maintained a small film library for the past fifteen years. In 1945 the Board of Trustees, at the instigation of the Committee on Scientific Exhibit, appointed a Committee on Medical Motion Pictures to make suggestions and report back to the Board. At the San Francisco session the Trustees accepted the recommendations and appointed the following committee: Dr. W. L. Benedict, Chairman; Mr. John G. Bradley, Dr. Morris Fishbein, Mr. Thomas S. Jones, Dr. Dean F. Smiley and Mr. Ralph P. Creer, Secretary.

The purpose and scope of this committee is outlined briefly as follows:

1. To promote a more widespread and effective utilization of medical motion pictures and to stimulate research in this field.

2. To expand the present library of medical and public health films now available on a loan basis through the American Medical Association. Motion pictures dealing with basic subjects that are not available through other sources will be selected. Additional copies of the most popular prints in the present library will be purchased so that a wider and more rapid distribution will be possible.

3. To publish critical reviews of medical motion pictures in THE JOURNAL and HYGEIA from time to time. These reviews will include a brief description of the film content, a professional and technical appraisal, a comment as to the recommended audience level and a note regarding the availability of the films. Current news items of interest to the medical profession as well as comments on the intelligent use of motion pictures will also appear in THE JOURNAL.

4. To expand the source file which has been started. Eventually this file will contain informative data on motion pictures dealing with all phases of medicine as well as health films for the public. Films not available for loan or purchase will not be listed. The purpose of this file is to provide on request authentic information relative to the types of films available to the medical profession on any given subject.

The Committee has acquired a projection room for reviewing films adjacent to its office at Association headquarters. Reviews of medical motion pictures have been published in THE JOURNAL and the source file of films has been expanded. The film library, formerly located in a professional studio, has been brought to the headquarters building, making possible a more efficient handling of films. This library is still small, but from time to time additions of films that are of a basic nature will be made. The demand for films from medical schools, medical societies, hospitals and other organizations continues to increase. During the year, 1,042 films were sent out.

A questionnaire has been sent to all medical schools in the United States and to state and county medical societies to obtain information concerning their facilities for showing films and concerning the subjects of films that would be most useful in medical schools and medical societies. The response to date is gratifying.

The Secretary of the Committee has kept in close touch with other groups interested in medical films and has attended many committee meetings of those groups.

MISCELLANEOUS ACTIVITIES

Numerous conferences have been held on matters pertaining to graduate medical instruction and health education by visual means. Visitors have come from all parts of the United States as well as from the Latin American countries and other parts of the world.

Members of the staff have collaborated with other agencies, serving on various boards and committees, such as the National Advisory Committee of the Cleveland Health Museum, the Committee on Exhibits of the Society of Illinois Bacteriologists, the Council of the Section on Health Education of the American Public Health Association, the Advisory Committee on Health Education of the Tuberculosis Institute of Chicago and Cook County, and the advisory staff of the Veterans Administration. The Director of the Bureau also has maintained his position as assistant professor of bacteriology and public health at the University of Illinois College of Medicine.

The publications sponsored by the Bureau have continued to be popular, especially the Primer on Fractures, which is in its fifth edition, and Fundamentals of Anesthesia, in its second edition. Various mimeographed outlines prepared for distribution with exhibits have had a wide circulation.

Bureau of Information

The Bureau of Information, working closely with the Council on Medical Service, is developing programs aimed toward a more adequate and even distribution of medical personnel and facilities throughout the United States.

The Bureau is making a concentrated effort to guide physicians to locate in areas where their services are most needed. Through the cooperation of the state medical associations, current listings are available of every area in the country where there is a need for a physician. In December 1946 the Bureau began a survey through the local medical societies to determine the conditions and distribution of medical care in the rural areas of the country and the recent movements of physicians into rural areas. Data from three fourths of the counties have been received and are being tabulated and recorded to be used in recommendations for the extension of medical care to all communities.

The Bureau of Information, together with the Council on Medical Service, is cooperating with the Committee on Rural Medical Service of the American Medical Association in stimulating and coordinating the work of the various groups interested in better rural medical service. The Bureau assisted the Committee in arranging the second annual meeting of the National Conference on Rural Health on Feb. 7 and 8, 1947. This conference was attended by over three hundred leaders of the various farm, educational, health and medical groups throughout the United States. Eight thousand reprints of the proceedings of this conference are being distributed to individuals and organizations interested in better rural health. The resolutions from this meeting are being carefully considered in a working plan formulated by the Bureau of Information and the Council on Medical Service for the extension of better medical care through a better distribution of medical personnel and facilities.

The Bureau is working out a cooperative program with the Division of Hospital Facilities of the United States Public Health Service. The Hill-Burton law, supporting the survey and construction of hospital, health and diagnostic centers throughout the nation, is one measure aimed at developing facilities in areas where they are unavailable and cannot be supplied through local or state agencies.

The director of the Bureau of Information, through the Council on Medical Service, is cooperating closely with the American Academy of Pediatrics in developing the idea of child health centers. A resolution recently passed by the executive board of the academy advised the Council on Medical Service that it would be desirable to have the director of the Bureau of Information work closely with the Committee for Improvement of Child Health of the American Academy of Pediatrics and the representative of the Section on Pediatrics of the American Medical Association in the development of a plan having to do with child health centers and the child care program of the American Medical Association.

In cooperation with the Bureau of Health Education and the Council on Medical Education and Hospitals, the Bureau of Information has participated in two television programs, the first on rural health and the second on child health centers.

During the past three years the Bureau of Information has been able, through correspondence and personal interviews, to offer a guiding hand to the returning medical officer and help him in his problems of readjusting to civilian practice. The Bureau of Information will present a historical exhibit at the Centennial Celebration of the American Medical Association at Atlantic City.

Office of Executive Assistant

The Office of the Executive Assistant was created to function under the Secretary and General Manager for the purpose of coordinating and servicing the public relations activities of the American Medical Association with the medical profession and the public. After a period of orientation in the headquarters of Raymond Rich Associates, Mr. Charles M. Swart reported for duty as head of the department on Nov. 25, 1946. The staff of the Office, aside from the Executive Assistant, consists of a secretary, a staff writer and an editorial assistant in charge of preparation of the Secretary's News Letter. The former Bureau of Public (Press) Relations, with its staff of a director, junior writer and secretary, was transferred to the Office of the Executive Assistant the latter part of January.

The initial period of operation of the new office has been characterized primarily by study of existing operations at Association headquarters and in the field, preparation of a long term public relations program for the Association and the medical profession, selection of staff to implement the initial stages of the program and consolidation of the press relations department into the operation.

SECRETARY'S NEWS LETTER

One of the first activities inaugurated was the weekly publication of an informal news letter, signed by the Secretary and General Manager, containing brief reports of work in progress and contemplated at Association headquarters by the several councils, bureaus and departments. First distributed to officials at headquarters, general officers of the Association and members of the House of Delegates and Board of Trustees, circulation was later extended to the members of the various Association councils, officers of constituent state medical associations and other key medical leaders. Since the first of January 1947, circulation has increased to some 2,600 medical leaders throughout the country. Where comment has been volunteered from those receiving the News Letter, it has been favorable.

PUBLICATIONS

Research has been completed and writing is under way on a pamphlet authorized by the Board of Trustees to describe the functions of the American Medical Association in terms of the benefits derived by the members of the medical profession and the public. A handbook and directory of the official family of the American Medical Association also is being prepared for publication and primarily will be distributed to newly enrolled Fellows.

COORDINATION AND SERVICE AT HEADQUARTERS AND FOR CONSTITUENT AND COMPONENT SOCIETIES

Although a substantial start has been made toward coordination and service of public relations activities within the several councils, bureaus and departments in the headquarters offices, the necessary period of orientation and planning has detracted from time available for this purpose. It should be possible during the coming year to increase greatly the amount of time available for coordination of activities of other departments.

Considerable time has been spent in the initial two and one-half months of operation in determining the need for coordination and service to state and county medical societies in public relations programs. An informal meeting of state medical association public relations representatives and executives was held in Chicago in February. Spontaneous round table discussion among representatives from all parts of the country emphasized a desire to have advice and leadership in determining overall trends and policies for public relations programs; a centralized source for information, materials and suggestions for increasing the effectiveness of their own efforts; a continuing channel for exchange of information, material and experience, and an advisory service on specific problems of a local nature. A public relations bulletin is under preparation for periodic circulation among state medical association executives and public relations and other medical society personnel who may find it useful. Plans are being completed for a proposed public relations section in connection with the county medical society officers' conference to be held at the time of the Centennial Celebration in Atlantic City. Programs of other national organizations for implementing public relations activities at state and county levels are being reviewed, and proposals will be made for providing aid and implementation.

PROMOTION FOR COUNCIL ON MEDICAL SERVICE

Extended conferences have been held with the headquarters staff and members of the Council on Medical Service in connection with the need for providing coordination and service in prepayment medical service plans throughout the country.

PRESS SECTION

In the past year, as in previous years, the director of press relations and his staff have written and edited the AMERICAN MEDICAL ASSOCIATION NEWS, a weekly clip sheet for distribution to newspapers, radio broadcasting stations and magazines. Material in this publication has been widely used by the more than 1,000 editors on the mailing list. The value of this service may be indicated by the returns on a questionnaire sent to those who have received the clip sheet in the past. The immediate purpose of the questionnaire was to bring the names and addresses on the mailing list up to date. However, comment on its usefulness was invited. Some of the typical remarks carried on the returned cards were: "Fine subject matter, caliber and handling, excellent for our readers," from an insurance publication; "You are doing one of the best public relations jobs of any organization," from an editor of a national newspaper syndicate; "We frequently refer to your interesting and timely comment on vital medical subjects," from an industrial house organ editor; "Your releases constitute an important part of the source material for our daily transcribed radio program," from a state medical association, and "We find the A. M. A. NEWS very helpful," from a science editor of a national press association.

In addition to the publication of the A. M. A. NEWS, the press section has handled hundreds of inquiries from newspapers, magazines, radio science editors and free lance writers on various medical subjects.

Bureau of Industrial and Personnel Relations

The Bureau of Industrial and Personnel Relations, an entirely new office at Association headquarters, became effective Jan. 1, 1947. Mr. T. V. McDavitt, for the past eighteen years associated with the Bureau of Legal Medicine and Legislation, was appointed Director of the new bureau.

The need for such a bureau has become apparent in the past few years. The enactment and enforcement of certain federal and state statutes, changing economic conditions and sociologic concepts have stressed the importance of the personnel factor in the operation of any activity. The field of personnel management—the managerial aspect of industrial and personnel relations—is simply one field of the general field of management, which in the last analysis involves the rational and equitable utilization of personnel and materials to obtain a given objective. The technics of this field are not as yet the technics of a science, precise and susceptible of exact proof. Successful managerial direction of personnel relations is not an achievement to be obtained in a day. It is a development that necessitates painstaking consideration over a period of years. Depending primarily, as it does, on general recognition of the soundness and fairness of managerial policies by employees who are largely uninformed as to management's problems, successful administration of personnel relations requires an extensive period of honest, effective interpretation as well as the actual adoption of appropriate personnel practices. Management must first of all conceive and adopt a sound personnel practice, and then it must convince employees of the soundness of that practice.

The development of fundamentally sound personnel relations is a long-time permanent program rather than a sudden achievement. Essentially, it depends on continuous analysis and appraisal, adjustment and readjustment of personnel policies, coupled with constant, effective interpretation of these policies to the entire employed personnel of the Association.

Committee on Rural Medical Service

The Committee on Rural Medical Service in cooperation with the four principal organized farm groups sponsored the second National Conference on Rural Health, Feb. 7 and 8, 1947. Some 350 participants came from nearly every state in the Union.

The conference was organized to permit and stimulate participation by all attending. The six study groups were well attended. The discussions were contributed by a large number of those attending and represented nearly all shades of opinion. This freedom of expression, not necessarily in harmony with the host group, was a large contributing element in the satisfaction and approval voiced later by many.

It was not feasible to study all phases of the health problem at that time, so the following subjects were selected:

1. Hospital Facilities and Health Centers.
2. Methods of Bringing and Holding Physicians and Dentists in Rural Areas.
3. Voluntary Medical Prepayment Plans.
4. Nursing Needs of Rural Communities.
5. Health Council as Agency for Promoting Rural Health.
6. Medical Care for Lower Income Groups.

After formal discussion of some of these subjects, the six committees conducted their discussions in the afternoon where all attending were expected to, and did in large measure, present their views in open meeting. Through the mass of material gleaned from these many and at times divergent points of view the committees formulated conclusions which were presented before the whole conference for further discussion. It is worthy of note that committees working on different subjects came to approximately comparable conclusions in many instances. There is increasing evidence of the interest of rural people in prepaid medical and hospital plans. Adjustment of these plans to meet the peculiar needs of rural people is urgent and imperative. In developing these plans on a community or trade area basis, ways should be found for including coverage of the medically indigent. A full report of the conference has been printed in The Journal of the American Medical Association.

Following the close of the conference, the delegates from the rural medical service committees of the state medical associations met to discuss progress achieved during the past year and plans for future developments. This was a very important part of the conference but, owing to the short time available, no state committee found it possible to give an adequate recital of progress made during the past year. To remedy this, each state chairman will be requested to submit a report in full. It is hoped that these reports can be received in November of this year and published in a handbook for general distribution.

In view of the findings of the conference, the Committee on Rural Medical Service proposes as one of the objectives for this year the creation of health councils on the county or trade area basis, whose activities should include:

First, survey and analysis of all factors of the local health problem, such as earning capacity and opportunity, housing, food and clothing, roads and transportation, churches and schools, public health services, medical, dental and nursing personnel, hospitals and diagnostic facilities, local or within reach, and health education activities.

Secondly, the mobilization of volunteer personnel for training and use in first aid, emergency and bedside nursing in the rural areas during the present unavailability of registered nurses.

To stimulate interest in the year's program, the committee is engaged in organizing regional conferences of groups of states having common rural problems. These conferences should do much to stimulate state conferences which would eventually carry out the important work of forming health councils on the local or trade area basis.

On authorization of the Board of Trustees, invitations have been sent to the American Farm Bureau Federation, the National Grange, the Farmers Educational and Cooperative Union and the National Cooperative Milk Producers Federation to appoint representatives to act in an advisory capacity with this committee.

During the past year the committee has been expanded so that each area of the United States becomes the responsibility of a committee member residing in the area.

If experience in 1947 seems to justify it, a third national conference may be called.

Respectfully submitted,

F. S. Crockett, Chairman.
E. J. McCormick.
Victor Johnson.
C. W. Roberts.
L. W. Larson.
Fred A. Humphrey.
Carll Mundy.
N. H. Gardner.
J. Paul Jones.
H. B. Mulholland.
Allen T. Stewart.
James F. Doughty.
George F. Lull.

Conference of County Medical Society Officers

At the supplemental session in December 1946 a resolution was introduced sponsoring a national conference of officers of component county medical societies. This resolution was referred to the Reference Committee on Legislation and Public Relations, which recommended that it be referred to the Board of Trustees for study and consideration as to the feasibility and value of such a conference, with power to act. After due deliberation the Board was of the opinion that, if a conference was to be called, it should be called at the time of the annual session and therefore decided to call the conference for Sunday, June 8, 1947 at Atlantic City. Dr. A. M. Mitchell of Terre Haute, Ind., a county medical society secretary for many years, will act as chairman of the conference.

American Red Cross Blood Program

Two representatives of the American Red Cross appeared before the Board of Trustees at its meeting on Feb. 20, 1947 relative to the establishment of a national blood program by the Red Cross. These representatives had appeared on the previous day before the Executive Committee. The proposed *program is concerned with the establishment on a national basis* of a system for furnishing whole blood and blood derivatives throughout the country. The Board of Trustees agreed to recommend approval in principle of the Red Cross plan for the establishment of a national blood program with the understanding that the operation should be maintained on a community level with the approval of the county medical societies concerned. The matter is referred to the House of Delegates.

World Medical Association

The Board of Trustees has been in communication with a group of European medical societies that are attempting to form a World Medical Association. During the past year the organization passed out of the formative stage, and the American Medical Association was invited to participate. After due consideration the Board accepted the invitation on behalf of the American Medical Association. A meeting of the Organization Committee of the World Medical Association was held in London, England, in April 1947 for the purpose of preparing a constitution and by-laws. The American Medical Association was represented at that meeting by two members of the Board of Trustees.

Actions with Reference to Committees

After due consideration, the Committee to Study Air Conditioning was discharged by action of the Board of Trustees at its meeting in February 1947.

Pursuant to a resolution on closer cooperation between the medical and dental professions, which was referred by the House of Delegates at the supplemental session to the Board of Trustees for consideration and study, the following committee was appointed by the Board: Dr. E. L. Henderson, Dr. Ernest E. Irons, Dr. William F. Braasch, Dr. Louis H. Bauer and Dr. George F. Lull. The American Dental Association has appointed a similar committee.

A committee on Veterans Medical Problems, to serve as liaison with the Veterans Administration, has been appointed. Its members are Dr. R. L. Sensenich, Dr. Herbert H. Bauckus, Dr. Edgar P. McNamee, Dr. H. H. Shoulders and Dr. George F. Lull. This committee is acceptable to the Veterans Administration.

Conclusion

All matters that have been referred to the Board of Trustees have received official consideration. There may be items which will be brought to the attention of the Board between the time of preparation of this report and the annual session in Atlantic City, and if necessary a supplementary report will be presented to the House of Delegates.

Respectfully submitted,

R. L. Sensenich, Chairman.
Ernest E. Irons, Secretary.
Dwight H. Murray.
William F. Braasch.
Louis H. Bauer.
Elmer L. Henderson.
John H. Fitzgibbon.
James R. Miller.
Charles W. Roberts.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Report of the Committee on Scientific Research for 1946

Sixteen new grants were made, amounting to $14,524 50. Ten grants were closed. Work is in progress under twenty-four grants In most cases work suspended on account of the war has been resumed

The committee recommends that for 1947 $12,550 be appropriated for grants in aid of medical research and $1,200 for the expenses of the committee.

The financial statement for 1946 is presented, also lists of grants pending and closed.

Respectfully submitted,

Committee on Scientific Research of
the American Medical Association.

Ludvig Hektoen, Chicago.
Term expires, 1951.
Martin H. Fischer, Cincinnati.
Term expires, 1950.
N. W. Jones, Portland, Ore.
Term expires, 1949.
John J. Morton, Rochester, N. Y.
Term expires, 1948.
E. W. Goodpasture, Nashville, Tenn.
Term expires, 1947.

FINANCIAL STATEMENT FOR 1946

Balance, Jan. 1, 1946	$21,169.03	
Refund, grant 683, O. Boyd Houchin	114.97	
Refund, grant 697, George Sayers	5.14	
		$21,289.14

GRANTS AND EXPENSES PAID IN 1946

Grant 643, Milton Mendlowitz	$ 446.57	
Grant 692, Wesley Spink	500.00	
Grant 693, Catharine Macfarlane	1,774.50	
Grant 694, L. R. Cerecedo	600.00	
Grant 695, Reuben Mokotoff	900 00	
Grant 696, James H. Leathem	500 00	
Grant 697, George Sayers	1,000.00	
Grant 698, Paul F. Hahn	500.00	
Grant 699, Bernard N. E Cohn	250.00	
Grant 700, Harold J. Harris	2,600 00	
Grant 701, Rollin A. Daniel Jr. and F. T. Billings	250 00	
Grant 702, Hans Popper (Brant Fund)	1,000 00	
Grant 703, Frederick H Howard	600 00	
Grant 704, Archie R Tunturi	600 00	
Grant 705, Hovey Jordan	450 00	
Grant 706, Rachmiel Levine	1,000 00	
Grant 707, A. M. Lassek	2,000.00	
Clerical expense, supplies	626.09	
		$15,597.16
Balance, Dec. 31, 1946		$ 5,691.98

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

New Grants—1946

Grant 692: Wesley Spink, University of Minnesota, $500, brucellosis.

Grant 693: Catharine Macfarlane, Women's Medical College of Pennsylvania, $1,774.50, value of periodic pelvic and breast examinations for cancer.

Grant 694: L. R. Cerecedo, Fordham University, $600, vitamin B deficiencies in rats and mice.

Grant 695. Reuben Mokotoff, Montefiore Hospital, New York, $900, relation to edema of renal clearance in congestive heart failure.

Grant 696: James H. Leathem, Rutgers University, $500, antihormones.

Grant 697: George Sayers, University of Utah, $1,000, pituitary adrenocorticotropic activity.

Grant 698· Paul F. Hahn, Vanderbilt University, $500, radioactive manganese in Hodgkin's disease, leukemia, lymphoma, etc.

Grant 699: Bernard N. E. Cohn, National Jewish Hospital, Denver, $250, experimental bone tuberculosis

Grant 700 Harold J. Harris, New York, $2,600, diagnosis and treatment of brucellosis

Grant 701: Rollin A. Daniel Jr. and F. T. Billings, Vanderbilt University, $250, atabrine in the treatment of tuberculosis.

Grant 702: Hans Popper, Cook County Hospital, Chicago, $1,000, morphology of the liver in relation to function (Brant Fund).

Grant 703: Frederick H. Howard, Lincoln Hospital, New York, $600, vectocardiographic research

Grant 704: Archie R Tunturi, University of Oregon, $600, acoustic system of the dog

Grant 705: Hovey Jordan, University of Vermont, $450, project method in the teaching of histology.

Grant 706: Rachmiel Levine, Michael Reese Hospital, Chicago, $1,000, secretion and metabolism of progesterone in threatened abortion.

Grant 707: A. M. Lassek, Medical College of the State of South Carolina, $2,000, degenerative phenomena in the pyramidal tract.

STATE OF GRANT-AIDED WORK

1. Grants Closed During 1946

Grant 613, 1941: Robert W. Virtue, University of Denver, $200, formation of cholic acid. See grant 499, 1938, report for 1940. Virtue, Robert W.: Production of Cholic Acid by the Rat, *Federation Proc.* **1**: 139, 1942.

Grant 662, 1943: Katharine M. Howell and Elta Knoll, Michael Reese Hospital, Chicago, $750, amebic dysentery. Howell, Katharine M., and Knoll, Elta· Studies on Dientameba Fragilis: Its Incidence and Possible Pathogenicity, *Am. J. Clin. Path.* **15**: 178, 1945; Howell, Katharine M., and Knoll, Elta W.: Multiple Intestinal Parasitic Infections, *J. Am. M. Women's A.* **1**: 203, 1946. Knoll, Elta W., and Howell, Katharine M.: A Study of the In Vitro Effect of Penicillin on Endameba Histolytica, *Arch. Path.*, accepted for publication.

Grant 671, 1944: A. M. Lassek, Medical College of State of South Carolina, $1,000, effect of paralysis on human pyramidal system. See grants 632, 1942, 655, 1943 and 707, 1946. Lassek, A. M.: The Human Pyramidal Tract: X. The Babinski Sign and Destruction of the Pyramidal Tract. *Arch. Neurol. & Psychiat.* **52**: 484, 1944; The Human Pyramidal Tract: XI. Correlation of the Babinski Sign and the Pyramidal Syndrome, *ibid.* **53**: 375, 1945. Lassek, A. M., and Evans, J. P.: The Human Pyramidal Tract: XII. The Effect of Hemispherectomies on the Fiber Components of the Pyramids, *J. Comp. Neurol.* **83**: 113, 1945. Lassek, A. M.: The Human Pyramidal Tract: XIII. A Study of the Pyramids in Cases of Acute and Chronic Vascular Lesions of the Brain, *Arch. Neurol. & Psychiat.* **54**: 339, 1945; The Pyramidal Tract; the Representation of the Lateral Corticospinal Component in the Spinal Cord of the Cat, *J Neuropath. & Exper. Neurol.* **5**: 72, 1946. Lassek, A. M., and Hard, Walter L.: The Pyramidal Tract: The Relation of Axonal Diameters to the Rate of Degeneration as Revealed by the Acid Phosphatase Method in the Monkey, *ibid.* **5**: 374, 1946. Hard, Walter L., and Lassek, A. M.: The Pyramidal Tract; Effect of Maximal Injury on Acid Phosphatase Content in Neurons of Cats, *J. Neurophysiol.* **9**: 121, 1946. Lassek, A. M. and Evans, Joseph P.· The Human Pyramidal Tract: XIV. A Study of the Representation of the Corticospinal Components in the Spinal Cord, *J. Comp. Neurol.* **84**: 11, 1946. Lassek, A. M.: The Pyramidal Tract; The Sensitivity of Axons to Maximal Injury of Cells of Origin in the Cat, *ibid.* **84**: 133, 1946.

Grant 674, 1944: David J. Sandweiss and Thomas L. Patterson, Wayne University College of Medicine, $750, relation of the endocrine glands to urogastrone. See grant 691, 1945. Kaulbersz, J.; Patterson, T. L.; Sandweiss, D. J., and Saltzstein, H. C.: The Relation of Endocrine Glands to the Gastric Secretory Depressant in Urine (Urogastrone), Science, accepted for publication. Kaulbersz, J.; Patterson, T. L.; Sandweiss, D J., and Saltzstein, H C. The Relation of Endocrine Glands to the Gastric Secretory Depressant in Urine (Urogastrone), *ibid.* **102**: 530, 1945.; Endocrine Glands and Gastric Secretion, *Federation Proc.* **5**: March 1946. Patterson, T. L.; Kaulbersz, J.; Sandweiss, D J., and Saltzstein, H. C.: The Influence of Different Urine Extracts on Gastric Secretion Obtained from Dogs Following Extirpation of Certain Endocrine Glands, *Canad. M. A. J.* **54**: 69, 1946.

Grant 676, 1944· Frederick M. Allen, New York, $500, studies on refrigeration surgery and treatment. See grant 657, 1943. Allen, Frederick M.: Spontaneous and Induced Epileptiform Attacks in Dogs, in Relation to Fluid Balance and Kidney Function, *Am. J Psychiat.* **102**: 67, 1945. Allen, Frederick M.; Crossman, L W, and Lyons, L V. Intravenous Procaine Analgesia, *Anesth. & Analg* **25**: 1, 1946.

Grant 678, 1944: Herbert S Kupperman, University of Georgia, $500, pregnancy test. Kupperman, Herbert S, and Greenblatt, Robert B: The Two Hour Pregnancy Test, *South M J* **39**: 158, 1946

Grant 683, 1944: O. Boyd Houchin, Loyola University Medical School, $350, vitamin E deficiency in relation to cardiac function. Refund $114.97. Gatz, Arthur J., and Houchin, O. Boyd: The Histology of Vitamin E Deficient Rabbit Hearts, *Anat Rec* **94**, March 1946

Grant 684, 1944: Rachmiel Levine, Michael Reese Hospital, Chicago, $1,000, secretion and metabolism of progestrone in threatened abortion. See grant 706, 1946. Guterman, Henry S.: Further Observations on the Value of the pregnandiol Test for Pregnancy, *J. Clin. Endocrinol.* **5**: 407, 1945; Prediction of Fate of Threatened Abortion by Pregnandiol, J. A. M. A. **131**: 378, 1946

Grant 688, 1945. A R. Tunturi, University of Oregon Medical School, $300, effects of masking tones on the responses in the cerebral cortex to pulses of pure tones See grant 704, 1946 Tunturi, Archie R. A Study on the Pathway from the Medial Geniculate Body to the Acoustic Cortex in the Dog, *Am. J. Physiol.* **147**: 311, 1946

Grant 697, 1946: George Sayers, University of Utah, $1,000, pituitary adrenocorticotropic activity. Sayers, George: A Rapid and Sensitive Method for the Assay of Pituitary Adrenocorticotropic Hormone, *Endocrinology*, in course of publication.

2 Work in Progress, 1946

Grant 479, 1937: Tracy, J Putnam, Boston City Hospital, $200, injuries to the cervical portion of the cord This research was suspended during the war

Grant 504, 1938: Wallace M. Yater, Georgetown University Medical School, $500, histopathology of "bundle branch" block.

Grants 518, 1938, and 559, 1939: Harold D. West, Meharry Medical College, $150, synthesis of *dl* threonine.

Grant 570, 1940. William H Sweet, University of Chicago, $300, course of nerve fiber tracts of the temporal lobe.

Grant 582, 1940: Charles W. Greene, Stanford University, $500, physiology of the coronary system in monkeys. Refund $160.48.

Grant 584, 1940: Oscar V. Batson, University of Pennsylvania, $200, nystagmus.

Grant 605, 1941: Harry G. Day, Indiana University, $400, physiologic significance of zinc. Active research was suspended during the war.

Grant 607, 1941: Fritz Levy, Davis Memorial Hospital, Elkins, W. Va., $250, study of marrow cells. Levy, Fritz: Megakaryocytes and Blood Platelets, *Am. J. Clin. Path.* **15**: 154, 1945.

Grant 616, 1941: Robert S. Dow, University of Oregon Medical School, $250, effects of clotting in cerebral veins. See grant 566, 1940.

Grant 626, 1942: Peter P. H. de Bruyn, University of Chicago, $400, study of osteogenic substance in laying birds.

Grant 643, 1942: Milton Mendlowitz, Mount Sinai Hospital, New York, $500, digital circulation (Special Cardiac Research Fund).

Grant 650, 1942: Tuberculosis Committee, Minnesota State Medical Association, J. A. Myers, chairman, $1,000, tuberculosis survey of Meeker County, Minn.

Grant 656, 1943: Warren O. Nelson, Wayne University, $300, lipids in the adrenal cortex. Refund $133.08. See grant 481, 1937.

Grant 661, 1943: Roland K. Meyer, University of Wisconsin, $500, antihormones, McShan, W. H.; Wolfe, Harold R., and Meyer, Roland K.: Factors Affecting the Action of Antigonadotropic Sera in Immature Rats, *Endocrinology* **33**: 269, 1943. Wolfe, Harold R.; Meyer, Roland K., and McShan, W. H.: The Negative Phase in the Antigonadotropic and Precipitin-Productive Activities in Rabbits, *J. Immunol.* **50**: 349, 1945.

Grant 670, 1944: Wilbur Thomas, Bowman Gray School of Medicine, $300, experimental cardiac rupture.

Grant 677, 1944: J. LeRoy Conel, Harvard Medical School, $500, postnatal development of the human cerebral cortex (Charles A. Brant Fund).

Grant 679, 1944: Theodor E. Bratrud, University of Minnesota Medical School, $600, colored illustrations for article on congenital adrenal hyperplasia.

Grant 681, 1944: W. E. Garrey, Vanderbilt University School of Medicine, $500, innervation of the heart of vertebrates.

Grant 682, 1944: Helen Ingleby, Woman's Medical College of Pennsylvania, $500, problems of cystic disease and carcinoma of the breast.

Grant 685, 1944: Daniel J. Glomset, Des Moines, Iowa, $500, cardiac conduction. See grant 629, 1942. Glomset, Daniel J., and Birge, Richard F.: A Morphologic Study of the Cardiac Conduction System: IV. The Anatomy of the Upper Part of the Ventricular Septum in Man, *Am. Heart J.* **29**: 526, 1945.

Grant 687, 1945: Barnett Sure, Arkansas Agricultural Experiment Station, Fayetteville, $600, effect of sulfonamides on thiamine and riboflavin metabolism.

Grant 689, 1945: Israel S. Kleiner and Arnold H. Schein, New York Medical College, $400, nutritive value of intact protein compared with the products of its enzymatic and acid hydrolysis.

Grant 690, 1945: Leo L. Hardt, Loyola University School of Medicine, Chicago, $250, improvements of flexi-rigid gastroscope. See grant 673, 1944.

Grant 691, 1945: David J. Sandweiss, Thomas L. Patterson and Harry C. Saltzstein, $1,200, relation of the endocrine glands to gastric secretion. See grant 674, 1944.

Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year 1946 the Committee issued twenty-five grants. A detailed list of these grants, together with a list of publications during 1946, and of unexpended grants made before Jan. 1, 1946, will be found in the appendix to this report.

During 1946 the following grants were issued:

Grant 558: Howard Glass, Department of Pharmacology, Marquette University School of Medicine, the comparative effect of Demerol and morphine on the resistance of anoxia of rabbits from the onset of viability to adult life, $250.

Grant 559: Richard C. de Bodo, associate professor of pharmacology, New York University College of Medicine, the role of gluconeogenesis and carbohydrate utilization in insulin hypersensitivity, $500.

Grant 560: Fred D. Weidman, professor of research in dermatology and mycology, University of Pennsylvania School of Medicine, Torula histolytica, $500.

Grant 561: G. L. Cantoni, assistant professor of pharmacology and physiology, Long Island College of Medicine, the mechanism whereby potassium exerts its effect on the intact smooth muscle, $400.

Grant 562: Grace E. Wertenberger, assistant professor of physiology, Woman's Medical College of Pennsylvania, cardiac physiology as revealed by the electrocardiogram during serum sickness and sulfonamide hypersensitivity reactions, $500.

Grant 563: Gregory Pincus, director of laboratories, Worcester Foundation for Experimental Biology, standardization of chorionic gonadotropin, $1,016.

Grant 564: F. E. Kelsey, assistant professor of pharmacology, University of Chicago, the effect of drugs on phosphorus metabolism, $500.

Grant 565: Gregory Pincus, director of laboratories, Worcester Foundation for Experimental Biology, the mechanism of action of the gonadotropic hormone, $2,100.

Grant 566: Mayo H. Soley, associate professor of medicine, University of California Medical School, the use of radioactive iodine in the treatment of hyperthyroidism, $500.

Grant 567: Edmond J. Farris, executive director, Wister Institute of Anatomy and Biology, and Boland Hughes, associate in urology, University of Pennsylvania School of Medicine, human spermatozoa, $4,800.

Grant 568: Robert L. Jackson, assistant professor of pediatrics, State University of Iowa, a statistical evaluation and reporting of clinical research of therapeutic value in the treatment of juvenile diabetes and of rheumatic fever, $3,000.

Grant 569: Samuel L. Saltzman, associate in ophthalmology, and Charles Haig, assistant professor of physiology and biochemistry, New York Medical College, the therapy of retinitis pigmentosa, $500.

Grant 570: F. William Sunderman, Pepper Laboratory of Clinical Medicine, University of Pennsylvania, the use of congo red in measuring serum volume and in detecting amyloidosis, $400.

Grant 571: Edmond J. Farris, executive director, Wistar Institute of Anatomy and Biology, and Boland Hughes, associate in urology, University of Pennsylvania School of Medicine, the effects of endocrines and other substances on spermatogenesis in males with low sperm counts, $1,200.

Grant 572: C. H. Werkman, head of the department of bacteriology, Iowa State College, the mechanism of action of penicillin and streptomycin, $1,000.

Grant 573: Joseph L. Lilienthal Jr., Johns Hopkins Hospital, relation of the enzyme system to pathophysiology of muscle and nerve function, $500.

Grant 574: E. A. Evans Jr., chairman, department of biochemistry, University of Chicago, biochemical study of the cellular mechanism for protein synthesis, $500.

Grant 575: Tom Addis, E. Barrett, L. J. Poo, L. Way and W. Yuen, department of medicine, Stanford University School of Medicine, reasons for the differences in the effects of various proteins on the rate of growth of the kidney, $1,000.

Grant 576: Harold D. Green, professor of physiology and pharmacology, Wake Forest College, Bowman Gray School of Medicine, the effects of heparin on traumatic shock, $300.

Grant 577: Windsor C. Cutting, associate professor of therapeutics, Stanford University School of Medicine, the chemotherapy of virus infections, $300.

Grant 578: Aaron E. Margulis, director, department of bacteriology, New York Post-Graduate Medical School and Hospital, experimental and clinical endocarditis, $1,000.

Grant 579: Aaron E. Margulis, director, department of bacteriology, New York Post-Graduate Medical School and Hospital, bacteriophage phenomenon, $1,000.

Grant 580: Joseph Ney, clinical instructor in medicine, and Paul K. Smith, associate professor of pharmacology, the effects of BAL on the toxicity and excretion of gold salts, $350.

Grant 581: Victor Ross, department of biochemistry, Columbia University College of Physicians and Surgeons, Schick toxin and protamine-tetanus toxoid, $350.

Grant 582: Allan D. Bass, Syracuse University College of Medicine, vascular disease and hypertension, $500.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1946:

Clinical Arrest in Enterococcal Endocarditis, Ward J. Mac Neal, Anne Blevins and Charles A. Poindexter: *Am. J. M. Sc.* **211**: 40 (Jan.) 1946.

Experimental Nonbacterial Cardiovascular Inflammation, Ward J. Mac Neal, Anne Blevins, Alice E. Slavkin and Helen Scanlon: *Fed. Proc.*, March 1946.

Direct Culture of Rheumatic Virus, Ward J. Mac Neal, Katherine Wardell, Anne Blevins and Marcello R. Pacis: *Science* **103**: 620 (May 17) 1946.

Actinomyces Septicus from Human Endocarditis, Anne Blevins and Ward J. Mac Neal: *Am. Heart J.* **31**: 663 (June) 1946.

Clinical Arrest of Endocardial Actinomycosis After Forty-Four Million Units of Penicillin, Ward J. Mac Neal, Anne Blevins and A. Wilbur Duryee: *Am. Heart J.* **31**: 668 (June) 1946.

Conjoined Action of Penicillin and Bacteriophages, Ward J. Mac Neal, Louise Filak and Anne Blevins: *J. Lab. & Clin. Med.* **31**: 974 (Sept.) 1946.

Growth of Children with Diabetes Mellitus in Relationship to Level of Control of the Disease, Robert L. Jackson and Helen G. Kelly: *J. Pediat.* **29**: 316 (Sept.) 1946.

Heart Disease in Children in a Rural Iowa County—Particularly in Relation to Rheumatic Fever, Robert L. Jackson: *J. Pediat.* **29**: 647 (Nov.) 1946.

Use of Oral Penicillin in Treatment of Bacterial Asthma, Frieda Baumann, Jean Crump, Ann Catherine Arthurs, Lloyd D. Seager and Ruth E. Miller: *J. Allergy* **17**: 265 (Sept.) 1946.

The Influence of a Strepogenin Concentrate on the Metabolism of Glutamic Acid by Streptococcus Fecalis, John R. Totter and Mary E. Mallory King: *J. Biol. Chem.* **165**: 391 (Sept.) 1946.

Sulfonamides and Dark Adaptation, Donald Slaughter: *J. Lab. & Clin. Med.* **31**: 987 (Sept.) 1946.

The Metabolism of Methylxanthines and Their Related Methyluric Acids, Victor C. Myers and Ramon F. Hanzal: *J. Biol. Chem.* **162**: 309 (Feb.) 1946.

The Effect of Cellular Hydration on Experimental Electroshock Convulsions, Ewart A. Swinyard, James E. P. Toman and Louis S. Goodman: *J. Neurophysiol.* **9**: 47, 1946.

Studies on the Metabolism of Brain Suspensions: III. Respiration at Low Oxygen Tension, K. A. C. Elliott and Maryon Henry: *J. Biol. Chem.* **163**: 351 (May) 1946.

Studies on the Metabolism of Brain Suspensions: IV. Anaerobic Glycolysis, K. A. C. Elliott and Maryon Henry: *J. Biol. Chem.* **163**: 361 (May) 1946.

Properties of Maximal Seizures and Their Alteration by Anticonvulsant Drugs and Other Agents, James E. P. Toman, Ewart A. Swinyard and Louis S. Goodman: *J. Neurophysiol.* **9**: 231, 1946.

Inhibitory Potency of Sympathomimetic Amines and Their Ganglionic Inhibitory Action, Amedo S. Marrazzi and Rose N. Marrazzi: *Fed. Proc.*, March 1946.

Reduction of Sympathetic Transmission as an Index of Inhibition at Adrenergic Junctions in General, Amedeo S. Marrazzi: *Science* **104**: 2688 (July 5) 1946.

The Estimation of the Cutaneous Blood Flow with the Photoelectric Plethysmograph, A. B. Hertzman, W. C. Randall and K. E. Jochim: *Am. J. Physiol.* **145**: 716 (March) 1946.

The Quantitation of Cutaneous Vascular Reactions with the Photoelectric Plethysmograph, A. B. Hertzman, W. C. Randall and K. E. Jochim: *Fed. Proc.* **5**: 45 (March) 1946.

Enzyme Problems in Relation to Chemotherapy, "Adaptation," Mutations, Resistance and Immunity, M. G. Sevag: *Advances in Enzymology* **6**: 33, 1946.

On the Specificity of Histamine and on the Role of Potassium in a Loss of Contractility of the Intestinal Smooth Muscle of the Guinea Pig, G. L. Cantoni and G. Eastman: *Fed. Proc.*, March 1946.

On the Response of the Intestine to Smooth Muscle Stimulants, G. L. Cantoni and G. Eastman: *J. Pharmacol. & Exper. Therap.* **87**: 392 (Aug.) 1946.

Dietary Protein and Protoporphyrin Formation in the Rat, James M. Orten and Judith Mackey Keller: *J. Biol. Chem.* **165**: 163 (Sept.) 1946.

Further Observations Concerning Effect of Adrenalectomy on Alloxan Diabetes: Paired Feeding Experiments, R. G. Janes, H. Dawson and L. Myers: *Am. J. Physiol.* **145**: 538 (Feb.) 1946.

The Influence of Diethylstilbestrol on Alloxan Diabetes Paired Feeding Experiments, R. G. Janes and H. Dawson: *Endocrinology* **38**: 10 (Jan.) 1946.

The Effect of Diethylstilbestrol on Thyroidectomized Rats, Ralph G. Janes: *Am. J. Physiol.* **145**: 411 (Jan.) 1946.

Chemotaxis in Leukocytes, Morton McCutcheon: *Physiol. Rev.* **26**: 319 (July) 1946.

The Change in the Water Metabolism and in the Endocrine Glands of Long-Surviving Diabetes Insipidus Dogs, Richard C. de Bodo and David Marine: *Fed. Proc.* **5**: 22, 1946.

The Water Exchange of Diabetes Insipidus Dogs Under Varying Nutritional and Hydration Conditions, Richard C. de Bodo and Kathryn F. Prescott: *Fed. Proc.* **5**: 23, 1946.

The Acute and Chronic Toxicity of Stilbamidine, Lloyd D. Seager and Gina Castlenuovo: *Fed. Proc.* March 1946.

The Influence of Diet on Uropepsin, Gladys R. Bucher: *Fed. Proc.*, March 1946.

The following grants were issued before Jan. 1, 1946. In some cases the grant has expired and an unexpended balance remains, or the work is not yet completed or not yet published:

Grant 408: Ephraim Shorr, associate professor of medicine, Cornell University Medical College, the effect of progesterone on the vaginal smear, $300.

Grant 443: A. B. Baker, associate professor of neuropsychiatry and neuropathology, and Raymond N. Bieter, professor of pharmacology, University of Minnesota Medical School, toxic effects of sulfanilamide and derivatives on nervous system and effect of vitamin B complex in prevention of such injuries, $500.

Grant 454: W. L. Mendenhall, professor of pharmacology, and Albert J. Plummer, assistant professor of pharmacology, Boston University School of Medicine, the quantitative determination of theophylline, $50.

Grant 455: Frederick H. Pratt, professor of physiology, and Marion A. Reid, instructor in physiology, Boston University School of Medicine, the effect of cardiac drugs on the denervated lymphatic hearts, $100.

Grant 459: Mary E. O'Sullivan, Bellevue Hospital, New York City, the therapeutic effect of estradiol in muscular dystrophy, $100.

Grant 472: Robert V. Brown, professor of physiology and pharmacology, University of North Dakota, action of pilocarpine on bile secretion, $150.

Grant 474: Arthur C. DeGraff, professor of therapeutics, New York University College of Medicine, the effectiveness of sodium thiosulfate and sodium formaldehyde sulfoxalate in treatment of cardiac arrhythmias induced experimentally by mercurial diuretics, $400.

Grant 479: Mayo H. Soley, associate professor of medicine, University of California Medical School, treatment of patients with toxic diffuse goiter by means of radioactive iodine, $350.

Grant 484: Alfred Goerner, associate professor of biologic chemistry, Long Island College of Medicine, and M. Margaret Goerner, pathologist, Brooklyn Thoracic Hospital, the toxic action of carcinogenic compounds on liver tissue, $400.

Grant 488: L. R. Kaufman, director of surgery, New York Medical College, circulatory competence of the gut in cases of intestinal obstruction, $125.

Grant 489: L. R. Kaufman, director of surgery, New York Medical College, the use of enzyme mixture for dissolving slough, $100.

Grant 498: Linn J. Boyd, director of medicine, and Kurt Lange, clinical instructor in medicine, New York Medical College, the effect of cold in the treatment of shock, $300.

Grant 499: Joseph Litwins, clinical instructor in medicine, New York Medical College, the chemistry and hematology of blood donors, $200.

Grant 502: Julian P. Maes, department of pharmacology, Dartmouth College, the part played by the red blood corpuscle concentration of the systemic circulation in the maintenance of blood pressure at different levels of vasoconstrictor tone, $150.

Grant 506: Andrew F. Burton, assistant professor of pharmacology, Howard University, (1) the distribution of sulfanilamide in maternal and fetal tissues at various stages of pregnancy, (2) the toxic effects of quinine on the fetus in utero, $600.

Grant 513: Ruth E. Miller, professor of bacteriology, Woman's Medical College of Pennsylvania, the relationship between immune mechanisms and bacterial respiration, $412.50.

Grant 514: Morton McCutcheon, professor of pathology, University of Pennsylvania School of Medicine, the toxicity of sulfonamides and penicillin and the mechanism of chemotaxis in leukocytes, $150.

Grant 515: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska School of Medicine, the relationship of sex to drug action, $200.

Grant 516: Nellie Perry Watts, department of pharmacology, Woman's Medical College of Pennsylvania, methods to prolong the action of local anesthetic drugs, $250.

Grant 517: Harry Beckman, professor of pharmacology, Marquette University School of Medicine, avian malaria, $250.

Grant 524: Harry E. Morton, associate professor of bacteriology, University of Pennsylvania School of Medicine, necessity of bacteriostasis or bactericidal action to prevent infection in an animal body, $100.

Grant 525: Herbert Silvette, assistant professor of pharmacology, University of Virginia Medical School, the effect of low barometric pressures on kidneys previously damaged, either surgically or by drugs, $250.

Grant 528: Linn J. Boyd, director of medicine, and Kurt Lange, clinical instructor in medicine, New York Medical College, capillary permeability of the meninges in meningitis and meningisms, $350.

Grant 529: Linn J. Boyd, director of medicine, and Kurt Lange, clinical instructor in medicine, New York Medical College, the effectiveness of physical therapeutic measures in peripheral vascular diseases, $350.

Grant 531: Thomas H. McGavack, associate professor of medicine, New York Medical College, the absorption of compressed pellets of the steroid hormones, $400.

Grant 532: Thomas H. McGavack, associate professor of medicine, New York Medical College, and Herbert Elias, New York Medical College, inulin and diodrast clearances in endocrine diseases, $250.

Grant 533: Robert S. Teague, associate professor of physiology and pharmacology, University of Alabama School of Medicine, the metabolism of diethylstilbestrol and its derivatives, with emphasis on the ration of absorption, the distribution, fate and excretion of these drugs, $500.

Grant 534: Stephen P. Jewett, New York Medical College, the use of ammonium chloride in psychiatric disorders, $350.

Grant 538: Thomas H. McGavack, associate professor of medicine, New York Medical College, water balance under the influence of various hormones, $200.

Grant 542: Woman's Medical College of Pennsylvania, the use of penicillin therapy in intrinsic (bacterial) allergy with chronic infection of the sinuses, $500.

Grant 543: Harold D. Green, professor of physiology and pharmacology, Wake Forest College, Bowman Gray School of Medicine, the influence of environmental temperature on ischemic compression shock, $400.

Grant 545: Robert Chambers, research professor of biology, New York University College of Medicine, blood capillary fragility, $500.

Grant 546: Stuart Mudd, professor of bacteriology, University of Pennsylvania School of Medicine, the mode of action of the sulfonamides, $1,000.

Grant 547: L. M. N. Bach, department of physiology, Tulane University of Louisiana School of Medicine, the effect of certain hormones on the kidney tubules, $150.

Grant 548: Fred W. Ellis, assistant professor of pharmacology, University of North Carolina Medical School, the effect of some new synthetic spasmolytic agents, $250.

Grant 549: W. F. Hamilton, professor of pharmacology and physiology, University of Georgia School of Medicine, significant blood pressure changes in unanesthetized animals, $125.

Grant 550: C. A. Handley and S. A. Peoples, department of pharmacology and physiology, Baylor University College of Medicine, water distribution of the body following the administration of digitalis, $150.

Grant 552: Leland C. Wyman, associate professor of physiology, Boston University School of Medicine, the factors controlling the growth and functional efficiency of transplanted adrenal cortical tissue, $285.

Grant 553: Adrian C. Kuyper, assistant professor of physiologic Chemistry, Wayne University College of Medicine, a procedure for the detection and determination of unidentified plasma constituents, $375.

Grant 555: Gladys Bucher, associate in physiology, Woman's Medical College of Pennsylvania, pepsin in the urine, $500.

Grant 557: Lloyd D. Seager, professor of pharmacology, Woman's Medical College of Pennsylvania, the acute and chronic effects of the diamidines, $500.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ended December 31, 1946

Investments (at cost) as at January 1, 1946		$5,589,268.47	
Bonds Purchased (at cost)		3,960,952.66	
		$9,550,221.13	
Less:			
Bonds called, matured or sold	$3,425,876.22		
Bonds transferred to American Medical Association Research Fund (at cost)	1,499,512.50	4,925,388.72	
Investments as at December 31, 1946			$4,624,832.41
Balance for Investment January 1, 1946		126,824.36	
Interest Received on Investments in 1946		136,685.22	
		$263,509.58	
Transferred to General Fund		144,256.95	
Uninvested Funds at December 31, 1946			119,252.63
Invested and Uninvested Funds as at December 31, 1946			$4,744,085.04

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AMERICAN MEDICAL ASSOCIATION RESEARCH FUND

Investments (at cost) as at December 31, 1946	$1,499,512.50
Uninvested Funds as at December 31, 1946	487.50
Invested and Uninvested Funds as at December 31, 1946	$1,500,000.00

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DAVIS MEMORIAL FUND

Balance in Fund January 1, 1946	$7,904.01	
Interest earned on Bank Balance in 1946	99.10	
Funds on deposit as at December 31, 1946		$8,003.11

Josiah J. Moore, Treasurer.

AUDITOR'S REPORT

January 29, 1947.

To the Board of Trustees,
American Medical Association,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Medical Association, Chicago, Illinois, as of December 31, 1946, and the statement of income for the year ended on that date, have reviewed the system of internal control and the accounting procedures of the Association and, without making a detailed audit of the transactions, have examined or tested accounting records and other supporting evidence, by methods and to the extent we deemed appropriate except as hereinafter stated regarding confirmation of receivables and observation of the inventory taking.

The cash and bank balances have been confirmed by count or by certificates from the depositaries. The United States Government and other marketable securities were confirmed by an acknowledgement from the Continental Illinois National Bank and Trust Company of Chicago where the securities are held for safekeeping.

We did not independently confirm the accounts receivable by communication with the debtors. The accounts receivable were reviewed as to age and collectibility and, in our opinion, the balances are fully realizable. We reviewed the plan and system of control adopted for inventory taking but we did not observe the taking of the inventories nor did we make tests of the physical existence of the quantities recorded.

Expenditures charged to property and equipment accounts during the year, in our opinion, were properly capitalized as representing additions or improvements. The provision for depreciation for the year appears to be adequate.

All ascertained liabilities have been included in the accounts. Attorneys for the Association state that no litigation was pending against the Association as of the balance sheet date.

During the year under review the Association revised its accounting procedure relative to interest on investments, taxes, and unpaid expenses, which previously were not recorded until received or paid, and such items now are recorded on the accrual basis and have been dealt with accordingly in the assets and liabilities at December 31, 1946. No adjustment has been made in the income account, however, with respect to the corresponding items which were not recorded in the balance sheet at the close of the preceding year.

In our opinion, subject to the exceptions set forth in paragraph three and the foregoing observation regarding the change in accounting procedure, the accompanying balance sheet and related statement of income present fairly the position of the Association at December 31, 1946, and the results of the operations for the year.

Fidelity insurance is carried on all officers and employees under a blanket position policy in which each individual is covered in the amount of $50,000.00; said amount of coverage in the case of collusion applies to each individual involved.

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly,
Peat, Marwick, Mitchell & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet as of December 31, 1946	"A"
Statement of Income for the Year ended December 31, 1946	"B"

	Schedule
Publications (Periodicals)—Costs and Expenses for the Year ended December 31, 1946	"1"
Expenses of Councils, Bureaus and Committees for the Year ended December 31, 1946	"2"

Exhibit "A"

Liabilities

Accounts Payable and Accrued Expenses:			
Cooperative Medical Advertising Bureau			$ 44,653.15
Miscellaneous accounts			64,484.10
Salaries and wages			87,393.19
Taxes:			
Federal withholding and social security		$ 43,329.27	
Real estate and personal property		36,000.00	79,329.27
Total Accounts Payable and Accrued Expenses			275,859.71
Unexpired Subscriptions to Publications			442,056.47
Deferred Credits—Directory report service, etc.			200,914.33
American Medical Association Research Fund Reserve			1,500,000.00
Net Worth:			
Association Reserve		$ 350,000.00	
Building Reserve		450,000.00	
Retirement Reserve		675,000.00	
Equipment—Modernization Reserve		700,000.00	
Capital Account:			
Balance at December 31, 1945	$5,278,889.23		
Income in excess of expenses for year ended December 31, 1946	106,368.33		
Transfer to equipment modernization reserve	(100,000.00)		
	5,285,257.56		
Deduct—Amount transferred to American Medical Association Research Fund Reserve, in connection with establishment of special fund for research purposes	1,500,000.00	3,785,257.56	5,960,257.56
Total			$8,379,088.07

Assets

Property and Equipment—at cost:		
Land		$ 328,773.98
Buildings	$1,375,349.31	
Machinery and printing equipment	521,317.80	
Office and laboratory equipment	221,126.08	
	2,117,793.19	
Less—Reserve for depreciation	1,128,887.05	988,906.14
Type metal (book inventory)—at average cost		24,275.11
Total Property and Equipment		1,341,955.23
American Medical Association Research Fund:		
United States Government securities—at cost (valuation based on market quotations, $1,488,212,51)	1,499,512.50	
Cash in bank	487.50	1,500,000.00
Marketable Securities—at cost (valuation based on market quotations, $4,666,422.49):		
United States Government securities	3,049,077.09	
Railroad, municipal, public utility and industrial bonds	1,575,755.32	4,624,832.41
Representing investments of:		
General Fund	1,299,832.41	
Depreciation Reserve Fund	1,150,000.00	
Association Reserve Fund	350,000.00	
Building Reserve Fund	450,000.00	
Retirement Reserve Fund	675,000.00	
Equipment Modernization Reserve Fund	700,000.00	
Cash Held by Treasurer for Investment		119,252.63
Cash in Banks and on Hand		146,733.00
Accounts Receivable:		
Advertising	210,157.66	
Reprints	3,789.85	
Directory Report Service, 18th Edition	3,892.65	
Miscellaneous accounts receivable	5,256.89	223,097.05
Interest Accrued on Investments		27,477.51
Inventories of Materials, Supplies, Work in Progress and Publications		130,088.38
Expenditures on Publications in Progress		239,913.41
Prepaid Expenses, Deposits and Advances:		
Insurance, etc.	5,423.17	
Deposits and advances	20,315.28	25,738.45
Total		$8,379,088.07

Exhibit "B"

STATEMENT OF INCOME

FOR THE YEAR ENDED DECEMBER 31, 1946

Income:			
Fellowship dues			$ 66,946.00
Income from investments			150,133.89
Miscellaneous receipts and other income			85,097.59
			302,177.48
Publications—Periodicals:			
Subscriptions		$1,506,046.90	
Advertising		2,079,081.60	
		3,585,128.50	
Costs and expenses—Schedule "1"		2,414,163.44	1,170,965.06
Books, pamphlets and reprints sold		98,897.71	
Less—Printing and other costs		65,371.55	33,526.16
Total Income			1,506,668.70
Expenses:			
Conducting councils, bureaus and committees—Schedule "2"		890,178.99	
Legal and investigating		27,895.79	
Employees' group annuities		138,265.55	
State Unemployment Tax:			
Years 1936 to 1945 inclusive	$271,095.39		
Current year 1946	52,501.74	323,597.13	
Federal social security tax		18,998.40	
Miscellaneous		1,364.51	1,400,300.37
Income in Excess of Expenses			$ 106,368.33

Schedule "1"

PUBLICATIONS (PERIODICALS) COSTS AND EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1946

Wages and salaries		$1,138,859.02
Paper stock		422,060,73
Engravings and illustrations		57,004.88
Ink		25,373.73
Magazine mailing supplies		2,314.45
Factory supplies		21,284.88
Repairs and renewals—Machinery		3,743.37
Express and cartage		13,374.69
Power and light		15,488.27
Building maintenance expense		70,424.54
Fuel		6,700.26
Insurance and taxes		74,032.57
Editorial news and reporting		30,722.76
Postage—First class		70,806.03
Postage—Second class		83,669.73
Subscriptions and advertising commissions		164,876.67
Discounts		77,639.04
Exchange		2,193.82
Subscription promotion expense		25,628.37
Office supplies		18,911.26
Telephone and telegrams		6,253.28
Office printing		33,843.23
Binding		6,058.58
Miscellaneous operating expense		33,493.23
Employees' group hospital and life insurance		11,869.11
Decrease in estimated cost to complete issues of special journal publications		(3,348.27)
Bad debts and tax recoveries and refunds—Net		(3,042.23)
Profit on sale of equipment		(2,010.18)
Loss on metal dross sales		1,362.38
		2,409,588.20
Depreciation (based on estimated remaining life):		
Buildings	$23,133.80	
Machinery	14,841.75	
Type and factory equipment	1,746.33	
Laboratory equipment	692.95	
Furniture and equipment	7,668.21	48,083.04
		2,457,671.24
Deduct—Proportion of overhead expenses charged to other publications and departments		43,507.80
Total Publications (Periodicals)—Costs and Expenses		$2,414,163.44

NOTE.—Total wages and salaries for year 1946 amounted to $1,916,310.69. Of this amount $1,138,895.02 is included above, $552,097.84 is shown in Schedule "2" (Expenses of Councils, Bureaus and Committees), and the remainder $225,317.83 was disbursed on the maintenance of records which will be used in connection with the next edition of the American Medical Directory, and with printing of books, reprints and pamphlets, and printing in process at the close of the year.

Schedule "2"

EXPENSES OF COUNCILS, BUREAUS AND COMMITTEES

FOR THE YEAR ENDED DECEMBER 31, 1946

Salaries and wages	$552,097.84
Office printing and binding	22,800.23
Office supplies and repairs	9,185.67
Express, telephone and telegraph	9,372.66
Postage	11,438.15
Books and periodical subscriptions	1,775.34
Legislative services	2,644.27
Miscellaneous expenses	19,542.44
Educational material distributed	5,246.44
Staff travel	50,050.58
Radio broadcasting and electrical transcriptions	30,074.78
Inspection of hospitals and medical schools	7,712.51
Educational exhibits	10,097.29
Trustees' meeting expenses	16,491.14
Grants, tests and investigations	44,010.96
Section secretaries' conference and honorariums	4,004.16
State secretaries' conference	15,649.75
Council and bureau conferences	18,837.03
Sundry committee expenses	59,147.75
Total Expenses of Councils, Bureaus and Committees	$890,178.99

NOTE.—The above expenses are spread over the following Councils, Bureaus and Committees as indicated: Association, $268,898.97; Bureau of Health Education, $85,172.68; Council on Pharmacy and Chemistry, $85,245.93; Chemical Laboratory, $25,308.88; Council on Physical Medicine, $25,058.69; Council on Foods and Nutrition, $20,840.56; Committee on Therapeutic Research, $19,772,61; Council on Medical Education and Hospitals, $91,423.08; Bureau of Legal Medicine and Legislation, $44,310.53; Bureau of Investigation, $10,816.25; Bureau of Medical Economic Research, $19,948.12; Council on Industrial Health, $38,937.82; Association and Bureau of Exhibits, $40,484.97; Council on Medical Service, $106,686.12; Committee on Medical Preparedness, $7,273.78.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

This report covers the work of the Judicial Council since its midwinter meeting, which was held in conjunction with the supplemental session of the House of Delegates. At that and at a subsequent meeting held on March 14, 1947 the usual routine business was transacted. This consisted in the consideration of those applying for Fellowship whose eligibility was questioned, the recommendation of candidates for Associate Fellowship and the consideration of many requests for decisions concerning the ethics of practices which are either being followed already or are contemplated. A great majority of these queries were answered by the Chairman, who expressed his personal opinion, with the assurance that the decision of the entire Council would be forthcoming at the next meeting. Two appeals on the charge of plagiarism were considered, and the Council continued examination of a pending appeal regarding a voluntary insurance plan.

By far the largest number of requests for information or for approval were received from ophthalmologists who have submitted practically every conceivable plan to circumvent the section of the Principles of Medical Ethics concerning rebates, which reads in part as follows:

> It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is unprofessional to accept rebates on prescriptions or surgical appliances, or perquisites from attendants who aid in the care of patients

It is strange that year after year more communications regarding these practices come from members of this particular field than from any other section of the practice of medicine. From information received, the Council has the impression that these or similar plans are at present openly used in various parts of the country. Nevertheless the Council is constrained to advise all members of the Association that, no matter how prevalent these practices may have become, they are still unethical. It should be well known by this time that the traditional interpretation of the Principles of Medical Ethics by the various Judicial Councils in the history of the Association has been that the doctor may receive no profit whatever from his patient other than payment for rendered medical services. Hence it should be apparent that *no rebate of any kind, in any form or from any source can be accepted* This applies also to rebates coming from agents or owners of optical companies. They are, in every case, absolutely unethical. Another scheme presented to the Council would permit doctors owning the stock of a drug company to refer their patients to this company and divide the profits from the sale of the drugs. This is, of course, another violation of ethics, for it is specifically stated in the principle quoted that a profit from the sale of medicine to patients cannot be accepted by the doctor. This rule has been expressed so many times in decisions by the Council that it is surprising it is not better understood.

There was presented also at the December meeting the report of Dr. A. C. Ivy as a representative of the United States government in which he reviewed the war crimes of a medical nature committed by the Germans during the past war. The Council found that the practices outlined in Dr. Ivy's report were definitely opposed to the Principles of Medical Ethics of the American Medical Association and are certainly to be condemned. In order to conform to the ethics of this Association, these three requirements must be satisfied:

> 1. The voluntary consent of the person on whom the experiment is to be performed must be obtained
>
> 2. The danger of each experiment must be investigated previously by means of animal experimentation
>
> 3 The experiment must be performed under proper medical protection and management

Many other complaints of the violation of medical ethics by individual physicians in the relationship between medical men were received by the Council, even the question of threatened physical violence.

In some of these complaints, it would seem that corrective or punitive measures are expected from the Judicial Council. The Council is not a legislating body. That function rests in the House of Delegates. The Judicial Council is a court to interpret the laws and ethics of the medical profession and to adjudicate those matters brought to it from the state associations under the Constitution and By-Laws. The responsibility for correcting a condition must be left to the state associations. Only when the situation involved becomes of general rather than local concern may the Judicial Council interfere. In such cases it has the power to request the President to appoint an investigating jury to consider the complaint.

The operation of the voluntary insurance plan is entirely under the control of the Council on Medical Service and is certainly not in the province of the Judicial Council. However, the Judicial Council has jurisdiction on all questions of ethics and in the interpretation of the laws. The question of ethics of some of the voluntary insurance plans has been brought to the attention of the Council in such a manner that its members feel it incumbent on them to present some slight interpretation of the laws adopted by the House of Delegates in Cleveland in June 1934 and amended slightly at the annual session in 1935. These ten principles are basic laws for the establishment and operation of all voluntary insurance plans and are as follows:

> First: All features of medical service in any method of medical practice should be under the control of the medical profession No other body or individual is legally or educationally equipped to exercise such control.
>
> Second No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.
>
> Third: Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.
>
> Fourth The method of giving the service must retain a permanent, *confidential relation between the patient and a "family physician." This* relation must be the fundamental and dominating feature of any system
>
> Fifth All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service The medical profession alone can determine the adequacy and character of such institutions Their value depends *on their operation according to medical standards*
>
> Sixth In whatever way the cost of medical service may be distributed, it should be paid for by the patient in accordance with his income status and in a manner that is mutually satisfactory
>
> Seventh. Medical service must have no connection with any cash benefits.
>
> Eighth: Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established
>
> Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of income
>
> Tenth: There should be *no restrictions on treatment or prescribing* not formulated and enforced by the organized medical profession

The Judicial Council calls attention to the third point which defines the free choice of physician. This the Council interprets to mean not only the patient's right to choose any physician desired but also, conversely, the physician's right to accept or reject any patient requesting his services under the plan. It also expressly requires that any qualified, licensed physician residing in the area in which the plan operates be allowed to participate. Thus we see that to be a participating doctor in a voluntary insurance plan it is not necessary for one to be a member of the American Medical Association. It is, however, necessary for him to accept and obey the terms of the contract offered by the plan and on violation of the terms he may be dropped from the rolls, if the violation seems sufficiently grave for such action. It is needless for us to remind members that any violation of this provision would indeed deprive the public of the choice of a great many physicians. As the voluntary plans are intended to cover and supply sufficient medical care of a high quality for the whole country, with no feature of a compulsory system, it is necessary that the principle be strictly observed However it is tacitly understood that any contract between an approved voluntary medical plan and a doctor includes an understanding that the ethics of the American Medical Association will not be violated. These basic points also require that the medical profession determine the adequacy and character of the hospitals. All hospitals approved by the local physicians and willing to accept the terms of the plan should be allowed to participate. In order that a high standard of medical service be maintained, hospitals may limit somewhat the number of physicians who deliver medical service in their institutions and even assign a physician to certain definite fields in accordance with his training and experience. The widest possible use of hospitals approved by the local profession should be encouraged in order not to limit the number of doctors made available for the plan. Under no circumstances shall doctors working under this plan be forced to send patients to a particular hospital unless it is the only one approved in that area.

In its report to the House of Delegates at the Supplemental Session in December the Council called attention to the section of the Principles of Medical Ethics which controls group practice. It was stated in that report that the ethical principles controlling group practice were the same as for the individual. Since the principle of ethics for private practice absolutely forbids the splitting of fees under any and all circumstances, the same rule applies to group practice and, as pointed out in that report, the group formed must be a real partnership in which the total income is divided not equally but according to the individual income earned by the member.

Since that report was submitted, the legislature of one of the largest states has enacted a law which allows groups to form and which legalizes the pooling of income and the division of monies received for service. The law contains no directive as to the manner in which the division is to be made. These groups may be organized for the purpose of delivering medical services under insurance plans of nonprofit organizations only. Singularly in the same bill, the formation of these groups and such pooling and division of monies is expressly forbidden in the work done under the workmen's compensation law or any other than for nonprofit organizations. Such procedures in practice under the workmen's compensation law remains a misdemeanor. Under this state's educational law, the splitting of fees or requesting of rebates in general medical practice is punishable by suspension or revocation of medical license. It is difficult to understand why a law should be enacted allowing the division of monies received from one source and denying it to all others. Obviously those interested in the operation of the workmen's compensation law were fearful lest such procedure would lead to unethical fee splitting. They wanted to protect their injured workmen against the danger of unnecessary operations and the referring of patients to those not properly qualified or experienced to render service of a sufficiently high medical standard (by ethical doctors). Their position is to be commended but the Council sees no reason why the same protection should not be afforded to those insured in nonprofit organizations.

The Judicial Council realizes that bills passed by a legislature and enacted into law must be obeyed. They remain laws of the commonwealth until they are repealed, superseded or declared unconstitutional and as such should be respected. While one is allowed the privilege of organizing or becoming a member of a group, one is not compelled to do so. It is entirely a voluntary act as the law is permissive rather than mandatory. It was enacted apparently for the benefit of an insurance plan about to be launched for the employees of a large municipality of that state. This is plainly a matter to be handled by the state medical association. The duty of the Council is to draw attention to this condition and to admonish those accepting contracts under the plan that the splitting of fees is still a violation of the Principles of Medical Ethics of the American Medical Association. Those who indulge in this form of group practice are warned also of the fact that the sending of joint or combined bills for services is considered unprofessional not only by the American Medical Association but also by all national specialty societies. Attention is called to this unusual local situation because of the danger of unwittingly accepting an unethical practice. It must be insisted that, in spite of conditions herein outlined, the members of the American Medical Association continue to maintain high ethical and professional standards. They should realize the evils which may arise from entering into an unethical contract.

The Council's report on the revision of the Principles of Medical Ethics will be presented to the House of Delegates in a supplementary report.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman.
LLOYD NOLAND.
JOHN H. O'SHEA.
LOUIS A. BUIE.
WALTER F. DONALDSON.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

The major concerns of the Council on Medical Education and Hospitals during the past year have been with problems relating to the reconversion of medical education to a peacetime status and with the continuing efforts to provide residency training of good quality to the large number of returning medical officers desiring such work.

SURVEY OF MEDICAL SCHOOLS

The Council recommended to the Board of Trustees of the American Medical Association that a complete survey of the medical schools of the United States be undertaken as soon as feasible. The Board of Trustees has adopted this recommendation and has decided to provide the required financial support. The last complete survey of medical schools was made during the years 1934-1936. Since that time many medical schools have been visited by the members and staff of the Council to assist schools in meeting special problems and to evaluate the work of new institutions or of schools in which special difficulties had arisen.

A new complete survey is considered desirable because of the lapse of time since the last survey and because of the intervening events, especially the war and its aftermath, which have seriously affected medical education. In the conduct of this survey it is the opinion of the Council that the best results can be achieved by a close collaboration with the Association of American Medical Colleges and possibly other organizations. The work of the Council over the more than forty years of its existence has always been characterized by cooperation with appropriate organizations and institutions. In the case of medical school problems, the cooperating agency has been the Association of American Medical Colleges. Similarly, problems related to standards and approval of hospital residencies have been dealt with collaboratively with the Advisory Board for Medical Specialties and the various American specialty boards. Again, in the technical fields ancillary to medicine there has been joint action by the Council and the national organizations in the fields concerned. Regarding such cooperation, Dr. Arthur Dean Bevan, first Chairman of the Council, stated concerning the revolutionary changes effected by the Council in medical education in the first two decades of the century: "The fight for higher standards of medical education has been won. It has been won by the united efforts of the American Medical Association, the Federation of State Medical Licensing Boards, the Association of American Medical Colleges, the American universities and colleges and the great educational foundations. . . . This great educational advance, the greatest that has occurred in any field of education in the last twenty-five years, is a wonderful example of what can be accomplished by the right sort of cooperation of the forces vitally involved in a great problem." Such cooperation should be continued and strengthened whenever possible in the many activities of the Council.

There are several organizations undertaking the study of some one or another isolated field in the total program of medical education. Examples are in the fields of pediatrics and nutrition. A resolution concerning the survey of pediatric facilities and pediatric education being conducted by the American Academy of Pediatrics was referred to the Council on Medical Education and Hospitals by the House of Delegates. The Council is in accord with the objectives of such surveys but feels that the various departments of a medical school are so intimately interdependent that such surveys may be of limited value. The Council has stated to the Academy that it will be interested in the findings of this survey and is willing to be of assistance wherever possible. A representative of the Council has attended an organization meeting for this survey and is keeping in contact with the project.

Similarly, regarding the resolution of the House of Delegates concerning a restudy of the teaching of preventive medicine and public health to undergraduate medical students, it was deemed inadvisable to conduct an independent survey of the teaching of this subject but rather to include such a study as part of the survey of all aspects of medical education in our medical schools which is to be carried out.

SUPPLY OF MEDICAL STUDENTS

The complete statistics on medical school enrolments are annually compiled for the Educational Number of The Journal of the American Medical Association which will appear later in the year. At present figures for the freshman class of 1946-1947 are available from sixty-eight of the seventy-seven medical schools and schools of the basic medical sciences. In these schools there is a total freshman enrolment of 5,323. This figure may be compared with the enrolment in the 1945-1946 freshman class, which amounted to 5,214 in the same sixty-eight schools. These figures indicate that there is no reduction in numbers in the current freshman class. It has been possible to secure these students despite former Selective Service policies because the cessation of hostilities occurred earlier than was anticipated, making available a large number of veterans judged qualified for the study of medicine. Over 60 per cent of the present freshman class is made up of veterans. There is also a larger enrolment of women than has formerly been the case. Rarely, if ever, has there been as many as 6 per cent women among medical students. For the academic session preceding the present one the percentage of women in all classes rose to 8. In the 1946-1947 freshman class only there are 11 per cent women.

Rather generally in the colleges and universities of the country the academic performance of veterans including those in premedical studies has compared very favorably with that of nonveterans. In the veteran group there appears to be a decidedly greater work motivation. Whether this will continue to be true and whether veterans will perform equally well in their medical studies remains to be seen.

DECELERATION OF MEDICAL EDUCATION

All medical schools have abandoned compulsory acceleration, although a few schools permit acceleration on a voluntary basis for selected students. All schools have returned to the annual admission of students with the academic year commencing in the autumn and continuing until June.

FINANCING OF MEDICAL EDUCATION

Much attention has been given in the past year to the problem of adequate financing of medical education. While costs have been rising, income from certain sources has decreased. In many instances budgets were appreciably increased during the war partly on the basis of increased tuition income resulting from the accelerated program, admissions of students every nine months, increased wartime enrolments and the payment by the government of out-of-state tuition fees in state institutions. Decreased tuition income following the war now necessitates appreciable increases in other financial support of medical education to avoid a deterioration of its quality. In the survey of medical colleges to be undertaken, the financial structure and annual support of the institutions will be thoroughly analyzed.

RESIDENCIES FOR PHYSICIAN VETERANS

The efforts of the Council, hospitals and medical schools to provide facilities to meet the demands for residency training, particularly by returning medical officers, have resulted in providing residency positions for 10,422 physicians as of April 1, 1947. This compares with the prewar figure of 5,256 assistant residents, residents and fellows on duty in approved residency hospitals. This is a doubling of the residency facilities. Some time before the cessation of hostilities it was estimated by the Council that an increase of approximately 100 per cent in residency facilities would be required to meet the needs of physician veterans.

Since the vast majority of medical officers who served at the peak of the manpower strength in the Army and Navy have now been discharged, it is probable that the peak demand for residencies already has been or soon will be reached. However, the desire for training facilities at this level will continue to be above normal for some time because many of the medical officers now on duty, the majority of whom had their hospital training curtailed, will continue to seek residencies on discharge for some time to come.

In the course of the calendar year 1946 there were 511 residency services approved on a temporary basis. Of these services nearly 40 per cent have subsequently been given "permanent" approval on the basis of surveys of the hospitals providing the residencies. It is anticipated that the temporary approval of residencies might soon be discontinued. It is also hoped that the passage of the war emergency and the lessening of the postwar problem in this field will permit the Council to inaugurate a policy of resurveying approved residencies and fellowships perhaps every five years.

RESIDENCIES IN THE FEDERAL SERVICES

In order to improve the quality of medical care in Army, Navy and Public Health Service hospitals and to attract young physicians into the services, these branches have instituted residency training programs in selected hospitals. The Council is collaborating with the services in an effort to establish acceptable training programs. In general, this program is in the developmental stage although considerable progress has been made.

By March 1, 1947 approval had been granted to seventy-four residency programs in twenty-three navy hospitals, and there have been thirty residency programs approved in ten army hospitals, while eight Public Health Service hospitals are offering thirteen approved residency programs.

VETERANS' HOSPITALS

During 1946 the Veterans Administration requested medical schools to cooperate in the professional and educational operation of certain veterans' hospitals. Within five months of inauguration of the program fifty-seven of the approved medical schools were collaborating with veterans' hospitals. In this arrangement the medical schools are responsible for the appointment of the staff, including residents, for the care of patients and for the conduct of educational programs at the residency level. This program also is in the formative stages, although the progress made in a relatively short time has been remarkable. There is almost universal agreement that this project is resulting in a very superior type of medical care for veterans and is attracting better men into the Veterans Administration hospitals. Dr. Paul B. Magnuson of the Veterans Administration has stated, concerning this project, "The work being done by these medical schools under the direction of the deans' committees has been the greatest accomplishment to date in the relationships between government and medicine." The Council is giving assistance to the Veterans Administration in carrying out the program. Residencies in the veterans' hospitals are considered for approval by the Council in the same manner as is true of residencies in general.

One of the main features of the forty-third Annual Congress on Medical Education and Licensure was a round table discussion of this Veterans Administration program. Participating were representatives of the Veterans Administration and of certain medical schools whose progress in the program has been furthest developed.

By March 1, 1947 the Council had approved twenty-six residency services in sixteen veterans' hospitals.

INTERNSHIPS

The intern field is different from the residency level of training in that the supply of internship places is fully adequate to meet the demands for internships. The annual Educational Number of The Journal of the American Medical Association published Aug. 17, 1946 reported a total of 8,584 approved internships in 798 hospitals. Progress is being made in the attempt to introduce uniformity into procedures for appointing interns. The major feature of this effort is the establishment of uniform dates for the filing of applications for internships and the release of credentials by medical schools. This was set at Oct. 15, 1947 for internships beginning July 1, 1948. Hospitals should not announce appointments before Nov. 15, 1947 although hospitals may send notification of rejections of applicants before that date. By this procedure it is anticipated that a prospective intern will have all acceptances in his hands at one time so that he may better choose the internship most attractive to him. The plan should eliminate unfair competition among hospitals in the securing of interns.

In accordance with a resolution of the House of Delegates in December 1946, which was referred to the Council on Medical Education and Hospitals for study, the Council has agreed that the technical staff and the Council in their evaluation of internships and residencies should take into account in their impressions of a hospital any attempts on the part of a hospital to seek to offset deficiencies in the education program by offering a relatively large remuneration to the house officers.

HOSPITAL SERVICE IN THE UNITED STATES

The annual hospital report of the Council on Medical Education and Hospitals published in The Journal of April 12, 1947 shows a significant decrease in the volume of hospital service in the last year. Compared with 1945, the number of hospital beds decreased from 1,738,944 to 1,468,714, the number of admissions from 16,257,402 to 15,153,452 and the average daily census from 1,405,247 to 1,239,454. This change in the daily patient load represents a decrease in the number of treatment days from 512,915,155 in 1945 to 452,400,710 in 1946. The reduction indicated by these figures has occurred in the federal group and is the result of the decrease in military hospitals in the last year. Civilian hospital service actually increased in 1946. There was an increase of nearly one million admissions in the nonfederal hospital group, and the number of births in hospitals totaled 2,136,373 as compared with 1,969,667 in 1945. This, it should be noted, is the first year in which hospital births in the United States has reached the two million mark. The nongovernmental hospitals reported 1,801,427 births in 1946, whereas the governmental group had 334,946. In the federal hospitals there was a reduction of 19,200 in comparison with the previous year. Nearly 97 per cent of the hospital births in 1946 occurred in the general hospital group, where an increase from 1,907,772 to 2,070,318 was reported. The maternity hospitals had 2.8 per cent and the remaining group less than 0.3 per cent of the hospital births.

The number of beds in the governmental classification showed a net loss of 273,984, although many of the beds released from military use have been absorbed by the Veterans Administration, whose facilities for medical, psychiatric and tuberculosis care have been increased to approximately 100,000 beds. In the nongovernmental group the increase totaled 3,754. The number of admissions decreased by 1,103,950 in 1946. This reduction was limited to the federal classification, which had a net loss of 2,098,238, while the remaining hospitals showed a substantial increase of 994,288. It can also be shown that the reduction in hospital admissions occurred almost exclusively in the general hospital field. This group reported a decrease of 1,176,762, while the psychiatric, tuberculosis and other hospitals had a net gain of 72,812. The general hospitals offer a tremendous volume of hospital service as evidenced by the report of 14,051,508 admissions in 1946, or 92.7 per cent of all patients admitted. The governmental general hospitals had 4,005,640 admissions, or 26.4 per cent, the nongovernmental general hospitals 10,045,868, or 66.3 per cent. An increase in tuberculosis hospitalization was noted in the present report, which shows a total of 99,741 admissions in the tuberculosis sanatoriums as compared with 86,186 in 1945. There was likewise an increase in the number of admissions to psychiatric hospitals, although these institutions received only 1.7 per cent of all patients admitted last year. This group, however, maintained an average daily census of 635,769, which represents over 51 per cent of the daily patient load in all registered hospitals.

Increased bed occupancy rates occurred in practically all hospital divisions in 1946. The governmental hospitals, as a group, showed an increase from 82.1 to 86.6 per cent, the nongovernmental hospitals from 76.0 to 78.1 per cent. In the general hospital division the percentage occupancy was 77.4, as compared with 72.0 in 1945. For all hospitals as a group the occupancy rate was 84.4 per cent, an increase of 3.6 per cent in the last year. In relation to the general hospital group there was a reduction of 3 days in the average length of stay per patient. The average stay in 1946 was 12.9 days, as compared with 15.9 in 1945. In the governmental general hospitals there was a reduction from 26.2 to 22.1 days, while in the nongovernmental group the decrease was from 9.5 to 9.2. The greatest variation in the length of hospitalization occurred in the governmental classification, where the average stay ranged from 12.1 days in the city-county hospitals to 30.3 in the federal group. The federal general hospitals, it should be noted, had a previous increase from 22.0 days in 1944 to 31.1 in 1945.

POSTGRADUATE COURSES

Semiannually the Council publishes in The Journal lists of continuation courses for physicians offered by educational institutions throughout the country during the ensuing six months. During the period from Jan. 1, 1947 to July 15, 1947 there were approximately 800 courses offered by about 90 institutions and organizations. This is by far the largest number of courses ever offered in a six month period. Medical schools have taken a prominent part in the presentation of this work. More than 40 schools participated in the presentation of over 500 of the courses. Apparently this work by medical schools, medical societies and other organizations and institutions is meeting a real need on the part of physicians desiring review work and an extension of their knowledge of recent developments in medicine.

HOSPITAL SURVEY AND CONSTRUCTION ACT

With the passage of the Hill-Burton bill (S. 191) there has been formulated the required Federal Hospital Council as well as an advisory board to this council. The Council on Medical Education and Hospitals is represented on this advisory board and will exert its influence in trying to maintain adequate standards of hospital care as well as a wise distribution of hospitals under this law.

MODEL HOSPITAL LICENSING LAW

The Council, in collaboration with the Council on Medical Service and the Bureau of Legal Medicine and Legislation, has participated in the formulation of a model hospital licensing law which was recommended by the Council of State Governments and the American Hospital Association as a guide to the several states now contemplating the licensing of hospitals. The movement toward state licensing of hospitals has been accelerated by the passage of the Hospital Survey and Construction Act, although that act does not specifically require the licensing of hospitals by states.

FOREIGN MEDICAL SCHOOL CREDENTIALS

There has been considerable difficulty in recent years in the evaluation of foreign medical schools and credentials from those schools by such agencies and institutions as the state licensing boards, the National Board of Medical Examiners, the various American boards in the specialties, hospitals offering residencies and others. It has been especially difficult to arrive at a judgment of the quality of foreign schools in the case of European institutions since the advent of Hitler. The Council called together for a discussion of this problem representatives of the Association of American Medical Colleges, Advisory Board for Medical Specialties, Federation of State Medical Boards, National Board of Medical Examiners, United States Office of Education, State Department and New York State Education Department. Although no positive recommendations emerged from the discussions, it was the consensus of the group that our educational resources at the undergraduate level are not so extensive that we can encourage significant numbers of foreign students to study here but that at the graduate level we do have resources for foreign physicians under normal conditions. Some of the extra places established by hospitals for veterans might well be used later for the training of foreign physicians.

It was agreed that a program be initiated in which there will be a preliminary survey of the field as related to the location of each school. Thereafter there might be obtained certain factual information from publications of the schools and from the cultural attachés of the State Department. A questionnaire could then be sent to each school requesting such significant data as premedical requirements, enrolments, faculty members, duration of course and licensure in the country. The result would be the obtaining of basic objective information about each school. Evaluations might then be attempted from other sources. Whether an approved list of foreign schools will emerge from this project is problematical. The material obtained, however, should materially aid many bodies seeking such data. No survey of medical schools as is done in the case of medical schools in the United States and Canada is foreseen.

NATIONAL SOCIETY FOR MEDICAL RESEARCH

The National Society for Medical Research, organized to combat antivivisection propaganda and campaigns, was endorsed by the House of Delegates of the American Medical Association in December 1945. This society is now seeking to augment its financial resources by appealing to state medical societies for financial assistance. The Council believes that this organization deserves the full support of American medicine from the local societies to the national organization. The Council recommends that all possible aid be given to this organization by the state societies. This organization, which has a permanent office and secretariat, has already accomplished a great deal, and there is promise of much greater progress in the education of the public regarding the necessity and humane character of animal experimentation.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The forty-third Annual Congress on Medical Education and Licensure was held under the auspices of the Council on Medical Education and Hospitals of the American Medical Association and the Federation of State Medical Boards in February 1947. Papers were presented at this congress on such important topics as the financing and organization of medical schools, the conduct of residency programs in federal hospitals, the relationship of medicine to the general problem of national security in the future, the academic performance of premedical veterans, the Hospital Survey and Construction Act, the responsibilities of a medical school to a community and medical applications of atomic energy. Attendance at the congress numbered approximately 300.

LIAISON COMMITTEE OF THE COUNCIL AND THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The Liaison Committee of the Council on Medical Education and Hospitals and the Association of American Medical Colleges, established a few years ago by the Board of Trustees and accepted by the House of Delegates, has continued to hold important discussions two or three times annually to deal with problems of mutual concern to the two organizations. This committee is advisory to the two associations and has resulted in a strengthening of both organizations because it has enabled them to act jointly in important matters pertaining to medical education. For example, inspections of medical schools are carried out jointly by the two organizations. Joint reports on inspections are issued, and identical action is taken by the two groups in cases involving the status of a medical school.

NEW MEDICAL SCHOOLS

The medical school of the University of Washington in Seattle is completing the first year of its operation and will admit its second class this year. This school will be considered for inclusion on the Council's approved list when it is in full operation with four classes in session. In the meantime the Council has continued to advise the institution and is following developments closely.

The University of California will establish a medical school in Los Angeles as part of the University of California at Los Angeles. The plans call for the construction of a 500 bed hospital on the Los Angeles campus of the university where the medical school program will be carried out. Dr. Stafford L. Warren of the University of Rochester School of Medicine and Dentistry has been appointed dean. It is anticipated that the freshman class will commence work in the near future.

In the course of the year 1946 one medical school changed its status. The Medical College of Alabama at Birmingham was approved by the Council as a four year institution. This was formerly an approved school of basic medical sciences. The institution is in full operation and has graduated its first class.

Six of the remaining seven schools of the basic medical sciences are still contemplating expansion to the four year status. South Dakota is now committed to this program and hopes to initiate the work of the junior year soon. Missouri is also committed to an expansion to the four year status, although the decision still remains to be made concerning the location of the school and the date of commencement of instruction of junior medical students.

Entirely new medical schools are under consideration in Connecticut, Florida, Maine, New Jersey, New York and (in Canada) in Saskatchewan and British Columbia. A four year medical school is already in operation at the University of Ottawa. In most instances these discussions are apparently in the early formative stages.

The Council desires to reiterate certain of the axioms which should be borne in mind by those considering establishing new medical schools, as published in the 1946 annual report of the Council to the House of Delegates. It is especially important to bear in mind the high cost of initiating and maintaining a program of medical education at a satisfactory level. It is important also to bear in mind that the distribution of physicians as between rural and urban communities and as between the wealthier and poorer states is not likely to be significantly affected by the establishment of a medical school. The distribution of physicians is more closely related to the per capita income of the area or state and to the availability of hospital and diagnostic facilities than to the existence of a medical school in the area. It is also important to realize that about as many students from states without medical schools find a place in a medical school as is true of states having a medical school, when medical school admissions are computed according to the population, and that the present surplus of medical school graduations over deaths of physicians is such that the overall physician-population ratio is now being maintained at approximately a constant.

HIGH SCHOOL AND COLLEGE CREDITS FOR EDUCATIONAL EXPERIENCES IN THE ARMED FORCES

Many educational opportunities of good quality at both the high school and the college level were available to certain members of the armed forces. There were courses offered by correspondence through the "Armed Forces Institute," which operates in collaboration with colleges and universities as well as other classroom work in various schools operated for men and women in the armed forces. Such work has been carefully evaluated as to content and quality by the American Council on Education, which represents higher education in this country. There has been issued a "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist colleges desiring to do so to award proper high school and college credits for specific courses taken in this program. In addition to awarding credit for such courses actually taken there is a program for evaluating a veteran's knowledge by the administration of "General Educational Development Tests" and the awarding of appropriate high school and college credit on the basis of the examination results, even though formal course work in the subject matter of the examination was not taken by the candidate. These comprehensive examinations were developed by the Armed Forces Institute and sponsored by the American Council on Education.

The Council on Medical Education and Hospitals has confidence in the American Council on Education and its "Guide to the Evaluation of Educational Experiences in the Armed Forces," in the Armed Forces Institute and in the General Educational Development Tests and wishes to support sound procedures permitting veterans to commence their education in civilian institutions at a level commensurate with their ability and knowledge. Therefore the Council has decided that approved medical schools will not be in conflict with the Council's regulations and policies if they choose to accept certain credits in partial fulfilment of premedical requirements, as follows:

High school credits may be based either on (*a*) courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces" of the American Council on Education or (*b*) performance in the General Educational Development Tests of the American Council on Education; such credit may include the equivalent of a complete high school course.

College credits (except in science courses requiring laboratory work or except blanket credits for military services not based on courses or examinations) may be based either on (*a*) courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces" of the American Council on Education or (*b*) performance in the General Educational Development Tests of the American Council on Education.

It should be noted that these special provisions apply only to high school and college credits (except in laboratory science courses) and not to regular medical school courses.

It is requested by the Council on Medical Education and Hospitals that the House of Delegates authorize the amendment of the "Essentials of an Acceptable Medical School" in accordance with these provisions in section VII of the "Essentials," which deal with "Requirements for Admission to an Approved Medical School."

COUNCIL PUBLICATIONS

Regular publications of the Council during the year 1946 include:

Hospital Service in the United States
State Board Number of THE JOURNAL
Medical Education in the United States
Compilation of special reprint edition of papers presented for the 1946 Annual Congress on Medical Education and Licensure
Postgraduate Courses for Veteran and Civilian Physicians
Approved Internships
Approved Residencies and Fellowships in the Specialties
Choice of a Medical School
Approved Colleges of Arts and Sciences
Schools for Clinical Laboratory Technicians
Schools for Physical Therapy Technicians
Schools for Occupational Therapy
Schools for Medical Record Librarians
Schools for X-Ray Technicians

The Council also has reprinted for distribution a number of articles not primarily of Council origin dealing with questions relating to the Council's work and responsibilities. In addition, the Council publishes numerous statements in THE JOURNAL from time to time concerning current problems.

CHAIRMAN OF THE COUNCIL

The Constitution and By-Laws of the American Medical Association states that the Council shall elect its own officers. On the expiration of the term of Dr. Ray Lyman Wilbur on the Council, Dr. H. G. Weiskotten of Syracuse was elected Chairman. Dr. Weiskotten is the third chairman of the Council in its entire long history. In electing its new chairman, the Council was fully cognizant of the high standing of Dr. Weiskotten in the field of medical education and of American medicine in general. In addition, Dr. Weiskotten is intimately familiar with all aspects of the work of the Council, having acted as the Council's Secretary for a time. Dr. Weiskotten was Director of the Council's survey of all medical schools in the United States and Canada in the years 1934 to 1936.

SECRETARY OF THE COUNCIL

The Board of Trustees of the American Medical Association, on recommendation of the Council, has appointed Dr. Donald G. Anderson of Boston as the Secretary to replace Dr. Victor Johnson. Dr. Anderson will assume his new position about July 1, 1947.

PROFESSIONAL STAFF CHANGES

The Board of Trustees has promoted Dr. F. H. Arestad from Assistant Secretary of the Council to Associate Secretary. Dr. Arestad supervises the hospital work of the Council.

Dr. H. G. Westmoreland has resigned from the technical staff. Dr. William R. Albus has been added to the staff.

MEDICAL SCHOOLS VISITED

During the calendar year 1946 the following medical schools were visited for consultation, survey or other purposes:

Medical College of Alabama
University of South Dakota School of Medical Sciences
University of Missouri School of Medicine
University of Washington School of Medicine
St. Louis University School of Medicine
University of Utah School of Medicine
University of Minnesota Medical School
University of Colorado School of Medicine
Bowman Gray School of Medicine
University of California at Los Angeles (proposed medical school)
University of British Columbia, Vancouver (proposed medical school)

INSPECTION OF HOSPITALS AND TECHNICAL SCHOOLS

Inspections of hospitals and technical schools made by the Council during the calendar year 1946 may be summarized as follows:

Hospitals	
Intern training	39
Residencies and fellowships	186
Intern training and residencies	24
Registration	13
Total	262
Individual residencies and fellowships investigated	656
Technical Schools	
Clinical laboratory schools	5
Medical Record Librarians schools	1
Occupational therapy schools	1
Physical therapy schools	3
Total	10

During 1946 nearly twice as many individual residencies and fellowships were investigated as was true in 1945.

SUMMARY OF HOSPITALS AND TECHNICAL SCHOOLS

Figures for approved hospitals and technical schools with changes occurring during the calendar year 1946 are as follows:

Registration of Hospitals	
Hospitals registered, Jan. 1, 1946	6,558
New institutions registered during 1946	146
Closed or transferred to unclassified file	310
Hospitals registered, Dec. 31, 1946	6,394
Internship Approval	
Hospitals approved for intern training, Jan. 1, 1946	794
Approved during year	23
Removed from approved list	6
Hospitals approved for intern training, Dec. 31, 1946	811
Residency Approval	
Hospitals approved for residency approval, Jan. 1, 1946	783
Approved during year	181
Removed from approved list	8
Hospitals approved for residency approval, Dec. 31, 1946	956
Clinical Laboratory Schools	
Approved schools, Jan. 1, 1946	266
Approved during year	32
Removed from approved list	5
Approved schools, Dec. 31, 1946	293
Medical Record Librarian Schools	
Approved schools, Jan. 1, 1946	10
Approved during year	1
Removed from approved list	0
Approved schools, Dec. 31, 1946	11
Occupational Therapy Schools	
Approved schools, Jan. 1, 1946	18
Approved during year	1
Removed from approved list	1
Approved schools, Dec. 31, 1946	18
Physical Therapy Schools	
Approved schools, Jan. 1, 1946	23
Approved during year	3
Removed from approved list	1
Approved schools, Dec. 31, 1946	25
X-Ray Schools	
Approved schools, Jan. 1, 1946	129
Approved during year	35
Removed from approved list	3
Approved schools, Dec. 31, 1946	161

COLLABORATION WITH OTHER AGENCIES

For the Council to carry out its work effectively it is necessary to collaborate intimately with numerous agencies and institutions in the field of health, medicine and education, as well as with various governmental bodies at the national and state levels. These conjoint activities have been varied in nature and have involved the Secretary, other members of the staff of the Council and the members of the Council itself. In most instances these cooperative enterprises have involved participation in conferences, advisory committees and joint sessions.

APPRECIATION

The Council on Medical Education and Hospitals of the American Medical Association is able to conduct its important work at a high level only because of the continued and enthusiastic support of the House of Delegates and officers of the American Medical Association. The Council deeply appreciates this support and desires in addition to extend its thanks to the many institutions throughout the country for supplying the Council with information and collaborating with the Council in its extensive inspection program.

Respectfully submitted,

H. G. Weiskotten, Chairman
J. H. Musser.
Harvey B. Stone.
Reginald Fitz.
Russell L. Haden.
Charles Gordon Heyd.
Victor Johnson, Secretary.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

The Council on Scientific Assembly, and especially its Chairman, was more than usually active during the past year, owing primarily to preparations for the celebration of the Association's Centennial Year. The Council offers the Official Program of the Centennial Celebration as a part of its report.

The work in connection with the compilation of the program was exceptionally heavy for all concerned, mostly because of the Council's decision to invite distinguished physicians of foreign countries to participate in the work of the Scientific Assembly. With the cooperation of the Committee on Centennial Celebration and the Board of Trustees, the Council authorized each section secretary to invite, with the approval of the Council, a distinguished foreign physician to read a scientific paper before his section at Atlantic City. This has been done, and the Official Program contains the names of twenty-two eminent physicians from foreign countries, including England, Sweden, Belgium, Scotland, Mexico, Argentina, Chile, Colombia and Canada. Three of the foreign doctors are to present papers in the General Scientific Meetings.

In addition to the honored foreign guests, the Council requested that each section provide a place on its program for a Centennial Address to be delivered by an especially invited distinguished American physician.

SECTION ON MISCELLANEOUS TOPICS

Requests for the establishment of a Section on Allergy and a Section on Physical Medicine were considered by the Council, and it was thought best to allot to these specialties sessions in the Section on Miscellaneous Topics at the Atlantic City session. The Council appointed a chairman and secretary to be in charge of these sessions and also a chairman and secretary to prepare a program for a Session on the History of Medicine. The programs of these three sessions in the Section on Miscellaneous Topics are included in the Official Program.

ANNUAL CONFERENCE OF SECTION SECRETARIES

The Annual Conference of Section Secretaries with the Council on Scientific Assembly, which usually is held in November or December, was held in September 1946. It was felt that more time than usual would be needed for the preparation of the program for the Centennial Celebration.

Respectfully submitted,

Edward L. Bortz, Chairman.
Clyde L. Cummer.
Charles H. Phifer.
Henry R. Viets.
L. W. Larson.
Morris Fishbein, Editor, The Journal. } Ex officio.
George F. Lull, Secretary. }

REPORT OF THE COUNCIL ON MEDICAL SERVICE

To the Members of the House of Delegates of the American Medical Association:

Since the annual session of the House of Delegates in San Francisco last year the Council on Medical Service has intensified its program of activities. These activities have included special projects referred to the Council by the House of Delegates and the Board of Trustees as well as those functions set forth in the By-Laws of the American Medical Association. The Council presented a full and complete report of its activities at the supplemental session of the House of Delegates in December 1946. Both the report and the supplementary report of the Council were referred to the Reference Committee on Medical Service, and the report of the reference committee approving the report of the Council was approved by the House of Delegates. No effort, except to summarize them, will be made in this report to restate the comments and recommendations carried in the December report.

HEADQUARTERS OFFICE

The Council has been provided with adequate office space. In order to coordinate activities, the director of Associated Medical Care Plans has office space in conjunction with the Council.

The staff at the Chicago office attached to the Council's general activities budget consists of Mr. Thomas A. Hendricks, secretary; Mr. George Cooley, assistant secretary and a secretary and two stenographers. The special activities staff consists of Mr. Howard Brower, Mr. L. S. Kleinschmidt and one stenographer. Mr. Brower is assisting in the prepayment activities, particularly those having to do with private insurance carriers. Mr. Kleinschmidt is engaged in studies of rural enrolment in prepayment plans and of the medical cooperative movement.

REGIONAL CONFERENCES

The Regional Conferences of the Council on Medical Service are one of the most important coordinating efforts in effect today between the American Medical Association and its constituent and component medical societies. Whenever possible the Regional Conferences are coordinated with existing meetings. Since 1944, when the Conferences were originated, twelve have been held in all parts of the United States. Two are at present in the planning stage. The Southern Conference, which was to be held in New Orleans on March 15, 1947, had to be canceled because of conflicting meetings. The Regional Conferences will be resumed early in the fall, and tentative plans call for meetings on the West Coast, in the Southeast and in the South.

PREPAYMENT PLANS

The voluntary prepayment medical care program continues to progress, and at present forty-seven of the forty-eight states, the District of Columbia, Hawaii and Puerto Rico have plans in operation, organized or in the process of development. At present plans are organized in thirty-six states and the District of Columbia. These states are Alabama, California, Colorado, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Vermont, Virginia, Texas, Washington, West Virginia and Wisconsin. In addition, the following states are at the planning stage and should develop something within the near future: Arkansas, Arizona, Connecticut, Georgia, Kentucky, Maine, Maryland, Rhode Island, South Carolina, Tennessee and Wyoming.

This widespread acceptance on the part of the medical profession of its share of the responsibility in devising methods for "easing the burden of costly medical care to the public" is extremely encouraging. It means that voluntary prepayment medical care programs should soon be available to large segments of the public throughout the entire United States. It means, too, that the enrolment in medical care plans should increase at an even greater rate than that of the past two years. Along this line it is encouraging to report that eighteen plans in operation a year or more reported over 100 per cent increase in enrolment during 1946. Another encouraging development is the fact that a number of the plans have reached a stage in enrolment where experimentation can be carried further than has been possible in the past. As of Dec. 31, 1946 five plans had over a quarter of a million participants each, and seven other plans have between 100,000 and 200,000 participants each. The total enrolment as of January 1947 was approximately 5,000,000 as compared to 2,840,000 in January 1946. The Seal of Acceptance has been granted to fifty-two voluntary prepayment medical care plans approved by state and county medical societies. To date the Seal has been granted only to those plans in the so-called nonprofit category. Within the year, however, the Council will be faced with the problem of considering applications from medical society approved plans underwritten by private insurance carriers and group practice plans approved by local medical societies. Private insurance carrier underwritten plans have been approved by state medical societies in Arkansas, Illinois, South Dakota and Wisconsin and are under consideration in Connecticut, Maine, Minnesota, Rhode Island and Tennessee. This type of program has also been approved by at least one county medical society.

Group practice plans are in operation in many areas and in some instances have received the approval of local medical societies. One application from a group practice prepayment plan has been submitted to the Council.

Standards under which the Seal of Acceptance is granted have given rise to some controversy among those plans operating under nonprofit legislation, particularly those plans working closely with Blue Cross hospital plans. In these standards the Council has omitted the term nonprofit and in its place substituted the following: "The Plan should be organized and operated to provide the greatest possible benefits in medical care to the subscriber. Honesty of purpose and sincere consideration of mutual interests on the part of the subscribers, the physicians and the plans are presupposed as necessary considerations for successful operation." The Council further interpreted this by the following: "The adequacy of the benefits offered to subscribers (or members) shall be based on the following: 1. Percentage of earned income returned to the subscribers, such percentage to include claims paid and reserves for unpaid or anticipated claims. 2. The contractual restrictions and limitations. 3. The interpretation of the benefits provided in the contract." The Standards of Acceptance have been approved by the House of Delegates. The Council realizes that changes in the standards will be necessary as experience is gained in effecting them but feels that they are adequate for the present.

The Council is of the opinion that, despite the success of the voluntary prepayment plan movement, it is still in the experimental stage. Plans have taken a variety of forms. Experiments are in process with reference to individual enrolment, expansion of benefits, types of plans, reciprocity between plans and many other aspects of prepayment insurance. The Council has and will continue to follow these as well as other developments. Staff members have utilized data and ideas gained from these developments in assisting both state association and county medical society prepayment plan committees. Assistance is currently being given in a special rural community enrolment experiment in order to gather data and gain experience for use by all plans. The Council is also of the opinion that the form of such experiments should be left to the state or county medical societies, depending on their judgment as to the type of plan or project which best fits the needs of a particular community or area. Every effort is being made to stimulate experimentation and to gather together the results of such projects for tabulation and evaluation. Only in this manner can the voluntary prepayment movement progress.

NATIONAL HEALTH CONGRESS AND HEALTH COUNCILS

The Council reported to the House of Delegates at its supplemental session in December on the inadvisability of a permanent body such as a National Health Congress and recommended that the House rescind its previous instructions to the Council to proceed with the establishment of such a congress. This action was rescinded in accord with the recommendation of the Council. The Council, however, will continue to gather data and statistics with reference to state and local health council. The study to date indicates a widespread increase in health councils on both the state and county levels. As in prepayment programs, there is a wide diversity in health councils. They differ in type, purpose, activity and composition. Again, as in prepayment, the Council believes that a variety of experiments is healthy and essential. On the completion of this study the Council will make recommendations to the House of Delegates concerning the value, a model program and the scope of activity of such councils.

SPEAKERS' BUREAU

In its December report the Council made reference to the possibility of conducting a "briefing course" at American Medical Association headquarters for key physicians from state medical associations. Contact has been made with the state medical associations, and twenty-two were found to be favorable to the suggestion. The press of activities and the conflicts in meeting dates have made it impossible to make definite plans for such a project. The nearest possible date feasible seems to be early fall.

UNITED MINE WORKERS' HEALTH FUND

Little actual change has taken place in the situation concerning the United Mine Workers' Health Fund since the San Francisco session. The Council has followed the situation closely, awaiting the release of the Boone survey. The A fund, which has to do with welfare and retirement, continues to accumulate in escrow. With reference to the B fund, nothing definite has yet been done. The trustees have not been appointed and at present, under government operation, the mine managers appointed by the administrators are authorized to carry on all activities of the mines. Any physicians who wish to negotiate new contracts may do so with these managers if they already have a contract with the owners. If their contract was with the miners, they of course would negotiate with them. This also applies to hospital contracts. In many places contracts have been renegotiated between physicians and hospitals on the one hand and coal operators or local unions on the other. In general, these renegotiations have been necessary to meet the increased cost of medical care. In a few instances existing contracts have been terminated without making new contracts. The negotiating committee of the National Coal Association has been dissolved. Mr. Lewis signified his intention of entering into no new negotiation of the contract until his case before the Supreme Court is settled.

Representatives of the Council on Medical Service have met informally with representatives of the United Mine Workers' union and of the mine operators. The purpose of these informal conferences was to explore the attitudes of both groups with the hope of arriving at some reasonable and acceptable plan of action to be followed at such time as the mines are returned to private ownership and negotiations can be resumed. In general the discussions have centered around the idea that perhaps boards might be set up for each district consisting of six men, two representing the union, two representing the operators and two representing the medical profession. The two professional members need not necessarily be engaged in mine practice but might well represent the entire medical profession in the area. The board would not have administrative functions but would act as a review or appeals board, with duties somewhat as follows:

1. To review contracts now in existence or in the process of negotiation.

2. To make recommendations for increasing or decreasing the amount of the check-off in order to provide adequate medical care at as reasonable a cost as is possible.

3. To assist in providing reciprocity for transfer of patients between hospitals when necessary service is not available in the local hospital.

4. To assist in integrating the hospital and medical service for mine workers with the health activities of the community as a whole.

5. To cooperate with local, state and federal health services to improve the quality of preventive medical services within the area.

BULLETINS, NEWS LETTERS AND STUDIES

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Because of the importance of this subject the House of Delegates recommended that a survey and inspection of existing health centers be made to determine the nature of the services rendered and the necessity of such services in relation to other existing facilities. The survey has been completed by Dr. Dean F. Smiley.

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On numerous occasions the Washington Office has been called on to submit information and material on sickness insurance programs to schools, organizations, individuals and members of Congress.

Respectfully submitted,

E. J. McCormick, Chairman.
Alfred W. Adson.
Walter B. Martin.
Thomas A. McGoldrick.
James R. McVay.
Raymond L. Zech.
George F. Lull.
H. H. Shoulders.
Roger I. Lee.
Louis H. Bauer.
Thomas A. Hendricks, Secretary.

REPORT OF COMMITTEE ON CENTENNIAL CELEBRATION

To the Members of the House of Delegates of the American Medical Association:.

This is a further report of the progress made by the Committee on Centennial Celebration appointed by President Shoulders in December 1945 to formulate a program for the annual session to be held in Atlantic City in June 1947 to celebrate the centenary of the founding of the American Medical Association. A preliminary report submitted to the House of Delegates at its meeting in December 1946 outlined the general plan adopted.

The Committee is happy to state that this preliminary plan has been followed with practically no change, except perhaps in individuals selected for certain sections of the program. As has been previously stated, a dinner will be given by the Board of Trustees of the American Medical Association on Saturday, June 7, at the Hotel Traymore in honor of leaders in affiliated professions, industries and other public services. The Chairman of the Board of Trustees will preside. We are fortunate in securing the presence of Mr. Basil O'Connor, chairman of the American Red Cross and president of the National Foundation for Infantile Paralysis, Gen. Omar Bradley, director of the Veterans Administration, and Mr. H. W. Prentis Jr., president of the Armstrong Cork Company and past president of the National Association of Manufacturers, who have agreed to address the gathering. It is hoped that arrangements can be completed for broadcasting these three addresses over a national network. On Sunday, June 8, at 11:30 a. m., a special religious service will be held in Convention Hall. There will be an organ recital followed by addresses to be given by Dr. Ralph Cooper Hutchison, President of Lafayette College, Rabbi Joshua Liebman, author of the popular book "Peace of Mind," and Right Reverend Monsignor Fulton J. Sheen, professor of philosophy at Catholic University. These three men are eloquent speakers and well known throughout the country. From 11 to 11:30 that morning they will be heard over the National Broadcasting Company network.

On Monday evening a dinner will be given to the House of Delegates by the Board of Trustees, and the speeches will be carried over the Mutual Broadcasting System.

The General Scientific Meetings will begin on Monday afternoon and continue throughout Tuesday. Listed on this program are Sir Howard Florey, Professor Herbert John Seddon, both of Oxford, England, and Professor George W. Pickering of London. The General Meeting on Tuesday night will be held in Convention Hall at 8 o'clock, at which time the Philadelphia Festival Orchestra, conducted by Alexander Hilsberg, will provide music which it is felt certain will greatly please those in attendance. The President's address will be delivered by Dr. Edward L. Bortz, who became President-Elect on the resignation of Dr. Olin West. The retiring President, Dr. Harrison H. Shoulders, will receive the President's medal. Then the Distinguished Service Medal of the Association, which is awarded annually, will be presented. This will be followed by the introduction of the distinguished foreign guests appearing on the scientific program.

The programs of the scientific sections have been arranged by the section officers under the general supervision of Dr. Edward L. Bortz, Chairman of the Council on Scientific Assembly. By direction of the Committee on Centennial Celebration, each section has chosen a member to deliver a centennial address before its members. This special paper will deal with the progress and development of the specialty concerned during the past hundred years. These papers will preserve the story of the growth and progress of the specialties and will be an intimate story of contemporary medical history. The many other papers and the number of symposiums have been arranged to include an eminent foreign guest on the program of each of the scientific sections. There will be, in addition, three sessions in the Section of Miscellaneous Topics which should be especially interesting to every physician. The first will be on the history of medicine, the second on physical medicine and the third on allergy. There will be meetings on preventive and industrial medicine and public health, a subject of much concern to the general public. The officers of the section have developed an unusual, timely, instructive and interesting program. Attention is called also to the joint meeting of the Section on Internal Medicine and the Section on Experimental Medicine and Therapeutics, which will take place on Friday, June 12. The subject to be discussed on this occasion is "What's New in Medicine?" Symposiums covering many subjects, such as cancer research, virus diseases, therapeutic abortion, liver disease and ulcerative colitis, are on the program. For this unusual schedule of interesting meetings covering all the scientific aspects of general medicine we are indebted to Dr. Bortz and the officers of the various sections. The foreign guests who will be present on this occasion have been selected with great care and are prominent in their particular fields of medicine.

Wednesday night, June 11, has been reserved for the different alumni associations, fraternities and similar groups that they may hold their usual reunions and social gatherings.

On Thursday night, June 12, a reception and ball will be tendered to the retiring President, the incoming President and the President-Elect of the Association. The music for this reception, which will be held in the Ballroom of Convention Hall, will be furnished by two of the country's leading orchestras, well known for the high quality of their musical numbers.

Through the good offices of Hon. Robert Hannegan, Postmaster General of the United States, a commemorative stamp has been issued in recognition of the work done by the American Medical Association for the past hundred years. This is a mark of great distinction and honor to the doctors who have served the nation not only in times of peace but during five different wars. It is indeed gratifying to see the record of their unselfish devotion so well appreciated by those high in governmental service.

Lastly there will be another feature of the centennial which will do much to make the meeting remembered. That is the publication of the "History of the American Medical Association", a book of approximately 1,200 pages, with many interesting illustrations and references. The remarkable growth and progress made by our organization during the hundred years of its existence are described. The history, edited by Dr. Morris Fishbein, has been published in serial form in The Journal of the American Medical Association.

Respectfully submitted,

Edward R. Cunniffe, Chairman.
Thomas P. Murdock.
Thomas S. Cullen.
Warren F. Draper.
Walter F. Donaldson.
William J. Carrington.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

May 10, 1947.

President Truman Reported to Favor Health, Education, Security Cabinet Post

Mrs. Eugene Meyer, wife of the owner of the Washington *Post,* told reporters following a White House conference that President Truman had expressed hope that a new cabinet post on health, education and security would be established soon. She said the President stressed that the final bill must be workable from an administrative point of view. Mrs. Meyer said they discussed a compromise between the Taft-Fulbright and the Aiken bills, both of which would create a new cabinet secretaryship with jurisdiction of health, education and security.

Opposition to Further Expansion of Veterans Hospital System

The American Hospital Association states in a study sent to all members of Congress and others planning national hospital service that it is opposed to further expansion of the Veterans Administration hospital system on the ground that it would injure normal development of nonfederal hospitals. The study charges that "development of the Veterans Administration program has proceeded on the basis of minimal integration with other federal hospital systems and none whatever with the nonfederal hospital system." It is also pointed out that veterans' hospitals now have 114,433 beds and that when authorized new construction is completed, they will have 150,000, possibly by 1951. This would be more than 10 per cent of the total.

Advocation of Better Planning in Cancer Research

Five million dollars was slashed from the $17,000,000 appropriation for the National Cancer Institute by a Senate appropriation subcommittee after James S. Adams, representing the American Cancer Society, said he thought the 17 million dollar item was too large. Dr. R. E. Dyer, director of the National Institute of Health, who has jurisdiction over the cancer institute in the U. S. Public Health Service, indicated surprise at Mr. Adams's testimony. He declared that "we can intelligently spend the original $17,000,000 appropriation." Mr. Adams told the subcommittee "We have reached the point in this field of medical research . . . where all of us are going to be seriously embarrassed unless there is complete cooperation and better method of planning. There are simply not enough men or facilities. We have reached the point at which we now begin to compete for the services of individuals and institutions." Senator Knowland of California, subcommittee, said the NCI funds are cut to $12,000,000 for 1948 research for reasons besides Adams's testimony.

Arlington Offers Name for New Veterans' Hospital

County of Arlington officials have proposed the name "MacDonald General Hospital" for the new multimillion dollar Veterans Administration Hospital to be erected on the Nevius Tract, across the Potomac River from the Lincoln Memorial. The name honors the late Lawrence R. MacDonald, Arlington resident killed in the Battle of the Bulge, who as a boy had explored every corner of the vast tract. His parents live on Fort Myer Drive on a bluff overlooking the hospital site.

Increase in Venereal Diseases Reported

A sharp increase in venereal disease in the nation's capital was predicted by local health officials for the present year. An alarming number of the cases involve young people, one half of all venereal infections occurring in girls under 22 and boys under 25. "Medical science alone cannot stamp out venereal disease; the active support of citizens is necessary," stated Dr. S. Ross Taggart, chief of the venereal disease bureau.

National Clearing House on Training of Teachers for Deaf at Gallaudet

Formation of a national clearing house on information about training of teachers for the deaf was announced at the installation of Dr. Leonard M. Elstad as the third president of Gallaudet College in Washington, world's only college for the deaf. Sixty school administrators attended the conference at the college, where the information bureau will be conducted. Only 47 persons are being trained now in the United States for deaf teaching. A decade ago about 150 were trained annually. Also discussed was the problem of providing high school educations for the 17,000 deaf children now enrolled in all types of schools.

Atomic By-Products Expected to Aid Medical Research

Medical research is expected to benefit from decisions of the Atomic Energy Commission to make available to science two by-products of atomic energy plants, heavy water and deuterium gas. The by-products have been described by scientists as the "seven league boots of science." They will be made available in sufficient quantities to supply qualified research institutions. Heavy water contains twice the weight of hydrogen in ordinary water and is valuable for its content of the heavy isotope of hydrogen called deuterium. Introduced into a live animal body, including man, isotopes can be traced to provide new clues to body processes.

Government Policy on Scientific Researches in Conflict

There is seeming conflict in the War Department's plans for scientific personnel. When Gen. Henry S. Aurand disclosed that the department was preparing to create an élite corps of officer scientists it was disclosed that the department has launched a program of firing and demoting civilian scientists. It is reported that the department's scientific manpower branch is about to be scuttled at a time when America is said to be lagging behind other countries in scientific research and development and national security is threatened.

Lilienthal Advocates Joint Major Effort to Develop Atomic Energy

David E. Lilienthal, chairman of the Atomic Energy Commission, informed the American Society of Newspaper Editors that a major effort will be required in the United States, carried on jointly by American science, industry, the armed forces and the government, to create a strong atomic energy industry. He declared that the nation had lost some of its leadership in atomic energy in recent months.

Senate Committee Votes Million Dollars for Streptomycin Research

One million dollars out of the $9,626,000 voted for the National Institute of Health at Bethesda, Md., by the Senate Appropriations Committee was earmarked for research in treating tuberculosis with streptomycin. The committee also voted a $4,500,000 fund to combat mental illness, a half million dollars more than the House had approved. The money was included in the $1,676,198,080 labor-federal security appropriation bill.

Automobile Association Suggests Health Check on Communities to Be Visited

The American Automobile Association has warned tourists, especially those with children, to check on the health status of places they plan to visit. This warning was issued because of the smallpox scare in New York and scattered outbreaks of influenza elsewhere.

Residents Urged to Be Vaccinated Against Smallpox

Following the spread of smallpox in New York City and Upper New York State, officials of the District of Columbia warned all citizens who have not been vaccinated against the disease in the last five years to undergo vaccination immediately.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Taft-Smith-Ball-Donnell Bill

Hearings on S. 545, the **Taft-Smith-Ball-Donnell bill** to enact a National Health Act, have been scheduled to commence on May 21 *and will probably continue for about four weeks.*

Army and Navy Medical Department

Companion bills have been introduced to provide for the **procurement of physicians and surgeons** in the Medical Department of the Army, S. 1143, introduced by Senator Gurney, South Dakota, and H. R 3174, introduced by Representative Andrews, New York. This legislation would increase the active duty base and longevity pay of each commissioned *officer of the Medical Corps with less than thirty years'* active federal commissioned service by $1,200 a year It would authorize the designation as specialist of qualified commissioned officers of the Medical Corps, who in addition to the pay and allowances otherwise provided by law would receive an increase of 25 per cent of base and longevity pay while on active duty. It would establish in the Medical Department of the Regular Army four professorships in medicine, surgery, neuropsychiatry and preventive medicine, and physicians so designated will have the grade, by assimilation, of brigadier general or major general It would authorize the appointment in the Medical Corps of the Regular Army of physicians and surgeons who have been certified as specialists by an American specialty board. Such persons *would be appointed in a grade not above that of* colonel. It would authorize the Secretary of War to employ civilian physicians in such numbers and for such period of time as he may deem necessary to serve in the Medical Department of the Army, and physicians so employed would receive compensation from $3,640 to $9,800 a year, depending on the grade to which appointed Any physician so appointed could be designated as a medical or surgical specialist and receive in addition to his base pay an allowance equal to 25 per cent of such pay. It would authorize the employment by the Secretary of War of physicians on a temporary, full time, part time or fee basis.

Another bill, H. R. 3215, introduced by Representative Andrews, New York, *proposes to revise the Medical Department of the Army* and Navy by establishing in each a Medical Service Corps, consisting of a Pharmacy, Supply and Administration Section, the Medical Allied Sciences Section and the Optometry Section and such other sections as may be deemed necessary by the Secretary of War or Secretary of the Navy, respectively.

Cash Sickness Benefits

Several *bills have been introduced proposing to amend the* Railroad Retirement and Unemployment Insurance Acts to eliminate the provisions in them relating to cash ***sickness and maternity benefits*** which were added by the Crosser Act enacted by the 79th Congress, S. 994, introduced by Senator Hawkes, New Jersey, H. R. 2310 and H. R 2854, introduced by Representative Howell, Illinois, H. R. 2853, introduced by Representative Gillette, Pennsylvania, and H R 2911, introduced by Representative Leonard W. Hall, New York

National Cancer Research Commission

Senator Taft, Ohio, for *himself and* Senator Smith, New Jersey, has introduced S. 1130, a bill to create a **National Cancer Research Commission** in order to provide for and coordinate research in a supreme endeavor to discover the cause or causes of cancer and the means for its prevention, to develop a limited number of research centers and *to mobilize* in the United States a number of the world's outstanding experts in scientific research to utilize their services. An appropriation of $5,000,000 *would be authorized* for the first year. This appropriation would be increased by $5,000 for each of the succeeding four fiscal years. A similar bill has been introduced in the House, H. R. 3257, by Representative Wolverton, New Jersey.

Miscellaneous

S. J. Res. 95, introduced by Senator Gurney, South Dakota, for himself and Senator Hickenlooper, Iowa, would recognize uncompensated services rendered the nation under the Selective Training and Service Act of 1940, including the services rendered by **examining physicians and dentists.**

Representative Miller, Connecticut, by H. R 3128, proposes to amend the Federal Food, Drug and Cosmetic Act by providing for the **siezure of foods, drugs, devices and cosmetics** that become adulterated or misbranded while held for sale after interstate shipment.

H. R 3046, introduced, by request, *by Representative* Michener, Michigan, provides for the detention, care and treatment of **persons of unsound mind** in certain federal reservations in *Virginia and Maryland.*

Representative Klein, New York, proposes by H. R. 3059 to authorize the President to mobilize in the United States an adequate number of *the* ***world's outstanding experts*** *and coordinate* and utilize their services in a supreme endeavor to discover a new means *of treating,* curing and preventing diseases of the heart and *arteries. An appropriation of* $100,000,000 will be authorized.

STATE LEGISLATION

California

Bill Introduced.—S. 1059, to amend the business and professions code, proposes to make it a misdemeanor for any person to use **x-rays, radium salts** and their derivatives for the *purposes of diagnosis* or *treatment* of any condition of any human being or to sever or penetrate any of *the tissues of any human being unless* the person possesses an unrevoked certificate as a physician and surgeon. These provisions, however, would *not apply to* nurses, *anesthetists* or physicians' office assistants when acting under the direct supervision *of* a physician and surgeon holding an unrevoked and unsuspended certificate or to persons holding licenses issued by the Board of Dental *Examiners or their assistants* or to persons holding valid certificates as a chiropodist when such chiropodist is *administering a local* anesthetic to the tissues of the foot or to persons licensed as a clinical laboratory technologist.

Bill Passed.—S. 1068, which passed the senate April 22, proposes to prohibit *any person other than a physician and surgeon from making* a **postmortem examination** or performing an autopsy.

Colorado

Bill Enacted.—H. 895, which was approved April 14, appoints the *Colorado State Department of Public Health as the sole agency for* carrying out the purpose of the **federal hospital construction act** and requires *the governor to appoint a state advisory hospital council.*

Connecticut

Bills Introduced.—*H. 33 proposes that persons must present* a certificate signed by a physician licensed to practice medicine or surgery in Connecticut before being admitted as a patient in a **state mental hospital** but provides that such examination shall be by a physician of the patient's own choosing. H. 551, to amend the law relating to the state **board of healing arts,** proposes to amend the exemption section so as to provide that persons will not be exempt if they have been refused a *certificate by the state board of healing arts because of failure to pass* the examination provided for or because of failure to satisfy the state board of healing arts as to any other provision of the section. H. 922 proposes to suspend the operation of the provisions of the **naturopathic practice act** relating to licensure without examination until the adjournment of the 1947 session of the general assembly. H. 1375 proposes the creation of a division of **professional and vocational licensing** to include, *among others, the state board of healing arts, the medical examining* board, the board of osteopathic registration, the board of chiropractic examiners and the board of naturopathic examiners.

Bill Enacted.—S. 64, which has become Public Act No. 7 of the Acts of 1947, adds **thyroid** to the list of drugs which may be sold only on a written prescription signed by a member of the medical, dental or veterinary profession licensed by law to administer such drug.

Florida

Bills Introduced.—H. 253 and S. 176 propose to authorize persons to donate and **give their eyes** *for eyesight restoration purposes by last* will and testament and authorizes any state, county, district or other public hospital to purchase and provide the necessary facilities and equipment to establish and maintain an eye bank for restoration of sight purposes. H. 257 proposes a law for the licensing, inspecting and regulating of hospitals and the creation of an **advisory hospital council.** H. 258 and S. 204 propose the creation and establishment of a University *of Florida* ***School of Medicine and Dentistry*** *in Dade County, Florida.* H. 278 proposes, among other things, to authorize the court in a suit in which the **mental or physical condition** of a party is in controversy to order the party to submit to a physical or mental examination by a physician and provides for the giving of a detailed report of such examination to the person examined. H. 283 proposes to authorize the granting of a **divorce** when one of the marital partners has been continuously confined in an asylum, hospital, sanatorium, or other institution for the insane and shall have been adjudicated insane, for a period of seven years. S. 93 proposes that it be declared to be against public policy for any person, firm or corporation diagnosing or prescribing **lenses for the eyes** of any patient to receive *any rebate from* the manufacturer, processor or fitter who filled such prescription. S. 166 *proposes to authorize the state board of health to conduct research* relating to the causes, prevalence, prevention and treatment of **diabetes** *and to purchase and distribute insulin for the treatment of such* disease. S. 193 proposes to require physicians in reporting births to state on the back of the certificate of birth **any deformity or physical defect** existing at the time of birth. S. 245 proposes to authorize the superintendent of the Florida State Hospital, when unable to obtain necessary medical personnel from within the state, to employ competent, **experienced medical personnel** from outside the state of Florida and proposes further that personnel so employed shall be exempt from existing requirements of law as to time of residence in the state and also as to requirements relating to the passing of an examination in the basic sciences.

Maine

Bill Introduced.—S. 529 proposes to require annual **examinations for tuberculosis** of all superintendents of schools, supervisors, *teachers,* school nurses, janitors, school bus drivers and persons employed in the preparation of school lunches.

Bill Passed.—S. 449, which passed the senate April 22, proposes to authorize the governor *to appoint an* ***advisory hospital council*** *to* advise and consult with the department of health and welfare in carrying out the administration of the existing hospital survey act.

Bill Enacted.—H. 1257, which has become chapter 181 of the Public Laws of 1947, provides that no person acting under authority of a state humane agent shall sell, **breed or trade animals** coming into his possession by reason of his office or provide or supply dealers, commercial kennels or laboratories with such animals.

Maryland

Bill Enacted.—H. 173, which has become chapter 335 of the Laws of 1947, **exempts from taxation** buildings, equipment and furniture of hospitals, asylums, charitable or benevolent institutions, no part of the net income of which inures to the benefit of any private shareholder or individual, and the ground, not exceeding 100 acres in area appurtenant thereto and necessary for the respective uses thereof.

Massachusetts

Bills Introduced.—H. 330 proposes the establishment at or near the city of Boston of a university to be known as the **University of Massachusetts** to consist of, among other things, a college of medicine. S. 557 proposes the appointment of a **state house physician to** render, at the state house, first aid treatment and such other emergency medical service as may be necessary in cases of accidents to, or illness of, officers and employees of the commonwealth employed at the state house, to members of the general court, and to persons visiting the state house.

Michigan

Bills Introduced—H. 404, to amend the basic science act, proposes to eliminate from the board of examiners a **chiropractic member** and to exempt from the terms of the act practitioners of chiropractic. H. 405 proposes the creation of a state board of registration and examination **in naturopathic medicine.** Naturopathy is defined by the proposal as "the art and science of naturopathic medicine as taught by the recognized and accredited schools and colleges teaching the art and science of naturopathy."

Minnesota

Bills Enacted.—H. 882, which has become chapter 335 of the Laws of 1947, prohibits hospital employees of a charitable hospital from encouraging, participating in or causing **any strike or work stoppage** against or directly involving such charitable hospital. According to the latest information received by this Bureau this bill, when passed, also contained an amendment providing that the aforementioned restriction should also apply to all state, university, county and municipal hospitals. S. 996, which has become chapter 240 of the Laws of 1947, provides that no person shall act as a superintendent or **administrative head** of a hospital or sanatorium in the state without first registering with the state board of health in the manner provided by the terms of the act. S. 1392, which has become chapter 569 of the Laws of 1947, provides that any student nurse, medical student or medical intern **who contracts tuberculosis** as a result of direct contact with tuberculous patients during the course of his or her training or internship in a public tax supported hospital may be given care and treatment at the expense of the county in which such public hospital is located.

New Hampshire

Bill Introduced.—H. 448 proposes to require every physician attending **a pregnant woman** for conditions relating to the pregnancy to take or cause to be taken a sample of blood of such woman at the time of the first examination and to submit such sample to an approved laboratory for a standard serologic test for syphilis

New Jersey

Bill Introduced.—A. 470, to amend the law relating to **optometry,** proposes to authorize optometrists to prescribe and fit contact lenses.

Bills Passed.—S. 49 which passed the house April 11, to amend the law relating to the **practice of chiropody,** proposes to redefine chiropody as follows: "the diagnosis of or the holding out of a right or ability to diagnose any ailment of the human foot, or the treatment thereof or the holding out of a right or ability to treat the same by any one or more of the following means: local medical, mechanical, minor surgical, manipulative and physiotherapeutic or the application of external medical or any other of the aforementioned means except minor surgical and local medical to the lower leg and ankle for the treatment of a foot ailment: not including, however, the treatment of tuberculosis, osteomyelitis, malignancies, syphilis, diabetes, tendon transplantations, bone resections, amputations, fractures, dislocations, the treatment of varicose veins by surgery or injection, the administration of anesthetics other than local, the use of radium, the use of x-rays except for diagnosis, or the treatment of congenital deformities by the use of a cutting instrument or electrosurgery. The term 'local medical' hereinbefore mentioned shall be construed to mean the prescription or use of a therapeutic agent or remedy where the action or reaction is intended for a localized area or part." S. 208, which passed the house April 14, proposes to authorize the state department of health to purchase and distribute free, in accordance with rules of said department, **antibiotics** for use in preventing or treating communicable diseases.

New York

Bills Enacted.—A. 1646, which has become chapter 305 of the laws of 1947, extends until July 1, 1948 a prior law authorizing physicians who are public officers or employees to render **emergency medical service** to recipients of public assistance. A. 2712, which has become chapter 766 of the Laws of 1947, amends the workmen's compensation act by providing that no claim for services in connection with x-ray examination, diagnosis or treatment of a workmen's compensation claimant shall be valid or enforceable except by a laboratory or bureau of a voluntary hospital authorized and licensed under subdivision one of the workmen's compensation act or except by a physician duly **authorized** as a **roentgenologist** by the chairman for services performed by such physician or under his immediate supervision. S. 2536, which has become chapter 578 of the Laws of 1947, provides for the creation of a temporary state **commission for hospital survey** and planning purposes and prescribes its powers and duties.

North Carolina

Bills Enacted.—H. R. 703, which was ratified April 5, provides for the appointment of a commission for the special purpose of studying and investigating the administration of the various **examining boards in the state.** H. 623, which was ratified April 5, requires laboratories making **serological tests** to be certified by the North Carolina state board of health H. 744, which was ratified April 5, provides for the licensing and **regulating of hospitals** and the appointment of a state advisory council.

Oklahoma

Bill Passed.—H. 278, which passed the house April 9, proposes to make it a misdemeanor for any person to use **the word "Doctor"** or to hold himself out as qualifying to engage in the practice of any of the healing arts without holding an unrevoked license or certificate issued by the laws of the state authorizing the person to practice the healing art covered by the license.

Pennsylvania

Bills Introduced.—H 893 proposes to authorize judges of the courts of common pleas within the state to **create medical clinics** for the examination of persons charged with the commission of criminal offenses. H. 920 proposes the creation of a **public laboratory** for the purpose of rendering pathologic and toxicologic service to coroners in the state. H. 1090 proposes to authorize every school district of a certain class in the commonwealth to provide medical and dental examinations of **school children** in addition to vaccination of children of indigent parents. H. 1288 proposes the enactment of a permissive **sterilization act** for the sterilization of mental defectives under certain conditions S. 582 proposes to **redefine osteopathic medicine** as meaning "a complete and independent school of medicine and scientific system for the preservation of health and the relief and cure of bodily disorders embracing a distinct etiology prophylaxis and therapeutics applicable to all types and conditions of disease which places the chief emphasis on the anatomical and physiological integrity of the body mechanism as being the most important factor in maintaining the well-being of the human body in health and disease and embraces and includes whatever methods of treatment the needs of patient require" S 594 proposes to place the licensing of **osteopaths** under the jurisdiction of the board of medical education and licensure S. 595 proposes to provide for an **osteopathic member** of the state board of medical education and licensure

Bills Passed.—H 905, which passed the house April 15, to amend the law relating to the practice of **osteopathy,** proposes to extend until June 30, 1948 the requirement of a nine months internship prior to examination. H. 917, which passed the house April 15, to amend the medical practice act, proposes to repeal the 1943 law which reduced for a limited period of time the training period of medical **internship in hospitals.** H. 921, which passed the house April 15, to amend the medical practice act, proposes to repeal the 1943 law authorizing the issuance of **temporary permits to practice** medicine under certain conditions

South Carolina

Bill Introduced.—H. 300 proposes the establishment of ten **annual medical scholarships** of the annual value of $550 each to be given to bona fide residents of the state of South Carolina who agree, after the completion of his medical training, to begin promptly and thereafter engage continuously in the general practice of medicine in a rural community in the state for a period of years equal in number to the years that he has been a beneficiary of such scholarship. H 779, to amend the law relating to the **practice of naturopathy,** proposes to prohibit such practitioners from practicing obstetrics or using biologicals

Bill Passed.—S. 254, which passed the house April 10, was reported as proposing to authorize **osteopathic physicians** licensed in the state to certify birth and death certificates in the same manner as is now prescribed by law for other physicians This action should have included the statement that by house amendment of April 9 there was added to the proposal the following proviso. Provided that the osteopaths shall have passed the examination prescribed by the state board of medical examiners as required of other physicians

South Dakota

Bill Enacted.—H. 50, which was approved March 8, was reported as being a hospital survey and construction act It was also reported that the bill as passed contained an amendment which would require any institution accepting federal funds for construction purposes to agree first that it will not discriminate between practitioners of the various healing arts and that every duly licensed doctor of medicine, **osteopathic physician and chiropractor** shall have the right to and shall be entitled to practice his profession in any hospital which has received federal funds. This was an error. The amendment was omitted from the bill as it was finally enacted

Vermont

Bill Passed.—H. 317, which passed the house April 16, proposes a **licensing law for hospitals,** sanatoriums, rest homes, nursing homes, homes for the reception of children and related institutions.

Bills Enacted.—S 38, which was approved April 16, amends the law relating to the **practice of osteopathy** by designating such practitioners as osteopathic physicians and surgeons, rather than practitioners of osteopathy, and authorizing such practitioners to issue certificates relative to the commitment of insane persons and such reports and certificates should be accepted equally with the reports and certificates of physicians of other schools of medicine. The law in effect, authorizes such physicians to have the same rights with respect to the rendering of medical service under the provisions of public health, welfare and assistance laws and regulations now or hereafter in force as are possessed by the regularly licensed physicians and surgeons in the state. It also requires osteopaths to have preliminary training including one year of internship in a hospital approved by the board S. 45, which was approved April 16, is a **hospital survey and construction act** requiring a survey of existing hospital facilities and the preparation of a program for the construction of additional needed facilities. It also requires the appointment of an advisory hospital council and the acceptance of federal funds for assistance in state survey and construction activities

Wisconsin

Bills Introduced.—S 509 proposes to authorize **cooperative associations** to establish and operate nonprofit plans for sickness care, including hospital care, for members through contracts with physicians, medical societies, hospitals and others The proposal would further provide that any person covered by such plan should be free to choose for sickness care any medical or osteopathic physician licensed in the state who has agreed to participate in the plan and abide by its terms, and no physician or osteopath shall be required to participate exclusively in any such plan. A. 512 proposes the enactment of a statewide system of health insurance.

Bills Passed—A. 56, which passed the house April 9, to amend the **chiropractic practice act**, proposes that no person shall assume the title of *or append to his name the words or letters "D C" or "Doctor of Chiro*practic" to represent and designate him as a chiropractor in the specific branch of treating the sick known as chiropractic unless he shall be licensed to practice chiropractic as specified in the chiropractic act A. 161, which passed the assembly April 11, proposes the appointment of a state **board of examiners in naturopathy** and defines naturopathy as "the prevention, diagnosis and treatment of human injuries, ailments and diseases by *means of any one or more of the material methods or agencies* of healing as taught by approved schools of naturopathy, said methods or agencies including dietetics, phytotherapy, vitamin or mineral or glandular food supplementations, irrigations, inhalations, external applications, physiotherapy and electrotherapy The practice of naturopathy shall exclude the practice of medicine, surgery, obstetrics, osteopathy, chiropractic and the use of drugs The practice of naturopathy shall exclude the treatment of cancer, tuberculosis, gonorrhea, syphilis, diphtheria, scarlet fever, typhoid fever, smallpox and fractures" A. 237, which passed the senate April 25, to amend the law relating to **chiropractic**, proposes to define a chiropractor as a person holding a license issued by the state board of examiners in chiropractic S. 156, which passed the senate April 10 to amend the law relating to the **licensing of osteopaths**, proposes to require applicants for a license to practice osteopathy to have completed at least 12 months' internship in a reputable osteopathic hospital or its equivalent

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Aero Medical Association of the United States, Atlantic City, Ritz-Carlton Hotel, June 4-6. Dr. David S. Brachman, 1016 Dime Bldg, Detroit 26, Secretary.

American Association for the Surgery of Trauma, Atlantic City, Hotel Claridge, June 5 7. Dr Gordon M. Morrison, 520 Commonwealth Ave, Boston 15, Secretary.

American Association for Thoracic Surgery, St Louis, May 28-30. Dr. Richard H. Meade Jr., 55 E. Washington St., Chicago 2, Secretary.

American Association of Genito-Urinary Surgeons, Absecon, N. J., June 4-6. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland 6, Secretary

American Association of Pathologists and Bacteriologists, Chicago, May 16-17. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland 6, Secretary.

American Association of the History of Medicine, Cleveland, May 25-26 Dr. Howard Dittrick, 2020 E. 93d St., Cleveland 6, Secretary.

American Association on Mental Deficiency, St. Paul, Minn, May 28 31. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American College of Allergists, Atlantic City, Hotel Senator, June 6-8. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 5 8. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7-8. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Dermatological Association, Murray Bay, Quebec, Can., June 1-5. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Wis., Secretary.

American Diabetes Association, Atlantic City, Chalfonte Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Geriatrics Society, Atlantic City, Hotel Brighton, June 5 7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Heart Association, Atlantic City, Hotel President, June 6-7. Dr. Howard B. Sprague, 50 W. 50th St., New York, Secretary.

American Medical Women's Association, Atlantic City, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N. J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Ambassador Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Pediatric Society, Stockbridge, Mass., May 13-15. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Chicago, May 18-22. Dr. Maurice Visscher, University of Minnesota, Minneapolis, Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E Bacon, 2031 Locust St, Philadelphia 3, Secretary.

American Psychiatric Association, New York, Hotel Pennsylvania, May 19 23. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave, Boston 15, Secretary.

American Rheumatism Association, Atlantic City, Ritz Carlton Hotel, June 7. Dr. Richard H. Freyberg, 321 E. 42d St., New York 17, Secretary.

American Society for Experimental Pathology, Chicago, May 19-23. Dr. Frieda S. Robschlit-Robbins, 260 Crittenden Bldv., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Chicago, May 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Va., Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7 8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Biological Chemists, Chicago, May 18 22. Dr. Otto A. Bessey, Public Health Research Institute, New York 9, Secretary.

American Society of Clinical Pathologists, Atlantic City, June 4-8. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough Blenheim Hotel, June 13-14. Dr Robert S. Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Therapeutic Society, Atlantic City, Chalfonte Hotel, June 6-7. Dr. Oscar B. Hunter, 1835 I St., N. W., Washington 6, D. C., Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3 Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 6 7. Dr. Henry H. Turner, 1200 N Walker St, Oklahoma City 3, Secretary.

Federation of American Societies for Experimental Biology, Chicago, May 18-22. Dr. William H. Chambers, 1300 York Ave., New York 21, Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 12-14. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

Kansas Medical Society, Topeka, May 12-15. Dr. John M. Porter, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, New Orleans, May 12-14. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22 24. Dr Frederick R. Carter, 142 High St., Portland 3, Secretary.

Massachusetts Medical Society, Boston, Hotel Statler, May 20-22. Mr. Robert St. B. Boyd, 8 Fenway, Boston 15, Executive Secretary.

Medical Library Association, Cleveland, Wade Park Manor, May 27-29. Miss Heath Babcock, New York State Medical Library, Albany 1, New York, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B Souster, Lowry Medical Arts Bldg, St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Gastroenterological Association, Atlantic City, Hotel Chelsea, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R Metcalf, 5 South State Street, Concord, Secretary.

North Carolina, Medical Society of the State of, Virginia Beach, Va, Cavalier Hotel, May 12-14. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Fargo, May 25 27. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 14-16 Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary.

Society of American Bacteriologists, Philadelphia, May 13-16. Dr. Leland W. Parr, 1335 H St. N. W, Washington 5, D. C., Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

West Virginia Medical Association, Charleston, May 12-14. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Secretary.

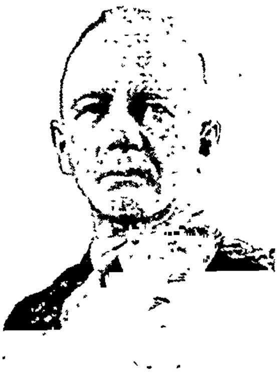
Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

GOVERNMENT SERVICES

ARMY

THE NEW SURGEON GENERAL AND THE DEPUTY SURGEON GENERAL

President Truman on April 23 sent to the Senate for confirmation the nomination of Brig. Gen. Raymond W. Bliss as Surgeon General of the Army to succeed Major Gen. Norman T. Kirk, whose term expires May 31. Also forwarded to the Senate for confirmation was the nomination for Col. George E. Armstrong, M. C., as deputy Surgeon General with the rank of brigadier general for a four year term. General Bliss, a native of Massachusetts, graduated from Tufts College Medical School in 1910 and was commissioned a first lieutenant in the Medical Reserve Corps the following year and in the Regular Army in 1913 on graduation from the Army Medical School. Later he entered Harvard Medical School for special study in surgery, remaining in Boston for further clinical study and instruction at Harvard until 1921. He has served as chief of surgery at Sternberg General Hospital, Manila, P. I., at Fort Sam Houston and at William Beaumont General Hospital, El Paso, Texas. Early in the recent war he was a military observer in London, then became surgeon of the First Army and Eastern Defense Command in 1942, and the following year was assigned to the Surgeon General's Office as chief of operations and Assistant Surgeon General. He was appointed Deputy Surgeon General in January 1946. During World War II General Bliss made extensive tours of the European, Mediterranean and Pacific areas and was an observer at the atom bomb test at Bikini. He has been awarded the Legion of Merit, the Distinguished Service Medal, the French Legion of Honor and the Award of the Italian Crown.


General Raymond W. Bliss.

General Armstrong, a native of Indiana, graduated from the University of Indiana Medical School, then entered the service as a first lieutenant in the Medical Reserve Corps and was commissioned in the Regular Army in 1926. He graduated as an honor student at the Army Medical School in 1927. On completion of an advanced course at the Medical Field Service School, Carlisle Barracks, Pa., he was engaged for more than a year in the preparation of medical department training manuals. He attended the Command and General Staff School, Fort Leavenworth, Kansas, and then returned to Carlisle Barracks to become director of the Department of Medical Administration. In 1942 he was transferred to Texas to organize a medical department officer candidate school, from which some 8,000 officers graduated before he was ordered to the China-Burma-India Theater to organize a field medical school for Chinese medical officers, later becoming deputy chief surgeon of that theater and chief surgeon of the China theater. On returning to the United States in June 1946 he became chief of the personnel division in the Surgeon General's Office. General Armstrong has been awarded the Legion of Merit, and the Legion of Honor by the Chinese government.

NURSES AND PHYSICAL THERAPISTS NEEDED

With the enactment of Public Law 36, 80th Congress, which grants permanent commissioned status to members of the Army and Navy Nurse Corps and establishes a Women's Medical Specialist Corps in the Regular Army, about 1,800 vacancies exist in the Army Nurse Corps of the Regular Army.

The Women's Medical Specialist Corps will be composed of the Physical Therapists Section, Occupational Therapists Section and Dietitians Section. The law provides for a chief of the Women's Medical Specialist Corps in the temporary grade of colonel and an assistant chief for each section in the temporary grade of lieutenant colonel.

Qualified nurses between the ages of 21 and 35 who served satisfactorily in the military service as Reserve or A. U. S. officers during World War II will be eligible for appointment to the vacancies. Qualified nurses, physical therapists, occupational therapists and dietitians for whom no vacancy is available in the Regular Army will be offered a commission in the Reserve Corps which is created by this legislation. Additional nurses, physical therapists, occupational therapists and dietitians needed over and above the number authorized for the Regular Army to fulfil the needs of the anticipated strength of the interim army will be met by the appointment, with their consent, of qualified Reserve personnel to active duty.

Application blanks for the Army Nurse and Women's Medical Specialist Corps will be available on May 1 at the six army headquarters, all general hospitals within the continental limits of the United States, and on request from the Surgeon General's Office, Washington, D. C. In addition, nurses may obtain application blanks from the counseling and placement service bureaus for state and district nurses' associations and the other groups at their national association headquarters. In overseas areas, application blanks will be available by May 5 through theater and other command headquarters.

THE ARMY AIDS IN TEXAS CITY DISASTER

All facilities of the Army Air Forces in the vicinity of Texas City, Texas, were alerted for relief activities following the recent disaster, and hundreds of military personnel assisted in the rescue and treatment of the injured.

Thirty-six medical officers, eleven nurses and all available medical supplies were flown by ATC from the AAF School of Aviation Medicine at Randolph Field, near San Antonio, to Texas City. The School of Aviation Medicine suspended all normal operations two hours after the blast and made all its facilities available for disaster relief. ATC also flew four plane loads of medical supplies to the stricken city from the St. Louis Medical Depot. Brooke Medical Center at Fort Sam Houston, also near San Antonio, sent medical personnel and supplies by air to open a station hospital for the treatment of the injured at Fort Crockett, which is within the city limits of Galveston, 12 miles south of Texas City.

PACKAGE LIBRARIES FOR HOSPITALS

The Army Institute of Pathology, Washington, D. C., has arranged to lend Veterans Administration hospitals and homes study and review material containing the latest medical information. The material will be used by the Veterans Administration in clinicopathologic conferences, medical meetings and training programs. The institute has agreed to supply this material without the usual deposits and rental fees provided it is used in recognized training programs operated on definite schedules. Available material includes study sets of histopathologic slides, clinical abstracts, lantern slides and atlases. The directive of the Veterans Administration describing this service suggested to hospital managers that "a more comprehensive and instructive teaching and training program will be achieved if field stations utilize this material placed at their disposal by the Army Institute of Pathology."

NAVY

STATEMENT OF REAR ADMIRAL CLIFFORD A. SWANSON, SURGEON GENERAL, U. S. NAVY

The Secretary of the Navy, in his testimony before the Senate Armed Services Committee, has set forth the basic premises on which the Navy supports this bill, of which the following is an excerpt:

At the risk of repetition, I wish to point out again that the agreements of the Secretaries of War and Navy as communicated to the President on January 16, which were approved by him, constitute the basis on which this National Security Act of 1947 is framed. These agreements have as their foundation the integration of effort by coordination, not by consolidation of essential parts of the separate military structures. Other representatives, both of the Navy and of the Army, have voiced the same general sentiment that this bill, which they support, is the worth while tangible result of enlightened understanding, cooperation and honest compromise. Through this same process must be systematically evolved the detailed specifications by which the performance of the functions and responsibilities of the National Defense Establishment are to operate.

In our opinion, this bill (S. 758) as written affords the most workable method, and the necessary machinery, whereby these desirable objectives can be attained. The separate medical requirements of the departments of the National Defense Establishment can be effectively coordinated with one another through employment of the agencies provided for in this bill; at the higher national levels their aggregate requirements in material, facilities and medical personnel could thereby also be coordinated with the essential medical defense needs of the civilian population in accordance with the total medical resources of the country. . . .

We believe this proposed "National Security Act of 1947" represents the long sought for device and method whereby the medical defense needs of the nation—both military and civilian—can all best be correlated.

We therefore subscribe to this bill as written. We endorse its enactment provided modifications are not imposed which would jeopardize the integrity of the Medical Department of the Navy. Such changes would violate the spirit of the basic concept of this bill. They would circumvent the essential elements of the January 16 agreement between the War and Navy departments which has made it possible for the Navy to support the proposed "National Security Act of 1947."

Supplemental Personal Statement by Admiral C. A. Swanson

I have already presented a positive and workable plan for the medical services and for effectively coordinating their activities. I should now like to present my personal comments in opposition to the personal plan presented by the Surgeon General of the Army (THE JOURNAL, May 3, p. 88).

If the plan proposed by General Kirk were so fashioned as to implement the spirit and letter of the "National Security Action of 1947," I would be more in accord with it. However, if my interpretation of its design is correct, it would go far beyond the unification of the medical services of the armed forces as implied in the wording of bill S. 758 and in the proposed executive order to implement some of its provisions. In reality, General Kirk has not proposed a plan for unification of the medical services in the most essential sense. It does not propose the promotion of a concerted endeavor on the part of the Army and Navy Medical Corps toward improvement of their medical services through cooperation and proper coordination. Rather, General Kirk's proposal advocates the substitution for this worthy method, which is already making much progress, a total fusion of the medical services by creation of a single and powerful superorganization. If my interpretation of his proposed plan is correct, I take exception to such a plan. This disagreement is prompted by features in his proposal which I consider to be unworkable or fundamentally defective.

I wish to make it clear that I am in thorough accord with the desirable objectives claimed as merits of the plan presented by General Kirk. However, I do not concur in the method proposed by General Kirk for attaining these ends. I am sure all of us are striving for these same broad objectives, which may be stated in substance as follows:

1. The maximum utilization of the limited number of medical personnel—doctors, dentists, nurses and the other assisting personnel—in order to best carry out the required medical services for the armed forces.
2. The realization of all possible economy in the use of funds, facilities and installations which is compatible with acceptable standards of medical services for the armed forces.
3. The balancing of the essential military needs with those of the civilian population in consonance with the total medical resources of the country.

General Kirk's plan appears to me to be inherently faulty. I should like to invite attention to some points which I believe worthy of careful deliberation:

You have doubtless observed that his proposed plan violates basic and fundamental military principles in that it largely divorces from the major military forces the direction and control of important elements of the medical support which are required by them. The proposed Director General, and the proposed single Armed Forces Medical Service under him, would be directly under the Secretary of National Defense. The Director General of the Medical Services would therefore be on a level comparable with that of the Secretaries of the Army, Navy and Air Force. The functions, facilities, activities and operation of the Armed Forces Medical Service would conceivably even be independent of the Joint Chiefs of Staff, not to mention the respective department secretaries and the chief military heads of the three branches of the armed forces. General Kirk has already stated to this committee that his plan would not work unless there is unification of all the military services at the top. I will go further than that in maintaining that it would not work even passably well without a complete all-out merger of the Army, Navy and Air Force from top to bottom. This latter action will only be feasible when there is no longer any need for separate branches of the armed forces which can be identifiable as an Army, Navy and Air Force.

General Kirk has presented only a brief general outline of his concept of a theoretical plan. He has not revealed any details as to how he conceives it would function operationally in actual practice. To me the conviction is inescapable that a state of lasting confusion and conflicts would ensue under General Kirk's plan. This would be the inevitable result of the crossing lines of authority and the overlapping spheres of responsibility and interests as between the Armed Forces Medical Service and the military departments of the national defense establishment.

In my opinion General Kirk's plan also contains potential dangers in respect to the medical services themselves. While his plan may appear very plausible to some as a panacea for the ills and shortcomings of the medical services of the armed forces, the proposed cure, if adopted, might prove to be worse than the disease. Among the probably undesirable effects in the medical services if General Kirk's plan were adopted would be the following implications:

(*a*) The generation of dissension among the medical personnel. That portion of the medical personnel constituting the Armed Forces Medical Service, who would function directly under the Director General, would be charged with the operation of all general, convalescent and station hospitals (all fixed hospitalization facilities) and with several other important functions as set forth in General Kirk's plan. It is only logical to assume that these medical personnel of the Armed Forces Medical Service would very soon come to be considered as a select and superior group. Conversely, the medical personnel who would be assigned and attached to each of the three major force's internal or organic medical organizations to perform equally necessary but less glamorous functions would tend to feel that they were being openly stigmatized as being inferior. Such potentialities are not conducive of good morale in any organization.

(*b*) The preceding problem would be further aggravated and would be more likely to apply to a greater degree in the case of the medical personnel attached to the Navy and the Air Force, since under the proposed plan no hospitals of any kind would be assigned for operation by them, while the comparable internal medical organization of the Army would operate field and evacuation hospitals. Incidentally, no provision is made in General Kirk's plan for such of these hospitals as are required for the Marine Corps, unless it is to be assumed that army medical units of these types are to be assigned for operation as a part of the Marine Corps organization.

(*c*) The scope and degree of consolidation of the medical services of the armed forces proposed in General Kirk's plan would so emasculate the offices of the Surgeons General as to leave them with little more authority than is now exercised by their respective personnel officers. It would so curtail their functions and so decimate the means which would be available to them as perforce to render the medical services of the major arms incapable of effectively discharging their appropriate responsibilities.

(*d*) Service as a career in the Navy, in the Army and in the Air Force are ways of life distinctly individual and different. That intangible and immeasurable but very real factor sometimes referred to as *esprit de corps* is sometimes spoken of as something inconsequential or undesirable. I believe that such a concept is fallacious. I believe it to be an attribute which cannot be blithely waved aside as something which should be purged from the armed forces.

(*e*) Worth while and fully competent medical organizations which are required as integral operational parts of the separate branches of the armed forces could not long be maintained or provided under a system such as General Kirk proposed. The backbone and sustaining substance of the medical organizations within the major military departments would have been extracted and taken over at a higher level by the supermedical organization. The internal medical departments of the armed forces would soon become sluggish and nonresponsive, later to wither and die. Thus would the body of the Medical Corps of the Navy be destroyed.

(*f*) While it may be claimed that under General Kirk's plan the identity of the Navy Medical Department will not be destroyed, I insist that its integrity and therefore its effectiveness of performance would be seriously affected. Its identity would be preserved largely in name only. I cannot see how, under such a system, a Medical Department of the Navy or of the Army in either their Regular or Reserve components would long endure.

Under General Kirk's plan I see no common meeting ground provided for as an established point of mutually helpful direct contact between the military medical services and the civilian medical world. I believe that this void has already existed too long and that the gap should be bridged. I am opposed to any type of military control over civilian medicine. I am not in favor of prescribing a military pattern to be followed by civilian medicine in the discharge of its responsibilities to the civil population. I do, however, firmly believe that there should be even now a functioning mechanism predominantly civilian in composition at the national level to give guidance and assistance in the development of specific plans for ready use in order that civilian medicine throughout the country can best be prepared to assist in meeting the possible medical defense needs of the civil population in time of acute national emergency. In such an unfortunate event it would be far beyond the capabilities of the medical services of the armed forces, however large at the time, to alone take care of all the civilian and military casualties which might occur. Other medical problems involved may well be equally staggering. I believe that civilian medical leaders in the survey of their problems in this era of ultramodern instruments of war and in the formulation of their plans in connection with these problems would welcome as much advice and assistance as could be afforded them by the military medical services. Our plan, as previously presented, provides for this by means of the joint civilian military medical component in the National Security Resources Board.

The creation of such a powerful medical empire as the Armed Forces Medical Service and its Director General as proposed by the Surgeon General of the Army has this added possible undesirable implication which I am sure General Kirk has never had in mind but which I believe should not be totally overlooked. It seems to me that such a system could well be the first step which might be used at some future date in bringing about regimentation of all the medical activities of the country under one directing head. In fact it might be asked why, if we are to have amalgamation of the medical services of the Army, Navy and Air Force to the proposed degree, should there not also be fused with them under the Secretary of National Defense the United States Public Health Service and the medical service of the Veterans Administration? Some would then wonder why all of civilian medicine should not be brought under this same pattern to constitute a colossal quasi-military medical agency of the federal government to take care of all the medical needs of the entire country.

After careful consideration over a period of several months of proposals and ideas quite similar to General Kirk's plan, I have come to the conclusion that the best method of accomplishing the three desirable broad objectives which I enumerated earlier is by the plan which I outlined within the framework of the bill under consideration by this committee, S. 758. General Kirk's plan does not reveal how any greater overall economies in any category would be effected by it than would result from the plan which we have proposed in consonance with our concept of the spirit and letter of S. 758.

We believe that the Navy plan for coordinating the medical services will effectively bring about the realization of all worth while and practicable economies in the utilization of medical personnel, facilities and money. We believe it will provide the best possible medical service for the armed forces where it is needed and when it is needed. We believe it will foster the highest degree of morale in all the medical services. We believe our plan more fully recognizes the productive principles of copartnership and teamwork which are representative of our American philosophy. Finally, we believe that continued progress toward the mutually desired goals can best be insured through cultivating the wholehearted spirit to pull together and to work as a coordinate team as envisaged by us under S. 758.

THE NEW CIVILIAN NAVAL RESERVE

The Naval Reserve now needs men who are and want to remain civilians but who also want to keep in touch with the Navy and to take advantage of the educational opportunities under the Naval Reserve Program. Among the courses offered are those concerned with hospital technician, laboratory work and pharmacy. The Naval Reserve Training Centers in many localities provide training in almost every phase of the Navy. Time spent in the Reserve is counted for longevity, so that for each three years there is an increase of 5 per cent in base pay. For ex-Navy men of World War II who join the Naval Reserve there is the advantage of protection of rate, for they are enrolled at the rate they held on discharge. This advantage is also extended, in almost all army rates they held, in the corresponding navy rate. One hundred and sixty members of the Naval Reserve in the 17 to 20 age group may be eligible for presidential appointment to the U. S. Naval Academy each year. The status of any veteran under the G. I. Bill of Rights is not changed on his becoming a member of the Naval Reserve

Insigne of the Naval Reserve.

FRENCH PROFESSOR ADDRESSES MILITARY OFFICERS

The eighth in a series of lectures sponsored by the Naval Medical School at Bethesda, Md., was delivered April 17 by Dr. Georges Portmann, professor of otorhinolaryngology, University of Bordeaux, France, on "Surgical Treatment of Carcinoma of the Pharynx, Larynx and Base of the Tongue." Officers of the Army, Navy, Public Health Service and Veterans Administration and civilian doctors of the District of Columbia and Montgomery County are invited to these lectures, after which refreshments are served.

VETERANS ADMINISTRATION

103,000 PATIENTS

More than 49,000 veterans of World War II were among the 103,000 patients under the care of the Veterans Administration on February 1. The remaining 54,000 were veterans of World War I and other wars, members of the armed forces who have been retired from active duty and members of the peacetime military establishment.

Of the World War II veterans in hospitals 22,000 were hospitalized for service connected disabilities and 27,000 for non-service connected disabilities. Of the other 54,000 hospitalized veterans, 12,600 had service connected ailments and the remaining 41,400 non-service connected ailments.

INCREASE IN HOSPITAL BEDS FOR VETERANS

The Veterans Administration announced on March 31 that the number of beds available for the treatment of disabled and sick veterans has increased 27 per cent since VJ day and that during this period the number of veterans' hospitals has increased 29 per cent. The number of veterans' hospitals on March 1 was 126 and the number of beds available 100,541. One new hospital at Tomah, Wis., was completed in March. However, during the period from VJ day to March 31 the applications from veterans for hospital and domiciliary care increased 126 per cent. The increase in the total number of hospitals and beds resulted largely from the acquisition of military hospitals, of which to date 34 have been acquired, 28 of them on a temporary basis pending completion of the Veterans Administration's permanent hospital construction program.

DEPUTY DIRECTOR OF NURSING

Matilda E. Dykstra, New York, has been appointed deputy director of the Veterans Administration nursing service, with headquarters in Washington, D. C. Miss Dykstra, a native of Rhode Island, attended the Rhode Island State College, the Rhode Island Hospital School of Nursing and Teachers College of Columbia University. She has held nursing positions in the Butler and Rhode Island hospitals, Providence, and during the war was chief nurse at the 48th evacuation hospital in the China-Burma-India theater. She has served as a member of the Rhode Island State Board of Nurse Examiners and also as president of the Rhode Island League of Nursing Education.

VETERANS ON THE WAITING LIST

Applications from veterans for hospital or domiciliary care dropped to 73,600 in February after reaching an all time high of 81,700 in January, which were 9,000 more than in August 1946, the previous record month. Notwithstanding the large number of applications, the number of veterans awaiting admission has remained about the same during recent months. At the end of February 23,000 were on the waiting list, compared with 22,000 in January, 22,000 in December and 24,000 in November. Almost all on the waiting list were veterans with non-service connected disabilities. Veterans with service connected ailments have top priority for hospitalization. Veterans with non-service connected disabilities are provided medical care if beds are available and if they say they cannot afford to pay for treatment elsewhere. However, all emergency non-service connected cases are taken care of promptly. Veterans Administration hospitals continued to operate at an occupancy level of 90 per cent, which is about 5 per cent higher than the acceptable normal level for hospitals generally.

BOWLING TOURNAMENT FOR PARALYZED VETERANS

Veterans Administration paraplegic centers are staging a nationwide tenpin tournament by veterans paralyzed from the waist down, bowling from wheel chairs. The five man teams represent each of the five competing hospitals where paraplegics are treated. The contestants were selected by the hospitals in competitive tryouts, each representing the hospital in which he is a patient under treatment for paralyzed legs. The tournament will continue four weeks through May 16 and each player will bowl a total of twelve games. The central office in Washington, D. C., is supervising the tournament. The first, second and third team winners will be presented with trophies donated by the Bowler's Victory Legion of Washington.

MISCELLANEOUS

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. Physicians who are veterans have certain priorities in the purchase of this government property.

Regional Office, 155 West Washington Boulevard, Los Angeles 15. Sale of instrument cabinets, forceps, splints, tourniquets, anesthesia apparatus, folding hospital cots, operating lamps, centrifuges, nurses' desks, operating tables, orthopedic tables, microtome knives. Orders will be filled from certified veterans of World War II for use in their own small business through May 12.

Regional Office, 1955 North 50th Street, Birmingham, Ala. Sale of portable electrocardiograph, instrument sterilizers, cassette changers, cystoscope, refrigerators, office chairs and desks. Sale closes May 26.

District Office, 1201 Pulaski Street, Columbia, S. C. Sale of hospital medical supplies and equipment including fracture tables, electric light bath cabinets, food carts, instrument cabinets, therapeutic lamps, utensil sterilizers, syringe needles, hot water bags, sutures. Inspection dates for priority buyers ends May 13.

Regional Office, 505 North Seventh Street, St. Louis, announces a large sale of surgical instruments and supplies, bandages and first aid dressings, hospital equipment and supplies. Sale closes May 22.

Regional Office, 704 Race Street, Cincinnati. Sale of litters, instrument sterilizers, glass thermometers, neoprene aprons, x-ray dryer and loading bins, water stills, hospital tables. Sale closes May 20.

Regional Office, 1409 Second Avenue, Seattle. Sale of bandages, cotton batting, abdominal packs, flannel bandages. Sale closes May 15.

Regional Office, 600 Washington Street, Boston 11. Sale of hospital supplies. Sale closes May 14.

RESTRICTED SALE OF AMBULANCES

In view of a nationwide need for ambulances, the War Assets Administration has restricted the sale of surplus vehicles of this type to purchasers who certify that the equipment will be used for ambulance purposes only. Under the new policy, ½ ton, ¾ ton and metropolitan type ambulances in condition to be used without repairs will be sold only to purchasers who submit the certification "It is hereby certified that the ambulance requested on this purchase order will be placed in ambulance service by the purchaser and will not be offered for resale." In addition, no sale will be made unless the purchase order contains a certification from the state health department that a need exists in the community for the ambulance service the purchaser expects to render. Such certification will be required of both priority and nonpriority buyers. This instruction makes no change in the priority sequence as established by the Surplus Property Act.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

FLORIDA

Public Relations Director Selected.—The Florida Medical Association has announced the selection of Mr. Ernest R. Gibson as director of the public relations bureau of the association. Mr. Gibson, on completion of a premedical course at Cedarville College, Ohio, in 1928, majoring in bacteriology, was the recipient of a degree of Master of Science from Ohio State University in 1934. He has been engaged in publicity work. The public relations program was authorized by the House of Delegates at its 1946 annual meeting.

ILLINOIS

German Nutrition Survey.—Dr. John B. Youmans, dean of the University of Illinois College of Medicine, Chicago, left April 11 for Berlin, Germany, to serve as nutrition consultant in a survey of the American, British and French occupation zones. The twelve man committee toured cities of the three zones to examine groups of the population and confer with organizations dealing with nutrition.

Surplus Plasma Available.—Surplus army and navy blood plasma has been made available to citizens of Illinois through the cooperation of the American Red Cross and the state health department. The plasma is from blood voluntarily donated through the American Red Cross for use in the armed forces. Any hospital in the state requiring blood plasma need only to make request to the department of public health. Plasma is available free of all cost to the patient except for an administration fee which might be made by physicians and hospitals.

State Survey of Child Health Service.—The Illinois county chapters of the National Foundation for Infantile Paralysis have contributed $21,150 to the cost of a statewide study of child health service now being conducted by the American Academy of Pediatrics. The sum is 70 per cent of the $30,000 which the academy estimates is the cost of the survey, directed by Dr. George S. Frauenberger, Evanston. When completed in two years it will supply data on the extent and nature of existing medical facilities for children in the state and disclose further needs in the field.

Postgraduate Education.—The Illinois State Medical Society held the tenth and last of its postgraduate conferences this year in Monmouth on April 24. Chicago physicians who participated in the program were Robert S. Berghoff, "Coronary Disease"; James H. Hutton, "The Neurotic Patient—The Psychiatrist and the Endocrinologist"; Louis R. Limarzi, "Clinical Interpretation of Sternal Puncture"; Frederick H. Falls, "Early Diagnosis of Cancer"; Harry A. Oberhelman, "Appendicitis in Infancy and Childhood," and Arthur J. Atkinson, "Gastrointestinal Diagnosis."

Building Fund Campaign.—A building fund campaign to raise $1,375,000 for the expansion of St. Francis Hospital, Evanston, is being conducted under the direction of Dr. Irving Perrill, Chicago, general chairman of the campaign organization. The fund will be used to construct an addition to the main building to help relieve the hospital bed shortage in the area. The new addition will include an outpatient department, communicable disease section, laboratory and adjunct facilities, interns' quarters and additional beds. It will have four stories with a ground floor basement, general offices, medical treatment rooms, pediatric rooms, eye, ear, nose and throat department, admitting room offices, pharmacy, staff rooms and private patient and nurses' facilities. Dr. Perrill was chief of the medical staff for two terms and has been associated with the hospital for seventeen years.

Program for Alcoholic Addicts.—At a meeting April 2 Dr. Anton J. Carlson, professor emeritus of the University of Chicago, addressed representatives of various state hospitals on the problem of research and the urgent need for an active program in an attempt to analyze and aid alcoholic addicts. Dr. Andrew C. Ivy, vice president in charge of the professional schools at the University of Illinois, Chicago, discussed various phases of possible research. Dr. George A. Wiltrakis, Chicago, deputy director of the medical and surgical service of the Department of Public Welfare, said there is a total of 1,700 patients, or about 5.3 per cent alcoholic addicts, in the nine state mental hospitals. He appointed a committee to study this problem and initiate studies in research work throughout the state institutions. This committee on research consists of Dr. Harry R. Hoffman, Chicago, the state alienist, chairman; Dr. Ivy; Dr. P. Paul Hletko, chief medical officer of the Department of Public Welfare; Erich Liebert, clinical director of the Elgin State Hospital; Dr. Charles Katz, clinical director of the Kankakee State Hospital; Mrs. M. Platner, chief sociologist in the Department of Public Welfare; Phyllis Wittman, chief psychologist of the Illinois state institutions; Dr. Ben W. Lichtenstein, chief of laboratories at the Illinois Neuropsychiatric Institute, Chicago, and Max K. Horwitt, Ph.D., Elgin, research biologist at the Elgin State Hospital.

Chicago

President of Abbott Laboratories.—Mr. Raymond E. Horn, vice president and director of sales of Abbott Laboratories since 1933, was elected president and general manager of the company at a meeting of directors April 3, succeeding the late Rolly M. Cain.

Northwestern Faculty-Alumni Reunion.—Graduating students and the fifty and fifty-five year classes will be the honor guests at the Faculty-Alumni Reunion of Northwestern University Medical School at a complimentary luncheon in Thorne Hall June 16 from noon to 2 p. m. The five year classes of 1902, 1907, 1912, 1917, 1922, 1927, 1932, 1937 and 1942 are urged to start to make plans for their individual reunions. Reservations should be sent to the Medical Alumni Office, 303 East Chicago Avenue, Chicago 11.

Report of Tuberculosis Institute.—During the last year the Tuberculosis Institute of Chicago and Cook County contributed $37,700 in grants to other agencies fighting tuberculosis from the Christmas Seal funds of the institute. The City of Chicago Municipal Tuberculosis Sanitarium received $21,000 to cover salaries of eight technicians and statistical workers and for the expense of workers and patient students in the sanitarium laboratory; Michael Reese Hospital, $3,000; Chicago Council of Social Agencies, $2,500; George Williams College, $2,800; Provident Hospital, $2,500; Northwestern University Medical School, $1,500; Cook County Health Department, $1,400; Chicago Medical Society, $400 for copies of the Newitt report; Chicago-Cook County Committee for the Eradication of Tuberculosis, $1,000 for office rental and salaries; Chicago Orphan Asylum, $1,500, and the American Trudeau Society, $100 to enable two physicians to take graduate work in thoracic diseases.

IOWA

Brucellosis in Iowa, 1946.—During 1946 reported cases of brucellosis of man in Iowa totaled 638. Of the 96 per cent of all case reports containing information regarding their history, 74 per cent showed direct contact of the patient with hogs and cows before onset of the illness. Of the remaining 26 per cent giving no history of contact with livestock, it is assumed that exposure resulted through unpasteurized dairy products. There were 75 packing house employees, 55 farm wives, 14 veterinarians and their assistants, 16 farm boys, 4 farm girls, 5 who worked in retail meat markets or at locker plants and 11 livestock dealers, truckers, sales barn or dairy workers. The study was made by the U. S. Public Health Service in cooperation with the Iowa State Department of Health.

KANSAS

Annual State Medical Meeting.—The eighty-eighth session of the Kansas Medical Society will meet in the Kansan Hotel, Topeka, May 12-15, under the presidency of Dr. William M. Mills, Topeka. Out of state speakers include:

Dr. Alexander Marble, Boston, Treatment of Diabetic Coma.
Dr. George T. Pack, New York, Extension of Radical Surgery and the Treatment of Carcinoma of the Stomach.
Dr. Hilbert Mark, Minneapolis, Follow-Up Procedure on Cases and Suspected Cases Found in Mass Chest X-Ray Survey.
Dr. Alvin F. Coburn, Chicago, Rheumatic Fever Problem.
Dr. Lester D. O'Dell, Chicago, Blood Loss During Placental Stage.
Dr. George F. Lull, Chicago, Secretary and General Manager of the American Medical Association, Activities of the American Medical Association.
Dr. Henry H. Kessler, Newark, Rehabilitation of the Amputee.
Dr. Thomas H. Burford, St. Louis, Present Status of Heart and Great Vessels Surgery.
Dr. Edward S. Judd Jr., Rochester, Minn., Resection of the Right Colon for Malignant Tumors.
Dr. Marion A. Blankenhorn, Cincinnati, Nutrition and Diseases of the Liver.
Dr. Philip W. Brown, Rochester, Minn., Management of Diverticulosis and Diverticulitis of the Colon.

Round table luncheons will be held each day on a number of subjects with visiting specialists in attendance. The annual banquet will be Wednesday at 7 p. m. in the High School cafeteria. The Woman's Auxiliary will meet May 13-15, registration being held in the Municipal Auditorium. The Kansas Medical Assistants' Society will meet at the Hotel Jayhawk May 11-12 and the Kansas Obstetrical and Gynecological Society on Tuesday at 4:45 in the Municipal Auditorium. Scientific movies will be shown in the Municipal Auditorium Tuesday, Wednesday and Thursday mornings and afternoons. The alumni banquet of the University of Kansas Alumni will be at the Jayhawk Tuesday at 6:30 and the alumni banquet of all other schools will be at the Kansas Hotel.

MAINE

Course in Ophthalmology.—A basic course in ophthalmology will be given at Westbrook Junior College, Portland, Maine, June 20 to September 13 under the auspices of the Ophthalmological Study Council. Among subjects to be covered will be anatomy, pathology, bacteriology, physiologic optics, neuro-ophthalmology, surgical principles, glaucoma and general diseases and ophthalmoscopy. There will be laboratory work in pathology and optics and practical work in slit lamp, perimetry and refraction. Further information may be obtained from the Ophthalmological Study Council, 520 Commonwealth Avenue, Boston.

MASSACHUSETTS

Dr. Gross Receives Matas Medal.—Dr. Robert E. Gross, Boston, has been selected as the next recipient of the Matas Vascular Surgery Medal, named in honor of Dr. Rudolph Matas, famous New Orleans surgeon. Dr. Gross is credited with performing the first successful operation for correction of ductus arteriosus. The award was announced by Dr. Emile Bloch, New Orleans, chairman, Board of Administration of the Tulane Educational Fund.

The Annual Cutter Lecture.—Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research, New York, delivered the annual Cutter Lecture on preventive medicine at Harvard University School of Public Health, Boston, April 22, on public health aspects of infectious disease. The Cutter Lecture is given under the terms of a bequest from Dr. John Clarence Cutter, whose will provided for an annual lecture on preventive medicine to be delivered in Boston, which would be free to the medical profession and the press.

MICHIGAN

Honor Class of 1897.—At the sixth annual Clinic Day of the Wayne University College of Medicine Alumni Association, Detroit, May 14 at the Hotel Statler, life membership in the Alumni Association and "golden anniversary" diplomas will be awarded the sixteen surviving members of the 1897 graduating class of what was then known as the Detroit College of Medicine, parent institution of the Wayne University College of Medicine. Morning and afternoon programs of scientific discussions in the College of Medicine auditorium and a luncheon at St. Mary's Hospital will precede the banquet program.

Academy of General Practice.—The Academy of General Practice of Wayne County was inaugurated February 13. About 100 general practitioners attended the inaugural dinner and business meeting. Guest speakers who have taken an active part in the formulation of the academy include Drs. Henry A. Luce; Thomas K. Gruber, Eloise; Leo G. Christian, Lansing; Patrick I. Ledwidge, president-elect of the Michigan State Medical Society; Warren W. Babcock, secretary of the Wayne County Medical Society; Ralph A. Johnson, editor of the *Detroit Medical News;* Louis J. Gariepy, and William P. Woodworth.

MISSOURI

The Doctors' Medical Foundation.—A group of St. Louis physicians and surgeons has formed the Doctors' Medical Foundation and applied for a pro forma decree under which it will continue nonprofit studies in hospital care and medical administration and initiate research. On the basis of exhaustive surveys the ultimate goal of the foundation is to construct and operate a hospital in accordance with the recommendations resulting from their findings and from national studies. Among other things, the foundation proposes to continue to make studies of the St. Louis area hospital-patient-doctor relationship and to disseminate facts to the community leaders, to offer medical consultative services to hospitals and health centers in surrounding rural areas and to carry on educational activities related to rendering care to the sick and injured and the promotion of health. The foundation has found that with 50 medical specialists for every hundred thousand of population St. Louis is surpassed only by Boston and San Francisco. The proportion of general practitioners was found to be correspondingly high, with 174 physicians and surgeons per hundred thousand of population in St. Louis proper and 87 per hundred thousand within a 50 mile radius of St. Louis. The foundation concludes, on the basis of its surveys, that despite the relatively large number of specialists and general practitioners in the area and the seeming abundance of hospital beds within the city proper, present facilities do not offer all income levels the realization of maximum benefits of professional skill available. The officers of the Doctors' Medical Foundation, 3615 Olive Street, St. Louis, are Dr. Grey Jones, president; Dr. Louis H. Jorstad, vice president, and Dr. Raymond O. Muether, secretary.

NEW JERSEY

Society News.—The Morris County Medical Society and their guests, members of the Summit, Somerset, Sussex and Warren societies, heard Dr. Robert R. Linton of the Massachusetts General Hospital, Boston, April 17, at Bernardsville. Dr. Linton spoke on "Venous Thrombosis and Pulmonary Embolism and the Postthrombotic States."

Death from Smallpox.—The death April 17 of a Trenton man aged 32 visiting in Camden spurred the state's vaccination program begun several days earlier as a precautionary measure in view of the outbreak in New York. All contacts with the case were immediately vaccinated, and the entire Camden population was asked to take the same precautions. According to a newspaper report, health authorities in Camden said April 16 that the smallpox victim had no contact with New York city residents, so far as known.

NEW YORK

Regional Cancer Teaching Day Programs.—Two regional cancer teaching day programs will be held in Johnson City and Forest Hills May 14 and 16 respectively. On the Johnson City program, to be held at the Educational Building of the Charles S. Wilson Memorial Hospital at 2:30 p. m., breast tumors, recognition and treatment of pelvic cancer and clinical results from nitrogen mustard therapy will be discussed; at the evening meeting diagnosis and treatment of cutaneous cancer and precancerous lesions and cancer of the esophagus. The Forest Hills meeting will be held in Queens General Hospital, Jamaica, at 2:30 in the afternoon, at which a new method of teaching cancer will be discussed following a clinical program beginning at 1 o'clock. Other subjects of the afternoon and evening meetings are gastrointestinal cancer, recognition and treatment of pelvic cancer, the role of radiation therapy in the treatment of cancer and allied diseases and recent advances in the treatment of lymphomas and leukemias. Dr. Sture Osterlind, Stockholm, director of cancer research, Swedish National Cancer Institute, will speak on cancer control in Sweden.

Postgraduate Lectures.—The Medical Society of the State of New York, with the cooperation of the New York State Department of Health, has arranged the following postgraduate lectures for the Cayuga County Medical Society at Auburn: May 21, Symposium on Hypertension; June 19, "Preventive Medicine as a Part of General Practice of Medicine" by Dr. Albert D. Kaiser, professor of child hygiene, University of Rochester School of Medicine and Dentistry, Rochester. The Saratoga County Medical Society on May 22 at 4:30 p. m., Newman's Lake House, Saratoga Springs, will hear Dr. J. G. Fred Hiss, professor of clinical medicine, Syracuse University College of Medicine, Syracuse, speak on "Rheumatic Fever—Rheumatic Heart Disease." On May 15, 2 p. m. at the Armitage Tea Room, Seneca Falls, Dr. Ferdinand J. Schoeneck, professor of clinical obstetrics, Syracuse University College of Medicine, Syracuse, will address the Seneca County Medical Society on "Gynecology in General Practice." "Infections of the Genitourinary Tract" will be presented to the Tompkins County Medical Society by Dr. Leo E. Gibson, professor of clinical surgery (urology), Syracuse University College of Medicine, Syracuse, at Tompkins County Memorial Hospital, Ithaca, May 19 at 8:30 p. m.

New York City

Society News.—At the annual meeting of the Brooklyn Urological Society the following officers were elected: Drs. John F. Griffin, president; Frank C. Hamm, vice president, and Lawrence J. Lavalle, secretary, all of Brooklyn.

Smallpox Vaccination.—An estimated 5,265,000 persons in New York City were vaccinated within a three week period during April following New York's smallpox outbreak, which is apparently curbed. Vaccinations, however, are continuing.

Inoculations are being given in city hospital clinics daily except Sundays from 9 a. m. to 5 p. m. and service at the clinics will continue indefinitely. Twelve persons were stricken, two fatally, in the state's first outbreak since 1936.

Professor of Surgery Appointed.—Dr. Frank Glenn has been appointed surgeon in chief at the New York Hospital and the Lewis Atterbury Stimson professor of surgery at Cornell University Medical College, New York, beginning July 1. Dr. Glenn, succeeding Dr. George J. Heuer, who will retire, received his M.D. degree from the Washington University School of Medicine, St. Louis, in 1927, and following internships and residencies at the Peter Bent Brigham Hospital, Boston, was appointed in 1931 by Dr. Harvey Cushing the last of the Gorham Peters Traveling Fellows. His first appointments at the New York Hospital-Cornell Medical Center were in 1932. At present he is an associate attending surgeon at the New York Hospital and associate professor of clinical surgery in Cornell University Medical College. He served in the U. S. Army Medical Corps from 1942 to 1946 and following his return to the United States in 1945 he was surgical consultant to the Sixth Service Command, with headquarters in Chicago.

OKLAHOMA

Annual State Medical Meeting.—The Oklahoma State Medical Association will hold its fifty-fourth annual meeting, May 14-16, at the Mayo Hotel in Tulsa under the presidency of Dr. Louis C. Kuyrkendall, McAlester. Section meetings in medicine and surgery will be held during the mornings of May 14-16 and general sessions in the afternoons of those days. On Thursday evening, May 15, a symposium on Modern Therapy will be presented. Guest speakers will be Drs. James W. Watts, neurosurgeon at Gallinger Municipal and George Washington University hospitals, Washington, D. C.; Nicholson J. Eastman, obstetrician in chief, Johns Hopkins Hospital, Baltimore; Samuel F. Marshall, associate in surgery, Lahey Clinic, Boston; James G. Hughes, associate professor of pediatrics, University of Tennessee College of Medicine, Memphis; Tinsley R. Harrison, professor of internal medicine, and J. Bedford Shelmire, professor of dermatology and syphilology, both of Southwestern Medical College, Dallas, Texas; Francis L. Lederer, professor of otolaryngology, University of Illinois College of Medicine, Chicago; T. Duckett Jones, director of research in rheumatic fever and rheumatic heart disease, House of the Good Samaritan, Boston, and Charles D. Creevy, Minneapolis, former assistant dean of the University of Minnesota Medical School, Minneapolis. A dinner will be given by the Alumni Association of the University of Oklahoma School of Medicine, Oklahoma City, on Wednesday, May 14. The president's inaugural dinner dance will be Friday, both dinners to be held at the Hotel Tulsa. The Woman's Auxiliary will meet May 13-15, with headquarters at the Mayo Hotel.

PENNSYLVANIA

Pennsylvania Leads in Cancer Detection Centers.—Pennsylvania leads all other states in the number of cancer detection centers now in operation, according to the National headquarters of the American Cancer Society. Twelve centers have been set up by county units at the Falk Clinic, Pittsburgh; Mercy and Altoona hospitals, Altoona; Nason Hospital, Roaring Springs; Coaldale State Hospital, Coaldale; Delaware County Hospital, Drexel Hill; Fitsgerald-Mercy Hospital, Darby; Chester Hospital, Chester; St. Vincent's Hospital, Erie; Williamsport Hospital, Williamsport; Washington Hospital, Washington, and Latrobe Hospital, Latrobe. In addition to these there are nine centers in Philadelphia. Funds have been approved for six new detection centers, three in Westmoreland County, two in Delaware and one in Beaver.

Philadelphia

Annual Lectureship. — The Phi Lambda Kappa Annual Lectureship for 1947 will be presented by Dr. Harry Gold, associate professor of pharmacology, Cornell University Medical College, on Tuesday, May 27, in the auditorium of the Hahnemann Medical College on "Management of the Failing Heart." All doctors and students are invited to attend.

University News.—Dr. Alexander J. Steigman will resign from the department of pediatrics of Temple University School of Medicine to serve as senior fellow in pediatrics of the National Research Council. He will work at the Children's Hospital Research Foundation, Cincinnati, with Dr. Albert B. Sabin. A graduate of Temple University, Dr. Steigman has been with the department of pediatrics of the University of Pennsylvania and Harvard Medical School before his current work at Temple.

Pittsburgh

Annual Scientific Session.—The annual meeting of the Allegheny County Medical Society will be held May 21 at Hotel William Penn, Pittsburgh. Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of Chicago professional schools, will open the program, speaking on "Psychological Aspects of Recently Suggested Treatment of Peptic Ulcer." Dr. Henry L. Bockus, University of Pennsylvania, Philadelphia, will discuss "Medical Management of Peptic Ulcer" and Dr. Waltman Walters, Mayo Clinic, Rochester, Minn., will speak on "Resection of the Vagus Nerve in the Treatment of Peptic Ulcer—Favorable and Unfavorable." A social after dinner program has been planned by the committee.

Mercy Hospital Centenary.—On May 10 Mercy Hospital will open a four day program of its centenary celebration, which will include a forum in the Foster Memorial May 13. The hospital began its service to the community Jan. 1, 1847 with a personnel of eight or ten, a patient load averaging 14 and a medical service chiefly medical. It now is a large modern hospital with a personnel of more than 1,000 trained and skilled men and women and a daily occupancy averaging 687; the hospital cares for 15,000 inpatients annually and an equally large number of ambulatory patients. Throughout the century it has cared for more than a million Americans. Besides its care of the sick and the instruction of medical students and nurses, the hospital functions as a research center and a center for the dissemination of preventive medicine.

TENNESSEE

Graduate Course in Pathology.—At the request of local specialists the University of Tennessee College of Medicine, Memphis, recently offered postgraduate courses covering the pathology of the eye, ear, nose and throat and the pathology of the genitourinary tract. Among the lecturers was Col. James E. Ash, M. C., U. S. Army (retired), Washington, D. C., scientific director of the American Registry of Pathology and former director of the Army Institute of Pathology. Each course consisted of a series of lectures followed by the study of selected pathologic specimens.

TEXAS

Personal.—Dr. Owen P. Gandy, Lufkin, has been appointed Angelina County health officer, replacing Dr. Linwood H. Denman, whose term has expired. Dr. Gandy is a graduate of Baylor University College of Medicine, then of Dallas, 1912. He was also appointed to the all medical board of the Angelina County Hospital, Lufkin.——Ardzroony Packchanian, Ph.D., director of the laboratory of microbiology of the University of Texas Medical Branch, Galveston, spent several weeks in April and May as visiting lecturer in tropical medicine at the Universidad de Nuevo Leon School of Medicine, Monterrey, Mexico, where he gave lectures and demonstrations on Chagas' disease, Weil's disease and leishmaniasis.

Foreign Visitors.—Dr. Henri Makower, director, Institute of Microbiology, University of Warsaw, Poland, visited the University of Texas Medical Branch, Galveston, in April to survey studies of Ludwik Anigstein, Ph.D., on the chemotherapy of rickettsial diseases and the investigations of Morris Pollard, D.V.M., on virus diseases. Dr. Makower is visiting American medical centers as a guest of the Rockefeller Foundation.——Dr. Plinio Rodriguez, Butantan Institute, São Paulo, Brazil, spent two weeks in April visiting the University of Texas Medical Branch, Galveston, to acquire new methods of studying rickettsial diseases. Dr. Rodriguez is visiting American research centers under the auspices of the coordinator of inter-American affairs, Washington, D. C.

WEST VIRGINIA

Preparedness Conference on Poliomyelitis.—A statewide preparedness conference on poliomyelitis, sponsored by the National Foundation for Infantile Paralysis in cooperation with the state health department, will be held May 27 at Jackson's Mill. Health workers and representatives from public and private agencies interested in the fight against infantile paralysis will meet county chapter representatives of the foundation in a one day session to consider ways and means of being better prepared to fight poliomyelitis should the disease reach epidemic proportions during the year. At the general session Dr. Newman H. Dyer, state health commissioner, will discuss the function of the state health department in the control of infantile paralysis, and Dr. Kenneth S. Landauer, New York, will speak on "The National Foundation's Program for Epidemic Emergency and Year Round Medical Care." Two panels, "The Problems of the Physician and His Professional Co-Workers in the Care of Poliomyelitis," and another for county chapter personnel, are scheduled for the afternoon. Doctors, nurses and hospital representatives are invited to attend. Requests for room reservations should be addressed to T. Sterling Evans, West Virginia State Representative of the National Foundation, 307 Security Building, Charleston 1, W. Va.

GENERAL

Northwestern Alumni Luncheon.—The alumni of Northwestern University Medical School will meet for luncheon during the Centennial Celebration of the American Medical Association on June 11 at the Chalfonte-Haddon Hall, Atlantic City, at noon. All alumni are invited. Make reservations either through the Medical Alumni office, 303 East Chicago Avenue, Chicago 11, or at the booth reserved for such luncheons and dinners at the convention.

American Epilepsy League.—Mr. William H. Savin, formerly executive director of the Family Service Association, Washington, D. C., has ben appointed national director of the American Epilepsy League, Inc. Just released from the army as lieutenant colonel, Mr. Savin spent three years in military government in Italy. The American Epilepsy League was founded in 1939 as a national nonprofit organization. The league expects to establish state chapters to bring more extensive health service and education to the 600,000 epileptic persons in this country.

Anesthesiologists Appoint Executive Secretary.—Mr. John H. Hunt has been appointed executive secretary of the American Society of Anesthesiologists, Inc. Mr. Hunt received his education at the University of Wisconsin and Northwestern University. During the war he was a major in the A. A. F. and formerly practiced law in Topeka, Kan. The society will soon move its offices from New York to Chicago. Other officers of the organization are Dr. Edward B. Touhy, Rochester, Minn., president; Dr. Curtiss B. Hickox, Philadelphia, secretary; Dr. Moses H. Krakow, New York, treasurer, and Dr. Henry S. Ruth, Philadelphia, editor.

The Lasker Award.—The 1947 Lasker Award of $1,000 for outstanding service in mental hygiene will be presented for the most significant contribution to popular adult education, especially in parent child relationships. A candidate's work must have been accomplished or generally accepted during the past year or two. Presentation of the award will be made at the annual meeting of the National Committee for Mental Hygiene, November 12-13, in New York. Nomination of candidates for 1947 awards should be submitted by September 10 with full supporting data in triplicate to Dr. George S. Stevenson, National Committee for Mental Hygiene, 1790 Broadway, New York 19.

Annual Meeting of Aero Medical Association.—The eighteenth annual meeting of the Aero Medical Association of the United States will be held at the Ritz-Carlton Hotel, Atlantic City, N. J., June 4-6 under the presidency of Rear Admiral John C. Adams (MC), U.S.N., Washington, D C. An informal president's reception will be held Wednesday evening and the annual banquet on Thursday evening. Among the subjects of papers to be presented at the scientific sessions are the aero program in the army air forces, deaths in patients transported by air, study of pilots who have experienced repeated aircraft accidents, the human adrenal cortex in relation to stressful activities, aviation medicine in relation to atomic weapons and the role of the medical sciences in engineering.

International Congress of Pediatrics.—The fifth International Congress of Pediatrics will be held at the Waldorf-Astoria Hotel, New York, July 14-17. The congress will consist of four parts: (*a*) scientific discussions, (*b*) scientific exhibit, (*c*) visits to medical institutions in New York City and (*d*) a postcongress tour to other cities along the Atlantic seaboard, where scientific programs will be presented. At the eight plenary sessions the topics to be discussed are nutrition, tuberculosis, alimentary toxicosis, virus diseases, chemotherapy, congenital heart disease, neonatal mortality and incompatibility of blood. The organization committee is composed of members of the American Academy of Pediatrics, the Section on Pediatrics of the American Medical Association, the American Pediatric Society and the Society for Pediatric Research.

Chinese Students in the United States.—Forty-five of the 125 Chinese doctors, dentists, public health experts and nurses to whom fellowship awards will be made annually are now taking advanced studies at American universities in fourteen states, according to the United Service to China headquarters. Seven others are en route. The fellowship awards were bestowed by the American Bureau for Medical Aid to China as part of a three year program under which six national medical colleges in various parts of China will receive aid designed to elevate their standards of medical education. On their return to China after a year's study they will join faculties of the six medical colleges. China has only about 13,000 qualified doctors for its 450,000,000 population and should have at least 266,000 if the Chinese people are to have anything approximating adequate medical care. The ABMAC during the war years provided medical supplies, helped train many technicians and introduced sulfathiazole, sulfanilamide and penicillin, as well as its first blood plasma.

International Congress for Microbiology.—The fourth International Congress for Microbiology will be held in Copenhagen, Denmark, July 20-26. A meeting of the Permanent International Commission for the Organization of Congresses will take place during the session. Since no languages have been adopted as official for the congress, the choice of language in which papers may be presented is left to the discretion of the author; however, it will be possible to print abstracts and papers only in English, French or German. The presidents of the congress are Sir Alexander Fleming, England, and Dr. J. Tréfouël, France. Among the speakers to take part in the general microbiology session will be Robert E. Buchanan, Ph.D., Ames, Iowa, "Present Status of Bacterial Nomenclature and Taxonomy"; René J. Dubos, Ph.D., Boston, and Dr. Harry S. Eagle, Baltimore, "The Blood Levels Afforded by Penicillins F, G, K and X and Their Therapeutic Significance"; Drs. H. Corwin Hinshaw and William H. Feldman, Rochester, Minn., "Streptomycin in Experimental and Clinical Tuberculosis," and Dr. Joseph E. Moore, Baltimore, "Penicillin in Syphilis," all from the United States. Among the American speakers in the section on viruses and viral diseases are Drs. John R. Paul, New Haven, Conn., "Epidemiology of Poliomyelitis," and A. B. Sabin, Cincinnati, "Poliomyelitis Virus and Flies." Bernard E. Proctor, Ph.D., Melrose, Mass., will lecture on "Food Poisoning" in the section on dairy and food microbiology.

Medical and Surgical Relief Committee.—The quarterly report of the Medical and Surgical Relief Committee, New York, released April 11, shows that the value of total medical contributions (medicines, instruments and equipment) sent to the relief of hospitals, welfare organizations and missions has exceeded a million dollars. Several French and Italian hospitals, unable to get supplies from any other source, were helped by the Medical and Surgical Relief Committee during this three month period. In France enough material was given to establish a small dispensary and maternity ward in Isigny; in the Normandy sector over $4,000 worth of medicines and instruments were given to the French Red Cross and several thousand dollars worth of supplies to aid Spanish refugees in France through the Unitarian Service Committee. Hospitals helped included the Dispensaire St. Come du Mont, Manche; the hospital of St. Lo, Normandy; the Varsovie Hospital, Toulouse, and the Lasa Clinic, Paris. In Italy, among the hospitals which received shipments are the Clinico Ostetrico, Parma; the Institute Provincia per L'assistanza all'Infanzia, Rome; the Casa di Cura di Maternita, Reggio, Calabria; the Ospedalino Meyer Il Pino, Florence; the Ambulatorio Communale, Salerno; the Ospedali Civile di Udine, and sundry hospitals in Rome, Naples and Milan. In addition to these hospitals, supplies were sent to England, Austria, Poland, Finland, Greece, Palestine, Hungary, Norway, the Philippine Islands, Korea, India, Africa, Indo-China, the East Indies, China, Syria and Japan.

CORRECTION

American Gynecological Society.—A correction appeared in The Journal, April 5, page 1025, concerning the first society devoted exclusively to medical specialists. Dr. George W. Kosmak now writes that the American Gynecological Society was formed in 1876 and held its first meeting in May of that year, making it, he says, the oldest special society in the United States.

Marriages

Vincent C. Scoglietti, Pittsburgh, to Miss Matilda M. Augustine of Natrona, Pa., Oct. 22, 1946.

Edward E. Shapiro, Bayonne, N. J., to Miss Bernice Newman of Jersey City Dec. 9, 1946.

Robert J. Stubblefield, Murray, Ky., to Mrs. Carl M. Clarke of Nicholasville February 15.

Charles Neill Scott, Martinsburg, W. Va., to Miss Louise Clayton in Baltimore February 8.

Deaths

Frederick Douglass Stubbs ⊕ Philadelphia; born in Wilmington, Del., March 16, 1906; Harvard Medical School, Boston, 1931; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Surgery; member of the American College of Chest Physicians, American Trudeau Society, National Tuberculosis Association, Pennsylvania Tuberculosis Society, American Public Health Association and others; member of the board of directors of the Training School for Teachers in Cheyney, Pa.; on the staffs of the Atkinson Memorial Hospital, Coatesville, Pa., Douglass Memorial Hospital, Mercy Hospital and the Philadelphia General Hospital; died February 9, aged 40, of coronary occlusion.

Charles Morton Alfred, Lancaster, Ohio; University College of Medicine, Richmond, 1894; died February 20, aged 81, of coronary occlusion.

Stephen P. Anthony, Chicago; Rush Medical College, Chicago, 1922; member of the American Medical Association; assistant professor of medicine at the University of Illinois College of Medicine; on the staff of the Alexian Brothers' Hospital; died March 2, aged 63, of heart disease.

Clesson Cushman Atherton, Union Grove, Wis.; Jenner Medical College, Chicago, 1905; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; member of the American Medical Association; medical superintendent of the Southern Wisconsin Training School and Colony; formerly affiliated with the state hospitals in Elgin, Jacksonville, Lincoln, Peoria, Kankakee and East Moline, all in Illinois; died in Quincy, Ill., February 20, aged 68, of coronary thrombosis.

Swartz Baines ⊕ Tahlequah, Okla; University of Arkansas School of Medicine, Little Rock, 1906; died January 6, aged 79.

Henry Weston Barnum, Los Angeles; Jefferson Medical College of Philadelphia, 1890; died February 1, aged 88, of carcinoma of the prostate.

Charles W. Bausman, Bradford, Ohio; Medical College of Ohio, Cincinnati, 1904; member of the American Medical Association; died February 15, aged 79, of carcinoma.

Roger Martin Bissekumer ⊕ Rockford, Ill.; Loyola University School of Medicine, Chicago, 1918; formerly district superintendent of the state health department; died March 3, aged 53, of cerebral hemorrhage.

James Colby Blackwood, Eureka Springs, Ark.; Memphis (Tenn.) Hospital Medical College, 1892; member of the American Medical Association; died January 17, aged 87, of angina pectoris.

Harold Blauvelt, Wilmington, Del.; Columbia University College of Physicians and Surgeons, New York, 1917; served during World War I; member of the medical staff of the du Pont Company; died February 7, aged 55, of coronary thrombosis.

David J. Boon ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; physician to the Municipal Court of Philadelphia; on the staffs of the Episcopal Hospital of Philadelphia and the Roxborough Memorial Hospital; died February 11, aged 69, of cerebral thrombosis.

Herbert Arthur Bostock, Norristown, Pa.; Jefferson Medical College of Philadelphia, 1899; member of the American Medical Association; for many years vice president of the board of education; physician for the fire department; on the staff of the Montgomery Hospital, where he died March 5, aged 71, of cancer of the pelvis.

Harry Patrick Bowen, Watertown, Wis.; Milwaukee Medical College, 1910; member of the American Medical Association; councilor of the First District of the Medical Society of Wisconsin; postmaster of Watertown; died February 13, aged 66, of heart disease.

Lucian Loring Brock ⊕ Washington C. H., Ohio; Starling Medical College, Columbus, 1903; past president of the Fayette County Medical Society; died in the Mount Carmel Hospital, Columbus, February 24, aged 67, of cerebral hemorrhage.

Henry Rolf Brown, Washington, D. C.; University of the City of New York Medical Department, 1889; served in France during World War I; for many years affiliated with the Veterans Administration; died in the Mount Alto Hospital February 15, aged 79, of general arteriosclerosis.

Donald Andrew Campbell, Neosho, Mo.; University of Louisville School of Medicine, 1937; member of the American Medical Association; past president of the Newton County Medical Society; county health officer; lieutenant, medical reserve corps, not on active duty; interned at St. Joseph's Hospital in Kansas City, where he died February 14, aged 35, of neurosarcoma.

James L. Carter, Whitesville, Ky.; Memphis (Tenn.) Hospital Medical College, 1898; past president of the Daviess County Medical Society; served as mayor of Whitesville; died February 7, aged 77, of chronic myocarditis.

George C. Chartters, Washington, D. C.; College of Physicians and Surgeons, Memphis, 1909; died Dec. 12, 1946, aged 62.

Heverland Chesbro, Gilroy, Calif.; Homeopathic Hospital College, Cleveland, 1881; served on the city council, as mayor, as president of the telephone company and on the boards of directors of the Gilroy and San Jose branches of the bank of America; died in the Wheeler Hospital January 22, aged 87, of uremia.

Lorenzo Cione, New York; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1901; died February 2, aged 71, of arteriosclerotic heart disease.

Daniel Francis Clancy ⊕ Ennis, Mont.; Jefferson Medical College of Philadelphia, 1905; died in St. James Hospital, Butte, February 5, aged 69, of cerebral hemorrhage and hypertension.

Bertha Elizabeth Dornbush-McComb Colwell, Pittsburgh; Woman's Medical College of Pennsylvania, Philadelphia, 1901; died recently, aged 67, of coronary occlusion.

Claude Milton Cook, Danville, Ill.; National Medical University, Chicago, 1909; member of the American Medical Association; city health officer; at one time affiliated with the U. S. Veterans Bureau; died in the Lake View Hospital February 17, aged 62, of congestive heart failure.

Maurice John Couret ⊕ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1896; specialist certified by the American Board of Pathology; at one time on the faculty of his alma mater; member of the American Society of Clinical Pathologists; served as president of the Association of Louisiana Pathologists; for many years on the staff of the Hotel Dieu; served overseas during World War I; died February 4, aged 72, of bronchogenic carcinoma.

William H. Crane, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; died in the Misericordia Hospital February 7, aged 78, of cerebral hemorrhage.

Joseph Francis Crofton, St. Joseph, Mich.; Northwestern University Medical School, Chicago, 1914; served during World War I; formerly city health officer; died February 14, aged 68, of coronary thrombosis.

Edgar D. Cummins, Lincoln, Neb.; Omaha Medical College, 1889; formerly member of the city council and school board in Plattsmouth; at one time Cass County physician; affiliated with St. Elizabeth's Hospital; died February 3, aged 82, of diabetes mellitus and cerebral thrombosis.

Peter Cutrera ⊕ Chicago; Regia Universitá degli Studi di Palmero Facoltá di Medicina e Chirurgia, Italy, 1894; member of the Radiological Society of North America, Inc.; on the staffs of the Columbia Hospital and the Mother Cabrini Hospital, where he died February 27, aged 80, of coronary thrombosis.

Samuel Middleton de Loffre ⊕ Lieutenant Colonel, U. S. Army, retired; University of Pennsylvania Department of Medicine, Philadelphia, 1899; entered the U. S. Army in 1902; rose through the various ranks and on May 15, 1917 promoted to lieutenant colonel; retired on Dec. 20, 1917 for disability in line of duty; returned to active duty from Jan. 26, 1918 to May 15, 1919; died in Fort Jay, N. Y., June 7, 1944, aged 69, of heart disease.

Ernest Melvin Deputy, Dugger, Ind.; Kentucky University Medical Department, Louisville, 1903; member of the American Medical Association; served as president of the state bank and of the library board; on the staff of the Mary Sherman Hospital in Sullivan; died February 10, aged 69, of nephritis.

Selim Hanna Dik, Syracuse, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1909; at various times affiliated with the Mount Sinai Hospital in New York, the Brooklyn Hospital, Meyer Memorial Hospital in Buffalo, J. N. Adam Hospital in Perrysburg, Broadacres Sanatorium in Utica and the Onondaga Sanatorium, where he died Dec. 29, 1946, aged 68, of carcinoma of the pancreas.

Lawerence Hilton Dunham, Scottsbluff, Neb.; Creighton University School of Medicine, Omaha, 1928; member of the American Medical Association; died in Albion, Wyo., March 13, aged 46, in an airplane crash.

Fred J. Edmonds, Evanston, Ill.; Cleveland University of Medicine and Surgery, 1897; died February 24, aged 71, of cerebral hemorrhage and arteriosclerosis.

Albert D. Ferguson, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Medical Association; died in the Temple University Hospital recently, aged 80, of arteriosclerosis.

Isaac Edward Gluckman, Newark, N. J.; Long Island College Hospital, Brooklyn, 1905; member of the American Medical Association; served as a member of the internal medicine department, New Jersey-Delaware Recruiting and Induction District; affiliated with the Essex Mountain Sanatorium in Verona, New Jersey Sanatorium for Tuberculous Diseases in Glen Gardner, Newark Beth Israel Hospital and the Deborah Sanitarium in Brown Mills; died February 21, aged 65, of arteriosclerotic heart disease.

Julius Jerome Goldstein, New York; University and Bellevue Hospital Medical College, New York, 1909; member of the American Medical Association; died recently, aged 60.

Edgar Leonard Goodman, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1929; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association; assistant clinical professor of ophthalmology at his alma mater; on the staffs of the University, Garfield Memorial, Episcopal Eye, Ear, Nose and Throat and Gallinger hospitals; died February 28, aged 44, of cerebral hemorrhage.

Elbert Goolsby ⊕ Paris, Texas; University of Tennessee Medical Department, Nashville, 1906; past president of the Lamar County Medical Society; served as health officer of Paris; examining physician for Selective Service in Lamar County during World War II; local surgeon for the Texas and Pacific and the Santa Fe railroads; member of the staff of St. Joseph's Hospital for many years; on the board of the Lamar County Hospital; died recently, aged 66, of coronary occlusion.

John Edward Hamner Sr. ⊕ Petersburg, Va.; Medical College of Virginia, Richmond, 1916; served during World War I; chief surgeon for the McKendree (W. Va.) Hospital and for many years physician for the Meadowriver Lumber Company at Rainelle, W. Va.; died in the Medical College of Virginia Hospital, Richmond, February 24, aged 54, following an operation for gastric ulcer.

Elliott Tate Heckart, Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1908; member of the American Medical Association; on the staff of St. Francis Hospital; died in February, aged 64, of carcinoma of the liver.

Charles Everett Hills ⊕ Natick, Mass.; Dartmouth Medical School, Hanover, N. H., 1901; on the staff of the Leonard Morse Hospital; trustee, Natick Five Cents Savings Bank; died February 23, aged 77, of coronary occlusion.

George Hunter ⊕ Oklahoma City; Louisville (Ky.) Medical College, 1904; served overseas during World War I; formerly city and county health officer; died in the Oklahoma City General Hospital February 8, aged 65, of tuberculosis.

Irving R. Johnson, Buffalo; University of Buffalo School of Medicine, 1898; died in the Deaconess Hospital February 28, aged 72, of duodenal ulcer.

Washington Randolph Kidwell, Pueblo, Colo.; Missouri Medical College, St. Louis, 1890; served as city and county physician; died in the Parkview Hospital February 24, aged 80, of diverticulosis of the esophagus.

Henry Pender Ledford ⊕ Wichita Falls, Texas; Lincoln Memorial University Medical Department, Knoxville, 1916; member of the American Academy of Pediatrics; past president of the Texas Pediatric Society; member of the school board; cited for bravery and meritorious service during World War I; died in the Wichita General Hospital February 21, aged 58, of coronary thrombosis.

Frederick William Lester ⊕ Seneca Falls, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; fellow of the American College of Surgeons; secretary and past president of the Seneca County Medical Society; past president of the Seventh District of the Medical Society of the State of New York; served during World War I; lieutenant colonel, medical reserve corps, not on active duty; died in the Clifton Springs (N. Y.) Sanitarium February 25, aged 76, of coronary thrombosis.

Thomas D'Arcy Lucus ⊕ New York; University and Bellevue Hospital Medical College, New York, 1904; died in the Doctors Hospital February 18, aged 72, of coronary thrombosis and cerebral embolism.

Thomas P. Lynam, Chicago; Rush Medical College, Chicago, 1900; served on the staffs of the Garfield Park and St. Anne's hospitals; died January 11, aged 79.

Miles Ambrose McGrane, Troy, N. Y.; Albany Medical College, 1903; member of the American Medical Association; served on the staffs of the Leonard and Samaritan hospitals; died February 11, aged 69, of cerebral hemorrhage.

Burt Allen Marquand, New Philadelphia, Ohio; Ohio Medical University, Columbus, 1902; member of the American Medical Association; county health commissioner; served during World War I; on the staff of the Union Hospital in Dover, where he died February 20, aged 72, of intestinal obstruction.

James Thomas Merwin, Athens, Ohio; Starling Medical College, Columbus, 1895; served during World War I; affiliated with the Sheltering Arms and Athens State hospitals; died Dec. 15, 1946, aged 80, of coronary thrombosis.

Arthur Jamieson Mitchell, New York; Eclectic Medical College of the City of New York, 1905; died Dec. 31, 1946, aged 79.

Chalmers Montgomery ⊕ Altoona, Pa.; Medico-Chirurgical College of Philadelphia, 1907; affiliated with the Altoona Hospital; died Dec. 9, 1946, aged 65.

Alfonso John Mooney Sr., ⊕ Statesboro, Ga., Atlanta Medical College, 1898; served during World War I; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; on the staff of the Bulloch County Hospital; past president of the Chamber of Commerce and the Rotary Club; died in a hospital at Savannah Dec. 12, 1946, aged 71, of bronchogenic carcinoma of the right upper lung.

James Milton Moore, Spring Hill, Kan.; College of Physicians and Surgeons, Medical Department of Kansas City University, Kansas City, 1900; member of the American Medical Association; served during World War I; died in the Bethany Hospital Kansas City, February 6, aged 76, of mitral insufficiency, ascites and prostatic enlargement.

Reginald Munson, Linden, Va.; Columbian University Medical Department, Washington, D. C., 1883; member of the American Medical Association; died Dec. 29, 1946, aged 88.

Walter Norem, Murfreesboro, Tenn.; University of Louisville (Ky.) School of Medicine, 1935; interned at the Methodist Hospital in Madison Wis.; past president of the Muscatine County Medical Society; served as health officer of Muscatine, Iowa, and as a medical missionary in Persia; entered the medical corps, Army of the United States, on Nov. 30, 1942; service terminated Jan. 8, 1946; on the staff of the Rutherford Hospital; died February 21, aged 37, of coronary occlusion.

Frank Hiram Pritchard, Colton, Calif.; Boston University School of Medicine, 1889; member of the American Medical Association; died Dec. 30, 1946, aged 79, of cerebral arteriosclerosis.

James Francis Quinn, New York; Yale University School of Medicine, New Haven, Conn., 1900; died January 31, aged 70, of heart disease.

Brad Rainwater, Dandridge, Tenn. (licensed in Tennessee in 1889); died February 25, aged 86, of carcinoma of the prostate.

Alvan Avery Rosenberry ⊕ Benton Harbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; past president of the Berrien County Medical Society; served as chief of staff of the Mercy Hospital; died February 18, aged 63, of coronary disease.

William Thomas Rothwell ⊕ Riverside, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; died January 19, aged 62, of coronary occlusion

Clifford Green Salt, Minneapolis; University of Minnesota Medical School, Minneapolis, 1921; member of the American Medical Association; died February 12, aged 63, of coronary sclerosis.

Lewis Milward Schrader ⊕ Kinsley, Kan.; University of Louisville (Ky.) Medical Department, 1905; served during World War I; died in St. Anthony Hospital, Dodge City, February 18, aged 67, of lobar pneumonia.

Marguerite E. Williams Scott, Philadelphia; Temple University School of Medicine, Philadelphia, 1918; member of the American Medical Association; died in the Clement Atkinson Memorial Hospital, Coatesville, Pa., recently, aged 71, of cerebral hemorrhage and hypertension.

S. Kenosha Sessions ⊕ Anna, Ill.; Northwestern University Woman's Medical School, Chicago, 1893; an Affiliate Fellow of the American Medical Association and member of the Indiana State Medical Association; for many years superintendent of the Indian Girls' School in Indianapolis; died January 27, aged 84, of cerebral hemorrhage.

William T. Shepard, Palo Alto, Calif., the Hahnemann Medical College and Hospital, Chicago, 1888; died in Agnews State Hospital, Agnew, January 30, aged 81, of arteriosclerosis.

Eugene Adams Smith, Bay Village, Ohio; Bellevue Hospital Medical College, New York, 1890; at one time associated with the city health department in Cleveland; died in Springfield, Ill, January 28, aged 79, of heart disease

Henry David Smyser, York, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; member of the American Medical Association; formerly county coroner; served during World War I; on the staff of the York Hospital, where he died February 20, aged 73, of myocarditis.

Joseph Norman Smyth ⊕ Chicago; Loyola University School of Medicine, Chicago, 1933; affiliated with the Billings Memorial, St. Bernard's and St. George's hospitals; died February 23, aged 41, of carcinoma of the colon.

Garner P. Spaulding ⊕ Albion, Pa.; Cleveland Homeopathic Medical College, 1901; died January 25, aged 75, of coronary occlusion.

Arthur Bruce Steele ⊕ Santa Barbara, Calif.; Stanford University School of Medicine, San Francisco, 1931; served with the Canadian army in France during World War I; formerly member of the staff of the Santa Barbara County Hospital; president of the California Trudeau Society; died February 20, aged 49, of cerebral hemorrhage.

Leland Herbert Tower, Grosse Pointe, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; served during World War I; died February 12, aged 66.

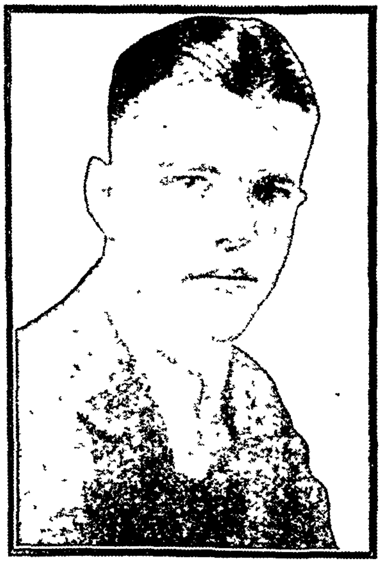
John W. Wade, Westville, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; died in Fort Walton Dec. 20, 1946, aged 62, of coronary occlusion.

Albert Hamilton Ward, Paterson, N J; Columbia University College of Physicians and Surgeons, New York, 1904; member of the American Medical Association; on the staff of St Joseph's Hospital; died February 10, aged 67, of coronary thrombosis.

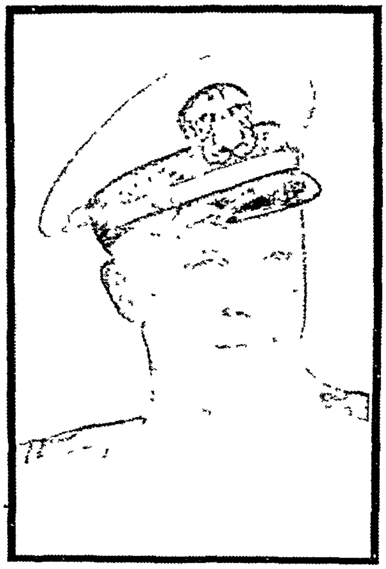
John Wade Watts ⊕ Colonel, U. S. Army, retired, Clearwater, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; Medical Field Service School, Advanced Course, 1935; entered the medical corps of the U. S. Army as a major on July 1, 1920; promoted to lieutenant colonel April 6, 1937 and colonel on April 6, 1943; retired June 30, 1944 for disability in line of duty; died Aug. 19, 1946, aged 66, of heart disease.

Herbert Augustus White, Rye Beach, N. H.; Dartmouth Medical School, Hanover, 1901; formerly acting assistant surgeon in the U. S. Public Health Service; served as health officer and school physician; on the staff of the Exeter (N. H.) Hospital; died in Portmouth February 5, aged 68, of carcinoma of the lung.

Lieut. Henry De Vries
(MC), U. S. N. R., 1909-1944



Lieut. William DeBacker
M. C., A. U. S., 1914-1944



Lieut. Jerome William Greenbaum
(MC), U. S. N. R., 1914-1944

Michael Aloysius Tighe ⊕ Lowell, Mass; Harvard Medical School, Boston, 1908; secretary of the Massachusetts Medical Society; member of the House of Delegates of the American Medical Association in 1938; fellow of the American College of Surgeons; past president of the Middlesex North District Medical Society; served as city physician and associate medical examiner for Middlesex County; chief of the surgical staff at St. John's Hospital, where he died April 8, aged 65.

Roscoe Hiram Wigner, Enid, Okla.; Kansas City (Mo.) College of Medicine and Surgery, 1919; College of Physicians and Surgeons, Boston, 1926; died February 27, aged 61.

Samuel Zabarenko, Pittsburgh; University of Pittsburgh School of Medicine, 1910; member of the American Medical Association; examining physician for the draft board during World wars I and II; died in the Magee Hospital February 24, aged 60.

KILLED IN ACTION

Henry DeVries, Grand Rapids, Mich; University of Michigan Medical School, Ann Arbor, 1941; interned at the Dr. W. H. Groves Latter-Day Saints Hospital in Salt Lake City; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in August 1942; promoted to lieutenant; killed in action June 12, 1944, aged 35, in Biak, Dutch New Guinea while on the U. S. S. *Kalk.*

William DeBacker, Boulder, Colo; University of Colorado School of Medicine, Denver, 1940; interned at the Kansas City General Hospital in Kansas City, Mo.; began active duty in the medical reserve corps of the U. S. Army in August 1941; prisoner on Bataan; survived the Bataan "Death March"; killed in action in the South China sea Oct. 24, 1944, aged 30, as the result of the sinking of a Japanese ship on which he was being transported while a prisoner of war.

Jerome William Greenbaum, Flushing, N. Y.; New York University College of Medicine, New York, 1938; served an internship and residency at the Willard Parker Hospital in New York, an internship at the Harlem Hospital and Bellevue Hospital in New York and a residency at the Mount Sinai Hospital in New York; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Aug. 2, 1943; later promoted to lieutenant; died in the Asiatic area off Leyte Dec. 7, 1944, aged 30, of multiple injuries.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 22, 1947.

Commonwealth and Empire Health and Tuberculosis Conference

The National Association for the Prevention of Tuberculosis has arranged a Commonwealth and Empire Health and Tuberculosis Conference from July 8 to 10 at the Central Hall, Westminster, London, S. W. 1. Delegates from twenty-three dominions and colonies have arranged to attend, in addition to visitors from many other countries, including the United States, France, Luxemburg and Portugal. The minister of health, Mr. Bevan, will speak on the first day on the National Health Service Act and its effect on the tuberculosis scheme. At the section dealing with the colonial tuberculosis services the secretary of state for the colonies, Mr. A. C. Jones, will speak. Many authorities from this country and overseas will participate in the discussions, including Dr. E. Berthelot (France), Dr. H. Corwin Hinshaw (Mayo Clinic), Dr. Esmond R. Long (United States), Dr. G. J. Wherrett (Canada), Dr. B. A. Dormer (South Africa) and Professor W. R. Tytler (England). Health officers and local government officials from all parts of Great Britain will attend and over 350 acceptances have already been received from both the medical profession and the lay public. Receptions for the members of the conference will be given by the Royal Society of Medicine and other bodies, and a number of visits and tours of both general and professional interest are being arranged, the latter being especially designed to show overseas visitors something of the antituberculosis work for which Britain is so well known. Visits have been arranged to such important institutions as the Brompton Hospital for Diseases of the Chest, King Edward VII Sanatorium, Midhurst, Papworth Village Settlement and the Redhill Chest Clinic.

The list of overseas representatives from twenty-seven countries includes four physicians from Australia, five from the United States, three from Canada, three from the Gold Coast and four from South Africa. The representatives from the United States are Dr. H. Corwin Hinshaw (Mayo Clinic), Dr. René Dubos (Rockefeller Institute for Medical Research), Miss A. C. Kemp (Reading, Pa., Tuberculosis Association), Dr. Esmond R. Long (director, Henry Phipps Institute) and Dr. Henry S. Willis (Mayo Clinic). From Canada there are Dr. Jean Gregoire (deputy minister of health, Quebec), Dr. H. A. Robertson and Dr. G. J. Wherett (Canadian Tuberculosis Association).

Streptomycin

American reports have raised high hopes in this country of the value of streptomycin. Appeals are made in the press by hospitals and doctors asking any one who may have a supply of the drug to send it, as it is required for a patient who is dangerously ill with tuberculous meningitis. The drug is not generally available in this country and is obtained from America only in limited quantity. The Ministry of Health has issued a warning on the subject, stating that trials are being carried out by the Medical Research Council, and until these have been completed it is not possible to assess the value of the drug and to determine the best methods of use. The latest American reports are regarded as indicating that the value of streptomycin in tuberculosis is still unproved. While the minister of health does not wish to hamper doctors and hospitals in their endeavors to obtain new drugs which may benefit their patients, he emphasizes that streptomycin is potentially dangerous and may cause ill effects such as giddiness and deafness. Insufficient is known about the drug at present to justify the government in making it more freely available. For instance, in a very small number of patients with tuberculous meningitis whose life has been prolonged by the treatment there has nearly always been permanent serious mental derangement, blindness or deafness.

Rest versus Activity in the Treatment of Fractures

In a presidential address to the Orthopedic Association Mr. George Perkins stated that the enormous advantages to be derived from activity of a fractured limb are not sufficiently recognized. Thus the hand is still immobilized for fracture of the scaphoid with the thumb abducted in the plane of the palm, instead of at right angles to it. In this faulty position the patient cannot oppose the thumb and fingers, and the use of the hand is seriously curtailed. The foot is immobilized in slight equinovarus instead of in the plantigrade position, so that there is great difficulty in walking. The advantages of encouraging activity of the limb are that rehabilitation can proceed hand in hand with bone repair, and the harmful effects of splintage are minimized. It is no longer necessary to apply an Unna's paste bandage after removal of a plaster for fracture of the tibia and fibula. Postplaster swelling has disappeared from the practice of those who make their patients walk normally while wearing a plaster cast.

Exercise for Free Joints

Mr. Perkins laid down the rule that all joints not immobilized by splintage should be moved actively by the patient. The splint should be shortened to the minimum, so as to free as many joints as possible. Longitudinal compression of the bone ends was the essential stimulus for bone (as opposed to fibrous tissue) repair. Hence the value of early weight bearing. Most surgeons would advocate it but for fear of overriding of the fragments, but Mr. Perkins's experience was that little is to be feared. He grants, however, that there is a danger in transverse fracture when the two fragments are not parallel, for a force not perpendicular to the line of fracture tends to angulate the fragments, distracting the raw bony surfaces from one another and stimulating the production of fibrous tissue.

Mr. Perkins holds that the main reason why a healthy joint stiffens as a result of splintage is that the muscles lose their power of lengthening. This can be prevented by making them contract and relax periodically throughout the period of immobilization. They need not be stretched to the full extent. In a fractured scaphoid the wrist can be immobilized for months without becoming stiff if the patient uses his fingers. A muscle under a splint will continue to act in a synergic capacity provided one of the joints over which it spans is free to move. If in fracture of the shaft of the femur both knee and hip are immobilized—as they must be if the splint is to keep the fractured ends from moving—the thigh muscles cannot act synergically because both origins and insertions are fixed. The consequence is a stiff knee. But if the hip is not splinted and the patient is encouraged to lift his leg (he need not bend the knee) the synergic action of the thigh muscles is retained and the knee does not stiffen.

Blood Transfusion Services

The Ministry of Health blood transfusion services have now been operating for some time. The country is divided into regions, each based on a university or medical school, and each region has its own transfusion service which bleeds donors and supplies blood to hospitals in the area and sends a percentage to the central laboratory in London to be made up as dried plasma. Standardization of apparatus, methods and scope of the service is effected through regular meetings of the regional transfusion officers at the Ministry of Health in London. Large quantities of blood were collected during the war, most of it for the fighting services, and it was not difficult then to secure an adequate number of voluntary blood donors. The theme

"Give blood for the men who shed it in your defense" was most successful and obtained a particularly large response from women. Now the picture changes. The spirit of altruism, so evident everywhere in the days of crisis, has not been well replaced by one of duty or of citizenship, and the call to "Give blood for your neighbor" has met with an increasingly poor response. It may be that the average man or woman feels that the present situation with its austere shortages and disappointments makes too great a demand already and that to yield up even a few drops of the precious stream in one's veins would be to invite disaster. Nevertheless blood donation remains on an entirely voluntary basis and no reward of money or of rations is offered to the donor, whose only recompense is some added prestige and the self satisfaction of a service done for another.

JERUSALEM

(From Our Regular Correspondent)

April 8, 1947.

The Leprosy Problem in Palestine

During the Dermatologic Congress in Jerusalem in October 1946 Katzenellenbogen, in commenting on the leprosy problem in Palestine, observed that the question of strict isolation of leprous patients has received different treatment in the past. He reported that a patient seen by him in Vienna in 1923 had spent a night in a hotel, and when this fact became known the hotel was closed for a fortnight. The opposite attitude was seen by him in a London hospital in 1935, where a leprous patient was lying in a general ward, his bed being separated from the others only by a screen.

In Palestine cases of leprosy are frequently seen by dermatologists because of the skin manifestations. There are about 400 persons with leprosy in Palestine, 25 of whom are living in the Jerusalem Leper Home. Internment is not enforced by law but is on a voluntary basis. When bacteriologic examinations have become negative, patients are usually discharged home. Control examinations at a later date, however, frequently show that the disease has made progress. Katzenellenbogen called to mind a patient who had consulted him because of tropical ulcers of the face and one foot in 1937 and mentioned that he was living in Bir Ajoub. This small Arab village is southeast of Jerusalem, and the patient had gone to live there fifteen years before, after having been discharged from the Jerusalem Leper Home. A second patient had been living for a long time in Bir Ajoub, where he went on being discharged from the Jerusalem Leper Home because the inhabitants of his village refused to admit him and chased him away. One group of inhabitants of Bir Ajoub are the wives of leprous persons who have been living in the Jerusalem Leper Home. The home does not accommodate families, and these couples must get out. At the time of the report there were 6 men aged between 30 and 50 and 8 women aged between 25 and 80 living in Bir Ajoub. Most of them are suffering from late stages of the disease, many displaying severe mutilations of the hands and feet, continuous fever and serious eye conditions. Hansen's bacilli are usually found in the nasal mucous membrane of those who are still presenting lepromas.

The medical and economic care of the inhabitants of the village is wholly insufficient. Patients who apply receive a bottle of chaulmoogra oil in the Jerusalem Government Hospital; those able to go there may receive injections. Most of them, however, are unable to visit the hospital, and even if their state of health permits they prefer going to the mosques of Jerusalem to offer their prayers and to beg alms. The Jerusalem municipality has a budget of 1 piaster (4 cents) per head daily. Bread is given to the patients by Moslem benevolent societies. The leprous of Bir Ajoub go voluntarily into this isolation.

The Journal of the Arab Medical Association

The *Journal of the Palestine Arab Medical Association* entered its second year in November 1946. The task before the editorial committee, as described in the preface to the first number of the second volume, concerns the most common local diseases, as leishmaniasis, leprosy, malaria, dengue fever and amebiasis. The editors state that "to an appreciable extent a primary aim of this journal has been upheld, viz. that of professional growth and a first step of bringing to all doctors all over the world a greater knowledge and understanding of problems of local disease." Mentioned is the pan Arab medical congress at Aleppo in August 1945, which was attended by over 500 doctors of the Near East. This congress approved a resolution to the effect that intensive research work should be carried out in diseases endemic to any of the countries participating in the congress by medical bodies in the countries concerned. Some of the diseases specially earmarked for this work were the Aleppo button (cutaneous leishmaniasis), malaria and eye diseases. Of greater significance was the decision of the committee of the conference to establish with the aid of Arab countries modern Arab health centers and institutions in Palestine. A first practical step toward this project was the immediate grant of £50,000. All this is heartening news to Palestine, and it is tangible evidence of the cooperation of Arab countries through their medical bodies and their special interest in Palestine.

Medical nomenclature and terminology in the Arab language received particular attention. In August 1945 Sir Allan Cunningham, the high commissioner, opened the first antituberculosis clinic in Jaffa.

Survival Time of Endameba Histolytica in Feces

J. Gurevitch and J. Delightish of the bacteriologic department of the Hebrew University, Jerusalem, have observed that actively motile trophozoites of Endameba histolytica can survive up to eight hours in a fecal specimen left at room temperature. In view of the scarce and contradictory reports in the literature on the survival of E. histolytica outside the body, a study was made on the effect of heat on the amebas. A stool containing motile amebas was divided into three portions, one of which was placed in the incubator at 37 C., the second portion was left at room temperature 25-30 C. (in the summer months) and the third portion was placed in the refrigerator at 6-8 C. Microscopic examinations of each of the three portions were made at two to three hour intervals until no living amebas could be detected.

Sixteen cases of amebiasis were examined and it was learned that at 37 C. the amebas survived only two to four hours. At room temperature the survival time was found to be significantly longer—from five to eight hours. To this must be added two to three hours that elapsed before a fecal specimen reached the laboratory. In all the portions of feces kept in the refrigerator, living amebas were found on three consecutive examinations during the day. These were left in the refrigerator overnight and were again examined the next morning, i. e. after twenty-four hours. At this time a few living weakly motile amebas were found in 2 cases; in 5 cases rounded nonmotile amebas could be detected; in 9 cases the results of the microscopic examinations were negative after twenty-four hours.

There can be no doubt that the best method for the diagnosis of amebas is the microscopic examination of a fresh fecal specimen given by the patient at the laboratory. But on the basis of the present study it may be concluded that in cases of delayed transport of stool to the laboratory the results of the examination are reliable enough if performed within six to eight hours. There is no advantage in keeping a specimen of feces at 37 C. until it can be examined. On the contrary, in cases in which immediate examination cannot be made it is advisable to preserve the stool in the refrigerator.

Correspondence

PERONEAL PALSY BY CROSSING THE LEGS

To the Editor:—The article in THE JOURNAL, March 15, by Majors Nagler and Rangell dealing with "Peroneal Palsy Caused by Crossing the Legs" brings to mind an interesting experience while I was serving at Borden General Hospital, Chickasha, Okla. In mid-July 1945 the hospital neurologist and I were assigned to investigate an outbreak of "paralysis" in a German prisoner of war camp at Alva, Okla., where some 5,000 Germans were maintained in four compounds (one officer, two noncommissioned and one enlisted man). During the months of June and July about 35 cases of peroneal palsy, chiefly unilateral, erupted in the officer and noncommissioned officers' compounds but spared the enlisted one. The main distinguishing feature between these groups was the fact that the enlisted men worked in the camp and neighboring farms while the other groups were inactive.

A constant finding was weight loss ranging from 10 to 25 pounds (4.5 to 11 Kg.) commencing several weeks prior to the outbreak and incident to a caloric reduction in diet prescribed by the service command. However, careful analysis of representative diets failed to reveal any deficiencies, though the total caloric intake per man averaged 2,000 calories daily. No evidence of vitamin deficiency was uncovered. Careful study ruled out such etiologic factors as hysteria, malingering, infection, toxins and artificial induction (by injection). Temperature curves, sedimentation rates, blood counts and spinal taps were normal.

Several patients claimed that initial manifestations were noted after they had maintained their legs crossed for several hours. This fact, together with the predisposing factors of weight loss and inactivity prominent in the paralyzed patients, led us to conclude that the causative agent was pressure and that the epidemic character of the outbreak was due to the general weight loss commencing several weeks before the appearance of the illness. This is in keeping with the observations made by the authors and others on the relationship of crossed leg palsy to weight loss and inactivity.

FRANK KAMINSKY, M.D., Brooklyn.

THE PHYSICIAN AS ADMINISTRATOR

To the Editor:—Two alternatives are recognized in the matter of who, if any one, should be director of a possible division of the government concerned with health and its ramifications: (1) a medical man or (2) a layman. As to the department handling food and drug matters, history might shed some light. While prior to 1906 the duties of this agency were performed while it was a part of the Department of Agriculture, running back to Civil War times, it became a potent institution for recognizing irregularities in food and drug production and distribution in 1907. Harvey W. Wiley was an aggressive member of the food and drug group, beginning in the capacity of chief chemist in 1883 and ending this service in 1912.

Since the founding of the American Medical Association in 1847, it has been interested in quality of drugs and during the lifetime of my father, a member from 1875 to 1890, the Association became more and more identified with the nature of therapeutic agents. It was natural that much of the burden of the pharmaceutical work fell to members of that vocation. Since 1820, beginning with the work of Lyman Spalding, to the present time, pharmacy and medicine have gone hand in hand with a healthy rivalry between them, as may exist now in the matter of who should direct a general group entrusted with safety in food and drug production. However this may be, the great advance made in regulation of drug and food commodities has been made through the participation of the medical man. A chemical compound of great merit could not become useful as an agent in maintenance of health and cure of disease without the imperatively necessary services of the physician. Today in the chemical laboratories there are hundreds of compounds synthesized in fine laboratories by expert chemists lying fallow because they have never been put to work by the physician, who alone can say whether they are justified or not. Pragmatically speaking, such compounds do not exist; that is, they are unrecognized. As in the Shakespearean sonnet, "Their worth's unknown until their height be taken." It is the physician and surgeon who take the height.

If the physician is the sine qua non, the decision then is easy: He must serve to direct the work of the food and drug division. Frequently it is said that the doctor is a poor business man Not all doctors are poor in business. Witness the medical men charged with the conduct of great hospitals, great humanitarian endeavors. Like Bishop Berkeley's blackberries, the thing to do is to find a good one.

One of the characterizations of today is the fact that men trained for a given type of work are displaced by those who are actually novices. A lawyer is made director of one of our most modern and important commissions, involving esoteric technical matter of life and death importance. A cloistered chemist is dragged from his laboratory and made president of a great institution of learning. In the case of the doctor as director of a health program, that is quite appropriate. That is his métier.

WITHROW MORSE, PH.D., New York.

CANCER TREATMENT BY AUTOVACCINATION

To the Editor:—In your correspondence of March 15 you publish a statement of Dr. Ludwik Gross about which I should like to comment. The first intracutaneous implantation of tumors in rats which established immunity against that particular tumor was performed by me 1927 at the University Institute for Cancer Research in Berlin (Knopf, Eduard: *Ztschr. f. Krebsforsch.* **25:**64).

A therapeutic experiment in a case of inoperable and radioresistant uterine cancer was performed at the Jewish Hospital in Berlin in 1930. The results were regression of the original tumor, changes in the histologic structure of the transplant and great improvement in the subjective symptoms of the patient lasting almost to the day of her death of circulatory failure (Knopf, Eduard, *ibid.* **32:**305).

The experiments conducted by Besredka and Gross in 1935 confirmed my observations in part. These authors implanted tumor particles intracutaneously into mice and thus induced immunity against the particular tumor which was used for the inoculation (Besredka, A., and Gross, L.: *Ann. Inst. Pasteur* **55:**402, 491, 1935). But the same authors had no success in treating 2 cases of breast cancer with intradermal inoculation of the original neoplasm. The implanted tumor grew in both cases and remained histologically identical with the original tumor (*ibid.* **60:**5, 1938).

The difference between the results of the 2 cases of Besredka and Gross, on the one hand, and my own and the 4 cases of Krasheninnikov, on the other hand, may perhaps be explained by the difference in the transplanted material. It appears that Besredka and Gross used material from the original tumor, while in my own and the 4 cases of Krasheninnikov material from metastatic lymph nodes was used.

If it is considered that an analogy exists between the immunity acquired in communicable diseases and that produced by intracutaneous implantation of tumor particles, one may feel justified in applying the principles of immunology to these experiments.

It is known that certain antigens are easily impaired by even small changes in physical and chemical conditions, and so it may well be assumed that tumor particles taken from an old primary tumor may have lost completely or in part their antigenic properties, while the relatively fresh material from a metastatic gland has still the full power to induce immunity.

Needless to say, the two negative cases of Besredka and Gross and my own and the 4 favorable cases of Krasheninnikov constitute too small a group to allow an evaluation of this treatment with intracutaneous implantation of the tumor. But I believe these experiments point the way toward further investigation of this technic on a larger scale.

Eduard Knoff, M.D., Brooklyn.

CONTINUOUS CAUDAL ANESTHESIA IN OBSTETRICS

To the Editor:—Dr. McCormick's correspondence (The Journal, March 15, p. 801) stressed the danger of continuous caudal anesthesia in obstetrics and mentioned a number of maternal deaths. The clinic with which I am associated has one of the largest series from any one clinic in the country. Since October 1942 we have used this method in 4,180 cases without a maternal death. There have been 3 cases of superficial skin infections which occurred during the first 500 cases. There was 1 fetal death attributable to it.

It is my belief that the fatalities can be prevented by a properly trained group working as a team. Such a plan calls for a resident and assistants. Our men are supervised until they have given fifty to sixty caudal anesthesias. And once a caudal anesthesia is instituted the patient has in constant attendance either an assistant resident or an intern who keeps accurate records of contractions, blood pressure and the fetal heart on caudal sheets which are used for that purpose only.

It is also my belief that caudal anesthesia in obstetrics is primarily an obstetric procedure requiring obstetric judgment as to when and under what circumstances it should be given.

Of course there is a mortality rate for this procedure as well as for any other form of anesthesia, but it shouldn't be high enough to warrant discontinuing its use

Francis R. Irving, M.D., Syracuse, N. Y.

SOCIAL MEDICINE IN SWEDEN

To the Editor:—The report on the new Swedish hospitals published on page 470 of The Journal dated Oct. 26, 1946 does not give a true picture. It is felt that your correspondent has gone too far. Conditions in Sweden and in the United States are quite different. In Sweden we have always had government directed medicine, just as we have had government directed education and government built railroads and water power plants.

The Swedes do not claim to have solved the problem of providing the best of medical care for all at reasonable cost. Neither do they claim, for instance, to have solved the housing problem with their very modern but rather small apartments. They are, however, progressive in their thinking and refuse to abide by old methods.

The two new giant hospitals in Stockholm probably represent an experiment to some extent, but they ought to be interesting also to American physicians. All facts concerning them should be presented fairly until enough experience is gained for a final judgment.

It is true that a visit to the polyclinic in Sweden entails two hours of waiting, or even more in some instances. All doctors in Sweden have their hands full. A patient who finds the waiting too long can see a doctor by appointment at his private practice, and the fee for this is higher but not too high.

The question of medical expense is considered of great importance in Sweden, where most people must budget their living expenses carefully. I am appending some figures on hospital costs and doctors' fees in Sweden today. A comparison with costs in the United States will show a great difference all along the line. Much can be said, of course, in favor of a system which strives to make the best of medical care available to all.

1. Hospital care in wards, containing 3 to 8 patients, $0.50 to $1 per day. (This includes all care, x-rays, doctors' services and operations of all kinds.)

2. Hospital care in room shared by two patients, $3 per day.

3. Hospital care in private room, $6 per day. (In some hospitals patients in private rooms or rooms for two are expected to pay the doctor a fee for operations. The fee varies between $10 and $100. A schedule of fees is available in the room, but payment is voluntary and the doctor does not present a bill.)

4. Medical care. The patient has the choice between visiting a polyclinic or seeing a doctor by appointment. Care at polyclinic: first visit $1.25, other visits $0.60 (waiting time one to three or four hours). The average fee for private visit to physician is about double the fees at polyclinic. Fees charged by specialists as a rule are higher but usually not as much as twice the fees paid at a private visit to a general practitioner.

G. Oldenburg, Consul General of Sweden.

PENICILLIN AS A BLOOD COAGULANT

To the Editor:—On January 12 I wrote you of my successful experience during the past two years using penicillin as a blood coagulant in otolaryngologic surgery. On January 24 I answered the reply of Dr. Fishbein in which he expressed interest. A supplementary letter from me which The Journal published referred to the observations of Frada, who too recognized that penicillin promotes blood coagulation. In order to bring the subject up to date, the following comments are added:

In confirming the research of Moldavsky and others Dr. David I. Macht in *Science* (**105**:313 [March 21] 1947) states that in the light of these experiments and the results outlined "there can be no doubt as to the accuracy and importance of the observations first reported by Moldavsky and his associates. . . . It is the opinion of the present writer that, next to the chemotherapeutic properties of penicillin and streptomycin and their low toxicity, the most important pharmacological finding is their thromboplastic activity."

My experience in the use of penicillin to promote blood coagulation agrees with that of Dr. Macht, who observed that among the commercial penicillins the amorphous (yellow) product is superior to the white crystalline penicillin in promoting coagulation of the blood. When these observations become known to the medical profession and as the use of penicillin as a blood coagulant becomes widespread, the superiority of the amorphous (yellow) penicillin for this purpose will also be recognized by other physicians. It is therefore essential that the commercial producers of penicillin be alerted so that some will continue the manufacture of the amorphous (yellow) penicillin. The trend at present seems to be toward converting facilities of manufacture to the production of the white crystalline penicillin.

Though the crystalline penicillin is more effective as an antibiotic, it is definitely less effective in promoting blood coagulation. This may be due to the presence of penicillin X with the penicillin G in the amorphous product.

Mort D. Pelz, M.D., St. Louis.

Medical Motion Pictures

FILM REVIEWS

Plaster Casts. 16 mm., black and white, sound, 1,400 feet (1 reel), showing time thirty-eight minutes. Produced during World War I by the Medical Department, U. S. Army. *Procurable on loan from Office of* the Surgeon General, U. S. Army, Pentagon Building, Washington, D. C. Attention: Chief of the Division of Education and Training.

This film is intended primarily for the instruction of those who aid in the application of plaster of paris casts to patients. It is not a film that would be useful at the professional level; that is, it would probably give a dull time to doctors who use plaster in their daily work. It depicts the preparation and proper storage of plaster of paris bandage. It illustrates completely and correctly the application of various forms of plaster cast used in everyday practice. More important, it points out the dangers that are associated with encasing a limb or trunk in plaster, and the methods that can be used to prevent the onset of trouble and to diagnose trouble before irreparable damage has been done.

A typical orthopedic workroom is shown. This includes the various tables that are used to place the patient in a desired position and the instruments that are used to remove the plaster. It shows the proper relationship between the plaster technician or aid in the plaster room and the surgeon who is responsible.

There is nothing about the technic or its presentation that is objectionable. It may all be considered good modern practice. This film should be particularly useful in training student nurses or as shown to senior medical students or interns before they begin to work in an orthopedic or fracture service. The photography is excellent.

Animated Hematology. 16 mm, color, silent, 1,600 feet (1 reel), showing time forty-five minutes (run at sound speed). Produced in 1946 by Mervin W. LaRue, Chicago. Technical advisers Carroll L. Birch, M.D., and Louis R. Limarze, M.D., University of Illinois School of Medicine. Procurable on loan or purchase from the Armour Laboratories, Medical Motion Picture Department, 1425 West Forty Second Street, Chicago 9.

This motion picture deals primarily with a subject in clinical hematology. Interest in this field has advanced very rapidly during the last decade and it is fitting to have a pictorial exposition on anemia, especially since the subject lends itself readily to this form of teaching.

A few criticisms are in order. Much of the material on the deficiency anemias was revolutionized during production of the motion picture, with the result that the newer advances respecting folic acid in both pernicious anemia and sprue are of necessity abbreviated. The diagrammatic sketches of magaloblasts and normoblasts are rather poorly done, as are the figures for myelocytes and metamyelocytes. There is a rather inadequate explanation of the gastric digestion of "extrinsic" with "intrinsic" factor. The word "Romberg" is misspelled as "Rhomberg." The remarkable improvement of a frank case of neurologic pernicious anemia with liver extract therapy in ten days seems almost incredible.

The film is distinguished by good photography although much of the material could be presented with a series of lantern slides. The sequences dealing with the intramuscular injections of parenteral liver extract and with cirrhosis of the liver are unusually good. Educational values are enhanced by constant repetition of basic principles and by simplification of the fundamental physiopathologic processes in anemia.

Folvite. 16 mm., color, sound, 800 feet (1 reel), showing time twenty-two minutes. Produced in 1946 by Paul Hance Productions, Inc. Procurable on loan from Lederle Laboratories, Inc., Film Library Division, 30 Rockefeller Plaza, New York.

This report type film presents a superficial treatment of the actions of folic acid in the treatment of macrocytic anemias. The repeated use of the trade name "Folvite" through the picture destroys any educational value which it might possess and converts it to an advertising medium for the manufacturer. Although excellent color photography presents the classic lesions of pernicious anemia and sprue, little scientific information is given concerning the actions or uses of folic acid.

The results of treatment are presented in the form of obnoxious testimonials.

This film cannot be recommended as an educational aid.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness: Obtaining Specimen for Chemical Test Not Unlawful Search and Seizure.—The defendant was convicted of driving an automobile while under the influence of an intoxicating liquor, and he appealed to the municipal court of appeals for the District of Columbia.

Some time after the defendant's arrest, and while he was at a police precinct station, a uniformed police officer attached to the Accident Prevention Unit requested a sample of the defendant's urine, and the defendant agreed to give it. At that time he appeared lucid and answered questions clearly. The officer did not inform the defendant that he had a right to refuse to give the sample or inform him that the sample might be used as evidence against him but did state that "if the sample were right it would be to the defendant's benefit." At the trial the judge, over objection, admitted in evidence the laboratory records of the analyses of this sample. Dr. Hunter, physician and pathologist, whose qualifications as an expert were admitted, thereupon answered a hypothetical question by stating that in his opinion a chemical analysis of "the sample of urine" showing 0.24 of 1 per cent of alcohol "indicated that the defendant was under the influence of intoxicating beverage at the time of his arrest."

The defendant first contended that testimony regarding a urinalysis of a specimen taken while he was under arrest was improperly admitted because insufficiently identified and because there was insufficient evidence that the specimen was in the same condition when taken as when analyzed. We agree, said the court, that it was incumbent on the government to prove that the specimen taken from the defendant and the one analyzed by the chemist, and reported on in court, were the same and were in substantially the same condition when tested as when taken. We think, however, that there was sufficient evidence to justify the trial judge in holding that the evidence met this test.

The defendant next contended that his rights under the Fourth Amendment had been infringed. That amendment guarantees that "The right of the people to be secure in their person, . . . against unreasonable searches and seizures, shall not be violated." Here, said the court, it is conceded that the defendant had been legally arrested and was legally detained when the specimen was taken. Evidence obtained from a person under legal arrest is admissible over an objection grounded on illegal search and seizure, and the same rule applies to a chemical analysis of such evidence.

Finally the defendant contended that the taking of the specimen, and the use in evidence of the analysis of its contents, violated his rights under the Fifth Amendment guaranteeing that "No person . . . shall be compelled in any criminal case to be a witness against himself . . ." The defendant argued that the specimen was given as a result of inducement or duress or both and that therefore, as is the case with an oral confession given as the result of inducement or duress, it should not have been considered in evidence. The duress claim was based on the fact that when the specimen was taken the officer was in uniform, and defendant was under arrest, was not informed that he had a right to refuse to give the sample and was not advised that it might be used against him in evidence The inducement claim was based on the officer's statement to defendant that "if sample were right it would be to the defendant's benefit." Assuming, said the court, that the taking of a body fluid is governed by the same rules of evidence as apply to oral utterances, we rule that there was neither duress nor inducement in the sense that would make the giving of the specimen involuntary. The record shows affirmatively that, at the time the specimen was given, the defendant appeared lucid and answered questions clearly and that he gave the specimen after a request therefor. There was no suggestion that the defendant was of subnormal intelligence nor suggestion of any other surrounding circumstances which have led to the rejection of statements or confessions. Statements are frequently taken by officers in uniform while defendants are under arrest, and "it is not essential to the admissibility of a confession that it should appear that the person was warned that what he said would be used against him; but, on the contrary, if the confession was voluntary, it is sufficient though it appear that he was not so warned." Furthermore, continued the court, we do not believe that the officer's statement was an "inducement." It was as though the officer had said "If you are innocent, making a statement will help you." A person of ordinary intelligence would draw from the officer's statement the inference that if the specimen was not "right" it would not be to the defendant's benefit. We therefore hold, concluded the court, that the trial judge was justified in ruling that the specimen was given voluntarily and that the admission of the analyses in evidence was proper. The defendant's conviction was accordingly sustained.—*Novak v. District of Columbia, 49 A. (2d) 88 (Dist. of Col., 1946).*

Building Restrictions: Right to Maintain Medical Office in Private Home.—The plaintiffs petitioned for an injunction to restrain the defendant from practicing medicine in a residential district. From a judgment for the defendant, the plaintiffs appealed to the Court of Civil Appeals, Galveston.

The plaintiffs and the defendant purchased homes and property in a real estate subdivision in the city of Houston. All of the lots in the subdivision were sold subject to certain restrictive covenants or building restrictions. These restrictions provided, among other things, for a Business Center in the subdivision and stated that only one physician's office should be maintained in the Business Center. The restrictions also provided:

> A. All lots in the tract shall be known and described as residential lots except that portion designated on the plat as a business center. . . . No structure shall be erected, altered, placed or permitted to remain on any residential building plot other than one detached, one family dwelling. . . . and a private garage with servant's quarters and other outbuildings incidental to the residential use only of the plot. . . .
>
> E. No noxious or other offensive trade or activity shall be carried on upon any lot nor shall anything be done thereon which may be or become an annoyance or nuisance to the neighborhood.

The defendant and his wife maintained their place of abode in this subdivision and, in addition to using the building for a residence, the defendant set aside one room which he uses in connection with his medical practice. The defendant is an elderly man, and from the evidence an inference could be drawn that he was semiretired. His practice was relatively light. He accepted only cases of rectal diseases and such as came to his place of residence. These averaged, said the court, about one patient a day. It was not contended that the treatment by the defendant caused his patients to cry out. The plaintiffs contend that, by using his home for the conduct of his medical practice, the defendant is not using it for "residential use" only and that they are therefore entitled to restrain the defendant from such use.

The primary question, said the court, is whether the practice of medicine by a physician in or from his home constitutes a violation of the restriction against using same for other than residential use. At the time defendant purchased the lot he inquired of the president of the corporation owning the addition whether the restrictions imposed on the lots would prevent him from receiving and treating patients there. Such president replied that he did not think so. Since said corporation was not a plaintiff and did not contend that defendant by the practice of medicine was guilty of a violation of the covenant to use the lot for residential purposes, such evidence was probably not relevant to any issue in the case. Indeed, continued the court, the legal effect of the restrictions was a question of law; and the effect of such restrictions is well settled. "Restrictive clauses in instruments concerning real estate must be construed strictly, favoring the grantee and against the grantor, and all doubts should be resolved in favor of the free and unrestricted use of the premises. . . . it is contrary to the well recognized business policy of the country to tie up real estate where the fee is conveyed with restrictions and prohibitions as to its use; and, hence, in the construction of deeds containing restrictions and prohibitions as to the use of the property by a grantee, all doubts should, as a general rule, be resolved in favor of a free use of the property and against restrictions." Continuing, the court said that courts judicially know that the purpose of restricting lots in subdivisions to residential use is to establish an area free from commercial activity and thereby enhance the value of such lots as residential property. The word "residential" as used in a covenant restricting the use of property is used in contradistinction to "business" or "commerce." A building used as a place of abode, and in which no business is carried on, is devoted to a "residential use" so long as such use continues. The practice of medicine is, of course, a means of livelihood. But in its ordinary sense it is not a trade and is not a business, or commercial, or offensive activity when ethically conducted. It is a learned calling and lacks the bustle and noise associated with a commercial activity. It would probably be impossible for a physician to practice his profession and never use his home as a place to receive calls or patients. In the instant case, as appears above, the doctor maintained a room in his home to receive and treat patients and did not maintain an office elsewhere. The restrictions here in question were reasonably susceptible to the construction that the limitation to residential use was not intended to prevent a physician from practicing his profession in and from his home. If the restrictions are reasonably subject to the construction which permits such use, then, said the court, they must be so construed. No Texas case was cited holding that covenants restricting a lot to residential use are violated by a physician who resides on such lots and practices medicine in his home. In our opinion, the court concluded, the mere fact that a physician practices medicine in his home is not sufficient to show a violation of a covenant to use same only for residential use. Accordingly the judgment in favor of the defendant was affirmed.—*Briggs v. Hendricks, 197 S. W. (2d) 511 (Texas, 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal, May 3, page 95.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various centers, June 16-18. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Part II. *Oral.* Cleveland, Oct. 5-11. Sec., Dr. P. M. Wood, 131 Riverside Dr., New York 24.

American Board of Internal Medicine: *Written.* Various Centers, Oct. 20. Final date for filing application is June 1. Asst. Sec., Dr. W. A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: Oral. Chicago, June 4-5. Sec., Dr. Paul C. Bucy, 912 S. Wood St., Chicago.

American Board of Obstetrics and Gynecology: *Part II.* Pittsburgh. June 1-7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board of Ophthalmology: Philadelphia, June 15-19. Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

American Board of Orthopaedic Surgery: Part II. Chicago, Jan. 22-23. Final date for filing applications is Sept. 15, 1947. Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

American Board of Otolaryngology: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

American Board of Pathology: Chicago, Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kings Highway, St. Louis 10.

American Board of Plastic Surgery: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Robert H. Ivy, c/o Clerical Secretary, 4647 Pershing Ave., St. Louis 8.

American Board of Psychiatry and Neurology: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

American Board of Radiology: Boston, Nov. 26-30. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

American Board of Surgery: Final date for filing application for the next written examination is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Harry Culver, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Cincinnati

30:127-256 (Feb.) 1947

Ocular Histopathology of Some Nagasaki Atomic Bomb Casualties. T. F. Schlaegel Jr.—p. 127.
Corneal Lesions in Hodgkin's Disease: Report of Case. P. Matteucci. p. 136.
Marcus Gunn Phenomenon: Discussion, Presentation of 4 Instances and Consideration of Surgical Correction. E. B. Spaeth.—p. 143.
Gonioscopy. E. A. W. Sheppard and W. J. Romejko.—p. 159.
*Postneuritic Optic Atrophy in Repatriated Prisoners of War. W. L. Roberts and T. H. Willcockson.—p. 165.
Nutritional Retrobulbar Neuritis in Children in Jamaica. Dahlia Whitbourne.—p. 169.
Nutritional Retrobulbar Neuritis. F. D. Carroll.—p. 172.
Case of Splinter of Glass in Anterior Chamber of Four Years' Duration. W. B. Doherty.—p. 177.
Personality Patterns of White Adults with Primary Glaucoma. Helen L. Hibbeler.—p. 181.
Significance of Action of Paredrine on Ocular Tension of Rabbits. E. Schmerl.—p. 187.
Some Methods of Lid Repair and Reconstruction: III. Socket Reconstruction with Epidermis. S. A. Fox.—p. 190.
*Glaucoma Following Ingestion of Sulfathiazole. M. H. Fritz and M. Kesert.—p. 197.

Postneuritic Optic Atrophy.—Roberts and Willcockson say that since the return of personnel from the Japanese prisoner of war camps most ophthalmologists in army and navy hospitals have seen permanent visual impairment which in all probability is nutritional in origin. They report 6 typical cases of severe ocular disability the onset of which was concomitant with extreme dietary deprivation.

Glaucoma Following Ingestion of Sulfathiazole.—Fritz and Kesert report the history of a woman aged 24 who came to the eye clinic April 11, 1945 complaining of itching, light sensitivity and burning of both eyes. The patient thought she was sensitive to sulfathiazole, having developed red, burning eyes following the ingestion of sulfathiazole prescribed for a sore throat in August 1944. She had reported this to the medical officer who had seen her in her unit dispensary because of a sore throat on April 10, 1945, but he told her to try the drug again. On April 13 her eyes had the typical appearance of acute congestive glaucoma. Tension was 50 and 60 mm. respectively. Treatment with physostigmine salicylate was instituted and was discontinued on April 18. From that date until her discharge on April 21 tension remained 22 mm. in each eye and the eyes continued to improve, until they were considered normal on the day of discharge.

Amer. J. of Orthodontics and Oral Surgery, St. Louis

33:47-144 (Feb.) 1947

*Fluorine and Dental Caries. H. T. Dean.—p. 49.
Amino Acids and Their Deaminating Systems Present in Human Saliva. R. G. Kesel, J. F. O'Donnell, E. R. Kirch and E. C. Wach. —p. 68.
*Ammonia Production in Oral Cavity and Use of Ammonium Salts for Control of Dental Caries. R. G. Kesel, J. F. O'Donnell, E. R. Kirch and E. C. Wach.—p. 80.
Role of Nuclear Physics in Medicine and Dentistry: I. Applications in Medicine. H. Copp.—p. 102.
Id.: II. Use of Radioactive Tracers in Study of Bones and Teeth. H. Copp.—p. 109.
Hyperparathyroidism. F. R. Keating Jr.—p. 116.
Normal and Pathologic Physiology of Parathyroid Glands. F. R. Keating Jr.—p. 129.

Fluorine and Dental Caries.—Epidemiologic studies of relationship between the amount of dental caries (permanent teeth) in 7,257 selected 12 to 14 year old white school children of twenty-one cities of four of the United States and the fluorine content of public water supply revealed that 847 children continuously using a domestic water containing more than 1.4 parts per million of fluorine averaged 2.4 decayed, missing or filled teeth per child; 1,403 children of cities whose water supplies contained between 1.0 and 1.4 parts per million of fluorine showed 2.9 affected teeth per child. In the 1,140 children of cities whose public water supplies contained 0.5 to 0.9 part per million of fluorine an average of 4.2 teeth per child showed evidence of past or present dental caries attack, while in the 3,867 children of cities whose common water supplies contained less than 0.5 part per million of fluorine an average of 7.4 teeth per child showed evidence of having experienced dental caries. Other independent studies in the United States, England, South Africa and India report similar findings. Bacteriologic, chemical and animal experiments (on rats and hamsters) consistently support the fluorine-dental caries relationship as disclosed by these epidemiologic observations. Dean concludes that domestic water supplies may be classified on the basis of dental health in those carrying naturally the optimal concentration of fluorine, i. e. about 1.0 part per million, no treatment being required; those carrying an excessive concentration of fluorine requiring the removal of the excess in order to protect the population against endemic dental fluorosis; those deficient in fluorine to which fluorides might be added to bring its concentration up to the optimal in order to lessen the amount of dental decay in the community.

Ammonia Production in Oral Cavity.—By testing culture filtrates of Lactobacillus acidophilus, which has the ability of rapidly converting glucose into acid and is probably in a large measure responsible for this action in the saliva of caries-active people, Kesel and his co-workers observed that ammonia nitrogen developed in human saliva by natural processes has the ability to inhibit the growth of Lactobacillus acidophilus. The inhibition of the lactobacilli is not due to the alkalinity which the ammonia might provide, for the same alkalinity established by sodium acetate had no inhibiting action. Dibasic ammonium phosphate used by 122 persons orally in a mouth rinse and dentifrice caused a decided reduction in the oral lactobacillus counts but has not reduced the number in some of the persons to a level that would indicate an arrest of dental caries. In vitro experiments indicated that a combination of 5 per cent dibasic ammonium phosphate and 3 per cent urea is more effective as an antibacterial and antiacidic agent than is either of these substances alone. It appears from bacteriologic observations that the use of an ammonium-containing dentifrice and mouth rinse as employed by the average person may not completely check caries activity. Other measures, particularly dietary management, may be necessary to establish at least initial control.

Archives of Otolaryngology, Chicago

45:1-144 (Jan.) 1947

Effect of Obliteration of Endolymphatic Sac and Duct in Monkey. J. R. Lindsay.—p. 1.
Improved Surgical Technic Based on Modifications of Jansen-Ritter (Lynch) and Caldwell-Luc Procedures for Chronic Sinusitis. W. L. Gatewood.—p. 14.
*Radiation Therapy for Removal of Adenoid Tissue. D. F. Proctor. —p. 40.
Fenestration for Otosclerosis: Report of 123 Cases. R. L. Moorhead. —p. 49.
Cochleogram and Its Clinical Application: Preliminary Report. J. Lempert, E. G. Wever and Merle Lawrence.—p. 61.
Tinnitus Aurium: Considerations Concerning Its Origin and Treatment. M. Atkinson.—p. 68.
Management of Septal Deformities in Rhinoplastic Correction. L. W. Eisenstodt.—p. 77.
Superior Petrosal and Cavernous Sinus Thrombosis and Basal Petrositis Observed as Complication of Destructive Labyrinthitis with Facial Paralysis. F. L. Weille.—p. 90.
Thyroglossal Cysts and Sinuses: Analysis of 43 Cases. L. Hubert. p. 105.
*Myiasis of the Nose. N. P. Popov.—p. 112.
Aerodynamics in Physiology of Upper Respiratory Tract. N. V. Peterson.—p. 117.

Radiation in Removal of Adenoid Tissue.—Proctor says that radiation therapy for the elimination of adenoids has been used for over twenty years. During the past three years at the Hagerstown Clinic 400 patients have been so treated. These patients received, in addition to radiation therapy, surgical treatment of the tonsils or the adenoids when indicated (mastoidectomy or nasal operation in some instances) and local treatments to the sinuses, the nose or the ears. Adenoidectomy is not in itself a completely satisfactory answer to the problem of infected and enlarged nasopharyngeal lymphoid tissue. Irradiation of this tissue with radium emanation is a valuable adjunct to surgical removal and is often of great help by itself. Good results have been obtained by radium irradiation of the nasopharynx combined with adenoidectomy or other orthodox methods of treatment—or by radium irradiation alone—in the treatment of deafness due to chronic interference with the function of the eustachian tubes, recurrent infections of the upper respiratory tract, recurrent acute infection of the ear, chronic infection of the ear and bronchial asthma.

Myiasis of the Nose.—Popov reports 3 cases of myiasis that were observed by him in southern California. One of the 3 patients, an imbecile youth aged 20, died. Myiasis is caused by the hatching of eggs laid within the nose by a fly. The foul odors of a chronic catarrhal inflammation, syphilitic rhinitis, atrophic rhinitis or ozena attract the fly. The pathologic effects of the disease consist of a more or less total destruction of the mucous membrane lining the nasal and accessory cavities of the nose. The larvae denude the bone and cartilage and in the later stages burrow through the thin bony plates. In cases that have resulted fatally great numbers of larvae were found in the brain substance. The treatment of this disease has been complicated by the ability of the maggots to survive in many antiseptic solutions. The author has used a 10 per cent solution of chloroform in milk as a nasal spray and removed the maggots mechanically with forceps from the nose at several sittings each day. By such a procedure the maggots are gradually removed from the nose. Sneezing will also dislodge great numbers of the larvae. There are a number of insects with a wide geographic distribution whose larvae may attack the human nose.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

7:159-246 (Feb.) 1947

Use of Nitrogen Mustard in Treatment of Lymphomata. L. K. Alpert and S. S. Peterson.—p. 187.
*Streptomycin Therapy in Brucellosis. E. J. Pulaski and W. H. Amspacher.—p. 221.
Food Poisoning. C. E. Taylor.—p. 226.
Report of Duties Performed by Clinical Psychologists. M. L. Hunt.—p. 233.

Streptomycin in Brucellosis.—Pulaski and Amspacher say that streptomycin administered parenterally, orally or in combination did not have demonstrable value in the treament of 7 patients with acute and 10 patients with chronic brucellosis. Treatment with streptomycin and sulfadiazine of 2 patients with acute brucellosis effected a prompt response, with clinical arrest of the disease. While still in the experimental stage, the combination of streptomycin and sulfadiazine as adjuvant therapy for brucellosis deserves further trial. A dose of 0.5 Gm. of streptomycin intramuscularly and 1 Gm. of sulfadiazine orally every four hours for a period of two weeks or onger is recommended. Streptomycin alone is not recommended for the therapy of brucellosis.

Cincinnati Journal of Medicine

28:1-80 (Jan.) 1947

Practical Value of Psychiatric Information. M. Levine.—p. 1.
Psychogenic Headache. M. Rosenbaum.—p. 7.
Histamine and Headache. H. K. Moss.—p. 17.
Allergic Headache. I. H. Claybon.—p. 23.
"Sinus Headache." S. Seltz.—p. 30.

28:81-160 (Feb.) 1947

Anesthesiology: Practical Considerations and Current Prospects. E. B. Tuohy.—p. 81.
Congenital Syphilis. Ruth Wittkamper, Catherine Ludlow and P. Vandeman.—p. 93.
Cancer of Rectum. P. I. Hoxworth and N. N. Early.—p. 98.

Hawaii Medical Journal, Honolulu

6:151-220 (Jan.-Feb.) 1947

Surgical Management of Bleeding Peptic Ulcer. L. M. Wiig.—p. 161.
Diagnosis and Treatment of Early Conductive Deafness. L. Q. Pang.—p. 165.
Scope of Psychiatry. E. A. Stephens.—p. 170.

Iowa State Medical Society Journal, Des Moines

37:1-44 (Jan.) 1947

Diagnosis and Treatment of Endolymphatic Hydrops (Ménière's Disease). H. L. Williams.—p. 1.
Medical Management of Complications of Peptic Ulcer. W. D. Paul.—p. 6.
Malaria as Postwar Problem in Iowa. E. W. Paulus.—p. 12.
Obstacles in Orthoptic Treatment of Squint. H. O. Gardner.—p. 17.

37:45-96 (Feb.) 1947

Headache from Standpoint of Otolaryngologist. H. L. Williams.—p. 45.
Boeck's Sarcoid: Clinical Review and Case Presentations. L. J. Dimsdale.—p. 52.
Myocardial Infarction and/or Fatal Coronary Disease in Young Soldiers. H. B. Weinberg, L. Ochs Jr. and R. B. Chesnick.—p. 56.
Use of Sulfonamides and Penicillin in War Surgery. W. C. Thatcher.—p. 64.
Preventive Mental Hygiene in Iowa. C. J. Gamble.—p. 68.

Journal of Experimental Medicine, New York

85:1-140 (Jan.) 1947

Dissociation of Hemagglutinating and Antibody-Measuring Capacities of Influenza Virus. T. Francis Jr.—p. 1.
Effect of Lipids and Serum Albumin on Bacterial Growth. R. J. Dubos.—p. 9.
Centrifugation Studies on Pneumonia Virus of Mice: Relative Sizes of Free and Combined Virus. E. C. Curnen, E. G. Pickels and F. L. Horsfall Jr.—p. 23.
Properties of Pneumonia Virus of Mice in Relation to Its State. E. C. Curnen and F. L. Horsfall Jr.—p. 39.
Effect of dl-Methionine, l-Cystine and dl-Isoleucine on Utilization of Parenterally Administered Dog Hemoglobin: Suggestion for Designing the Composition of "Ideal" Protein Digest. L. L. Miller and E. L. Alling.—p. 55.
Disinfection of Clouds of Meningopneumonitis and Psittacosis Viruses with Triethylene Glycol Vapor. T. Rosebury, G. Meiklejohn, L. C. Kingsland and M. H. Boldt.—p. 65.
Studies on Spreading Factors: I. Importance of Mechanical Factors in Hyaluronidase Action in Skin. O. Hechter.—p. 77.
Nucleic Acid and Carbohydrate of Influenza Virus. C. A. Knight.—p. 99.
Rapid Production of Acute Disseminated Encephalomyelitis in Rhesus Monkeys by Injection of Heterologous and Homologous Brain Tissue with Adjuvants. E. A. Kabat, A. Wolf and Ada E. Bezer.—p. 117.
Allergic Encephalomyelitis in Monkeys in Response to Injection of Normal Monkey Nervous Tissue. Isabel M. Morgan.—p. 131.

Journal of Lab. and Clinical Medicine, St. Louis

32:109-222 (Feb.) 1947

*Anaphlactic Shock in Egg Sensitive Individuals Following Vaccination with Typhus Vaccine: Study of Antigenic Relationship of Egg and Chicken Meat Antigens and Typhus Vaccine. S. F. Hampton.—p. 109.
Relationship of Gastric Acidity to Thiamine Excretion in Aged. H. A. Rafsky, B. Newman and N. Jolliffe.—p. 118.
Evaluation of Vitamin C Status of Human Subjects: Studies with Intradermal Dye Discoloration, Capillary Fragility, Fasting Plasma Vitamin C Level and Vitamin C Saturation. A. H. Holland Jr., J. C. Canniff and M. Bruger.—p. 124.
Serum Proteins in Hypoproteinemia Due to Nutritional Deficiency. Martha M. Bieler, E. E. Ecker and T. D. Spies.—p. 130.
Folic Acid in Treatment of Aplastic Anemia. B. R. Gendel.—p. 139.
Aplastic Anemia Following Administration of Thorotrast. J. Spier, L. E. Cluff and W. D. Urry.—p. 147.
Studies on Leukocyte Granules After Staining with Sudan Black B and May-Grunwald Giemsa. R. N. Baillif and C. Kimbrough.—p. 155.
Study of Sternal Marrow and Peripheral Blood of 55 Patients with Plasma Cell Myeloma. L. W. Diggs and Marjories S. Sirridge.—p. 167.
Influence of Heat and Formalin on Rh Agglutinogen. H. H. Lubinski and J. C. Portnuff.—p. 178.
Benzidine Negative Stools During Iron Therapy. S. O. Schwartz and C. S. Vil.—p. 181.
Hyperparathyroidism and Partial Heart Block. S. O. Waife.—p. 185.
Sensitivity of Eberthella Typhosa to Penicillin Fractions G and X. H. Welch and W. A. Randall.—p. 190.
Phosphatases and Inorganic Phosphorus in Normal Human Serum. J. Tuba, M. M. Cantor and H. Siemens.—p. 194.

Allergy to Typhus Vaccine in Egg Sensitive Subjects.—Hampton presents the histories of 2 patients who had an anaphylactic shock following parenteral injections of typhus vaccine prepared from chick embryos infected with epidemic typhus rickettsia. Intradermal skin tests, passive transfer tests and neutralization experiments with serum from the 2 patients indicated a likely antigenic identity of typhus vaccine and the egg and chicken meat antigens contained therein. Hampton advises that all candidates for typhus vaccine injections or other similar chick embryo vaccines be questioned for possible egg sensitivity and that all probable egg sensitive persons be skin tested with typhus vaccine prior to parenteral administration of it. A suggested initial testing strength is a 1:100 dilution of the vaccine using approximately 0.02 cc. volume. Since influenza virus vaccine (types a and b) is prepared from infected chick embryos, it is suggested that the same precautions be taken with thir vaccine.

Journal of the Mount Sinai Hospital, New York

13:215-272 (Jan.-Feb.) 1947

Radical Surgical Therapy for Carcinoma of Colon and Rectum Involving Adjacent Viscera. A. Glass and J. H. Garlock.—p. 224.
Lobar Pulmonary Carcinoma. A. H. Aufses.—p. 227.
Essays on Biology of Disease. E. Moschcowitz.—p. 232.
Life's Later Years: Studies in Medical History of Old Age. F. D. Zeman.—p. 241.
Cutaneous Manifestations of Systemic Disease: II. H. T. Behrman and O. L. Levin.

Journal of Nutrition, Philadelphia

33:1-128 (Jan.) 1947. Partial Index

Phosphorus in Poultry Nutrition: III. Relationship Between Source of Vitamin D and Utilization of Cereal Phosphorus by the Poult. E. P. Singsen, L. D. Matterson and H. M. Scott.—p. 13.
Effects of Dietary Zinc Deficiency in the Mouse. H. G. Day and Blanche E. Skidmore.—p. 27.
*Seasonal Variations in Vitamin A and Carotene Content of Retail Butters. H. A. Ellenberger, N. B. Guerrant and O. B. Fardig.—p. 39.
Absorption and Storage of Vitamin A in Liver of Rat. Janet M. Lemley, R. A. Brown, O. D. Bird and A. D. Emmett.—p. 53.
Studies in Amino Acid Utilization. L. E. Frazier, R. W. Wissler, C. H. Steffee, R. L. Woolridge and P. R. Cannon.—p. 65.
Relative Activity of Tocopherols in Curing Muscular Dystrophy in Rabbits. E. L. Hove and P. L. Harris.—p. 95.
Absorption of Radioactive Iron by Children 7 to 10 Years of Age. W. J. Darby, P. F. Hahn, Margaret M. Kaser and others.—p. 107.
Bioassay of Vitamin B_6 in Natural Materials. P. S. Sarma, E. E. Snell and C. A. Elvehjem.—p. 121.

Seasonal Variations in Vitamin A and Carotene Content of Butters.—In the course of a two year period more than 150 samples of commercial butter were assayed by Ellenberger and his associates. These samples represented five nationally advertised brands of butter purchased on the retail market and one brand purchased at a local creamery. Preliminary to and during the course of these assays, studies relating to methodology were carried out for the purpose of checking or improving methods of assay. Although distinct seasonal variations in the carotene and vitamin A content of butters as purchased on the retail market in Pennsylvania were noted, there was no indication that any one brand of butter was constantly higher or constantly lower than other brands with respect to either vitamin A or carotene. With few exceptions the vitamin A content of butter was found to exceed the carotene content (in terms of both weight of material present and international unit equivalent) at all seasons of the year and also showed less seasonal variation. The average yearly vitamin potency of the six brands of butter was found to be 15,640 international units per pound.

Nebraska State Medical Journal, Lincoln

32:49-88 (Feb.) 1947

Evaluation of Fenestration Operation in Otosclerosis. S. J. Kopetzky.—p. 53.
Problems in Management of Cardiac Failure Among Elderly Patients. H. M. Odel.—p. 61.
Management of Acute Intestinal Obstruction. C. H. Waters Sr.—p. 66.
Common Elbow Fractures. W. R. Hamsa.—p. 67.
Some Aspects of Traumatic Pathology. F. H. Tanner.—p. 69.
Proposed Classification for the Pneumonias. C. R. Hankins.—p. 72.
Titered Serologic Tests for Syphilis. L. O. Vose.—p. 75.

Rhode Island Medical Journal, Providence

30:1-80 (Jan.) 1947

Primary Bronchogenic Carcinoma: Report of 47 Cases. J. N. Corsello and W. B. O'Brien.—p. 15.
Some of the Late Clinical Aspects of Campaign Acquired Tropical Diseases. M. N. Fulton.—p. 21.
Treatment of Hypertension with Rice Diet. F. Behrendt and A. M. Burgess.—p. 25.

30:81-164 (Eeb.) 1947

Rhode Island's Water Pollution Problem. P. C. Cook.—p. 95.
Pediatric Problems of General Practitioner. H. E. Utter.—p. 100.
Podophyllin in Treatment of Cutaneous Vegetations. F. Ronchese.—p. 103.
Otoscleroris, Progressive Deafness and Correlated Problems: What Has Research Discovered and What Does the Future Promise? E. P. Fowler.—p. 105.

Rocky Mountain Medical Journal, Denver

44:1-88 (Jan.) 1947

Doctor's Federal Income Tax. T. R. Taylor.—p. 19.
Diagnosis and Treatment of Sterility. L. W. Mason.—p. 27.
Newer Concepts of Pregnancy Toxemias. C. E. McLennan.—p. 31.
Allergy as Related to Ear, Nose and Throat. R. I. Williams.—p. 37.

44:89-176 (Feb.) 1947

Changes in Precordial Electrocardiogram Due to Position of Exploring Electrode. C. T. Burnett.—p. 107.
Mission of a Medical School. V. Johnson.—p. 116.
Induction of Artificial Pneumothorax: Method of Utilizing Pulmonary Puncture. S. H. Dressler and H. M. Maier.—p. 122.
Functional Uterine Bleeding. R. J. Crossen.—p. 125.

South Carolina Medical Assn. Journal, Florence

43:29-58 (Feb.) 1947

Early Ambulation in Obstetrics and Gynecology. J. C. Hall.—p. 29.
Hemoglobin Levels of Parker High School Students. W. Wilkins, Ruth Blakely and Julia Brunson.—p. 31.
County Medical Society. M. L. Meadors.—p. 34.

Virginia Medical Monthly, Richmond

74:47-96 (Feb.) 1947

Treatment of Tularemia with Streptomycin: Report of 3 Cases. W. C. Reed.—p. 47.
Observations on Classification and Diagnostic Criteria of Heart Diseases. R. E. Glendy.—p. 50.
*Rutin in Treatment of Capillary Fragility: Preliminary Report. H. S. Zfass.—p. 56.
Neurosurgical Complications of Injuries About Head and Face. J. L. Thomson.—p. 63.
Diabetic Acidosis: Review of 105 Cases. R. P. Pillow, H. R. Pearsall and H. B. Mullholland.—p. 67.
Experiences of an Ophthalmologist Aboard a Hospital Ship. W. P. McGuire.—p. 72.
Mediastinal Sympathoblastoma (Neuroblastoma): Report of 2 Cases with Necropsies and Review of Literature. P. N. Davis.—p. 76.
Persistently Seronegative Reaction for Syphilis in Chronic Brucellosis. C. L. Cossels.—p. 82.
Simplified Rubin Test Technic. N. G. Patterson.—p. 84.

Rutin in Treatment of Increased Capillary Fragility.—Rutin, a flavonal glucoside, is a constituent of many plants, including buckwheat, forsythia, tobacco, garden rue, violets and elder flowers. Zfass reviews observations on 13 patients who were selected from a total of 60. Only patients who showed an increased or borderline capillary fragility were chosen for rutin therapy. The usual dose was 20 mg. orally three times a day. Eight of the 13 patients had considerable hypertension. It was found that rutin restores increased capillary fragility to normal. One of 2 patients who were treated with potassium thiocyanate developed increased capillary fragility, but rutin restored the fragility to normal. The use of thiocyanate in the treatment of hypertensive arteriosclerotic heart disease is dangerous once the patient has an increased capillary fragility. The drug is apparently harmless if the capillary fragility remains normal. Once the capillary fragility is returned to normal with rutin, thiocyanate can be used as an adjunct indefinitely without increasing the fragility. Rutin may prove a valuable drug in preventing cerebral vascular accidents and insidious bleedings. The blood pressure was only slightly lowered in 3 of 10 hypertensive patients who received rutin on account of increased capillary fragility, but the retinal hemorrhages of 3 out of 4 patients subsided under treatment with rutin.

West Virginia Medical Journal, Charleston

43:1-56 (Jan.) 1947

Some Phases of Tuberculosis Control. J. L. Patterson.—p. 1.
Tuberculosis Case Finding Program. R. L. Smith.—p. 3.
Vocational Rehabilitation for the Tuberculous. E. M. Ashworth.—p. 8.
Psychotherapy in Treatment of Tuberculous Patients. J. L. Knapp.—p. 12.
Treatment of Pulmonary Tuberculosis. D. Salkin.—p. 16.
Recent Progress of Thoracic Surgery Pertaining Principally to Tuberculosis. E. W. Davis.—p. 18.

43:57-92 (Feb.) 1947

Public Health Aspects of Rheumatic Fever, Including Present Status of Organized Efforts to Control Its Effects. G. M. Wheatley.—p. 57.
Review of Vaginal Smear Method for Early Diagnosis of Cancer: Report of Cases. G. W. McClure.—p. 66.
Physiology of Respiratory Diseases. A. C. Ivy.—p. 71.
Cancer Control in West Virginia. P. R. Gerhardt.—p. 76.
Roentgen Sickness Controlled with Pancreatin. W. A. Quimby.—p. 80.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:169-208 (Feb. 1) 1947

Retrodisplaced Gravid Uterus. H. H. F. Barns.—p. 169.
Liver Damage in Amebiasis. D. Shute.—p. 172.
Spinal Washouts in Treatment of Purulent Meningitis. J. A. Nissim. —p. 176.
Pseudomonas Pyocyanea Meningitis Following Spinal Anesthesia. C. A. Vuylsteke.—p. 179.
Hepatic Hydatid Cyst Causing Suprarenal Hemorrhage. L. W. Godfrey. —p. 181.

209-244 (Feb. 8) 1947

*Dust Control in Measles Wards, with Note on Sulfadiazine Prophylaxis. N. D. Begg, E. W. Smellie and J. Wright.—p. 209.
Adrenalectomy in Mental Disorder. E. C. Dax, E. J. R. Smith and F. Reitman.—p. 215.
*Neurologic Complications in Atypical Pneumonia. J. MacDonald Holmes. —p. 218.
Deficiency Diseases in Reoccupied Hong Kong. Lydia Fehily.—p. 220.

Dust Control in Measles Wards: Sulfadiazine Prophylaxis.—Begg and his associates report an investigation into the control of dust borne hemolytic streptococci in two identical measles wards. In one, the oiled ward, all bed clothes, patients' garments and ward linen were treated with technical white oil, and the floor of the main ward was oiled. In the unoiled ward no anti-dust measures were taken. In both wards the air was sampled for total bacteria and for hemolytic streptococci during bed making and sweeping, and the streptococcic cross infection and complication rates were recorded. The oiling methods were successful in suppressing dust borne bacteria. This was shown by the fact that the mean total bacterial count was reduced, when compared with the count for the unoiled ward, by 92.3 per cent during bed making and by 79.1 per cent during sweeping. The cross infection rate among 186 measles patients nursed in the unoiled ward was 12.4 per cent and among 190 patients in the oiled ward 20.5 per cent. These cross infections appeared to be due to contact rather than to air borne infection. The fact that this type of cross infection was higher in the oiled than in the unoiled ward was unexplained. The complication rate due to streptococcic cross infection was exceedingly low; only 1 case of streptococcic otorrhea due to cross infection occurred among the total of 376 patients nursed in the two wards. In order to evaluate chemoprophylaxis of streptococcic cross infection in measles, a third study ward was set up. The complete absence of complications attributable to streptococcic cross infection in the sulfadiazine ward and the low bacteriologic cross infection rate justify a further attempt to evaluate the question of sulfonamide prophylaxis in measles.

Neurologic Complications in Atypical Pneumonia.—Holmes describes 6 cases in which symptoms of severe spinal and cerebral lesions occurred in association with pulmonary lesions presenting the radiologic appearances of "atypical pneumonia." Recovery was rapid and complete. Although the clinical picture was variable, it was in each case suggestive of a virus infection of the nervous system. A review of the literature suggests that the nervous system is rarely involved in atypical pneumonia but that when this does occur the tendency is toward complete recovery without sequelae.

Edinburgh Medical Journal

53:657-728 (Dec.) 1946

*Molluscum Contagiosum. R. C. Low.—p. 657.
Problems in Arterial Surgery. F. Albert.—p. 671.
High Blood Pressure. J. G. M. Hamilton.—p. 683.
High Blood Pressure. A. T. B. Dickson.—p. 688.

Molluscum Contagiosum.—According to Low, molluscum contagiosum is a raised solid hemispherical projection of the same color as the normal skin or slightly redder. The center of each lesion usually shows a small depression. The lesion begins as a minute pin point elevation and grows slowly till it reaches the size of a large pea. The incubation period varies from one to six months. The lesions may persist for weeks or months. If left alone, some of them may shrink and gradually disappear, but the natural method of cure is by secondary infection. At the Royal Infirmary of Edinburgh about 78 cases are seen annually in an average of 39,000 skin cases. Molluscum contagiosum is due to infection of the epithelial cells of the skin with a filtrable virus elementary body. This virus elementary body is contained in the cell inclusion commonly known as the "molluscum body." The diagnosis can be established by microscopic demonstration of molluscum bodies. The disease is often spread by public bathing establishments. The best treatment is to squeeze out the contents of each lesion and insert a drop of pure phenol (carbolic acid) on a probe or dental burr. Usually one application will cure a lesion of ordinary size, leaving no scar. Early minute lesions can be cured by simply touching them with the pure phenol.

Journal of Tropical Medicine and Hygiene, London

50:21-42 (Feb.) 1947

Etiology of Tropical Ulcers in Somalis. A. D. Charters.—p. 22.
*Plasma Antimony Concentration and Urinary Antimony Excretion in *Man During Therapy with Organic Antimony Compounds.* A. Gellhorn, H. M. Rose and J. T. Culbertson.—p. 27.
Field Tests on Some Pyrethrum Anti-Mosquito Repellent Creams Against Woodland Species of Aedes in Britain. C. G. Johnson.—p. 32.

Antimony Compounds.—Gellhorn and his associates determined the plasma antimony concentration on 40 Puerto Rican patients infected with Wuchereria bancrofti. The patients were asymptomatic but microfilarie were easily demonstrable in the peripheral blood. The following antimony compounds were administered by intravenous injection: lithium antimony thiomalate (anthiomaline), potassium antimony tartrate (tartar emetic), antimony-bis-catechol disulfonate (Fuadin), N-glucoside of stibanilic acid (Neostam), diethyl amino ethanol of sodium antimony gluconate (Stibanose) and a brand of ethylstibamine (Neostibosan). Plasma samples were obtained at about the midpoint and at the end of the therapeutic course. The highest antimony concentrations were attained in the plasma of patients receiving Neostibosan; much lower plasma antimony concentrations were observed in persons receiving Neostam, and only traces could be detected following the injection of Stibanose and all the tervalent antimony compounds. Neostibosan seems to be the chemotherapeutic agent of choice against antimony susceptible parasites which are present in the blood stream. The urinary excretion of Neostibosan and Fuadin antimony was determined in 5 patients and it was found that the quinquevalent antimony of Neostibosan is excreted to a far greater extent than is the tervalent antimony of Fuadin. This shows the greater toxicity of tervalent compounds compared to quinquevalent compounds.

Presse Médicale, Paris

55:37-48 (Jan. 18) 1947

Vasoconstrictor Substances in Blood of Patients with Arterial Hypertension Studied by Blood Transfusion. Riser, Becq and Dardenne. —p. 37.
*Role of Medical Pancreatitis in Etiology of Diabetes Mellitus. I. Pavel. —p. 38.
Asphyxia: Statistical Study. P. Genaud.—p. 39.
Posology of Sulfathiazole. R. Eyckmans.—p. 41.

Pancreatitis and Diabetes Mellitus.—Pavel reports 2 cases of diabetes mellitus in boys aged 15 and 5 whose brother and mother respectively had mumps three and two years previously and had lived with them in the same apartment. Three cases of diabetes mellitus are reported in which this disease occurred after an attack of catarrhal jaundice. One case of temporary glycosuria and 1 case of diabetes mellitus after scarlet fever are also reported. A pronouced diastasuria was observed in convalescents after pneumonia. In contrast to the opinion of other workers in diabetes, pancreatotropic infection is to be considered as an etiologic factor in diabetes mellitus. The infection may be the primary and direct cause of diabetes mellitus or a secondary cause in a patient with hereditary disposition, or it may be a predisposing factor in the presence of other factors such as overfeeding, hyperfunction of pituitary or pancreatitis. Glutting on a diet rich in sugar is contraindicated during convalescence following these types of infection.

Wiener klinische Wochenschrift, Vienna

59:17-32 (Jan. 17) 1947. **Partial Index**

*Permanent Results After Total Extirpation of Stomach on Account of Carcinoma. H. Finsterer.—p. 17.
Is Retroflexion of Uterus a Disease Entity? H. Heidler.—p. 24.
What Does Electricity Accomplish in Treatment of Paralysis? J. Kowarschik.—p. 27.

Results of Total Extirpation of Stomach.—Finsterer thinks that neither advanced age nor great emaciation is a contraindication to total extirpation of the stomach. Among the 89 patients on whom he performed this operation there were 62 over 50 years of age, which is a much higher percentage of elderly patients than appear in other statistics. In a total extirpation of the stomach not only the entire organ but also a part of the duodenum and of the esophagus should be included. A direct anastomosis can be made between the esophagus and the jejunum. This extensive resection is justified in spite of a relatively high mortality rate because it is the only method with a prospect of cure. Of Finsterer's 89 patients 54, or over 60 per cent, died within the first three and a half months after operation. By improvement in the surgical technic and by changing the indication during the operation, when it is discovered that the carcinoma has extended to the pancreas, liver or colon, the mortality rate has in recent years been reduced to less than 50 per cent. The surviving patients demonstrate that the removal of the entire stomach is tolerated by the organism and is not necessarily followed by severe anemia.

Maandschrift voor Kindergeneeskunde, Leyden

14:329-358 (Nov.) 1946

Immunization Against Whooping Cough and Measles. S. van Creveld. —p. 329.
*Characteristics of Blood in 3 Cases of Icterus Gravis. A. van Westrienen and M. Sprangers.—p. 350.

Blood Characteristics in Icterus Gravis.—Van Westrienen and Sprangers encountered difficulties in the treatment of 3 instances of hemolytic disease of the newborn. Transfusion of Rh positive blood had a favorable result in the first infant, autoagglutination subsiding after five days. In 2 infants whose serums held anti-Rh agglutinins the same therapy could not be applied, as all available Rh positive donors showed agglutination of their erythrocytes. Agglutination tests should always be performed before transfusion, especially when using Rh positive donors.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

90:1871-1910 (Dec. 14) 1946

*Causes of Hemoptysis. J. C. Gerrits.—p. 1884.
Distribution of Methyl Alcohol Throughout the Body. J. C. de Jong and R. van Dam.—p. 1889.

Causes of Hemoptysis.—Gerrits says that, of the 2,322 patients who visited the outpatient department of his clinic in the years between 1941 and 1946, 192, or 8 per cent, came on account of hemoptysis. Besides pulmonary tuberculosis, chronic tracheobronchitis was an important etiologic factor. Chronic tracheitis with accompanying hemopytsis was especially frequent during the influenza epidemic in the winter of 1945-1946.

Acta Ophthalmologica, Copenhagen

24:225-336 (No. 3) 1946. **Partial Index**

Rib Cartilage Grafts for Correction of Cosmetic Defects Caused by Enucleation. Preliminary Report.—p. 225.
*Study in Pseudoglaucoma: (Glaucoma Without Hypertension). H. Sjögren.—p. 239.
*Eye Symptoms in Poliomyelitis Anterior Acuta. P. Kindt and K. Knudtzon.—p. 195.

Pseudoglaucoma (Glaucoma Without Hypertension).—According to Sjögren, pseudoglaucoma or glaucoma without hypertension is characterized by the typical symptoms of chronic glaucoma but with the difference that the cardinal symptom, increased intraocular pressure, is not present. The author cites facts which indicate that it is absurd to draw a dividing line at 30 mm. intraocular pressure, thereby creating two separate diseases, glaucoma and pseudoglaucoma. He thinks that glaucoma and pseudoglaucoma are one and the same disease.

Eye Symptoms in Acute Anterior Poliomyelitis.—Kindt and Knudtzon found that during the extensive epidemic of poliomyelitis in 1944, when 279 patients with this disease were admitted to the Frederiksberg Hospital, a rather large number had eye symptoms. Of the 37 patients presenting symptoms of the brain stem, 23 had eye symptoms. In 20 of the 23 patients the symptom which occasioned the summoning of the eye specialist was diplopia or, in a few cases, dimmed vision or flickering before the eyes. Double vision was constant or periodic in most cases. Paresis of the eye muscles was found in only 10 of the 20 patients who complained of double vision or dimmed vision. In 3 patients diplopia was one of the primary symptoms; in most of the others the eye symptoms appeared between the fourth and the eleventh day. All the ocular symptoms disappear completely or almost completely without special treatment in patients who survive the disease.

Nordisk Medicin, Gothenburg

32:2615-2674 (Nov. 15) 1946. **Partial Index**

Polyarthritis in Climacterium. E. Snorrason.—p. 2619.
Modification of van Slyke's Apparatus for Monometric Determinations. E. O. Errebo-Knudsen.—p. 2621.

Norsk Magasin for Lægevidenskapen

*To What Extent Should Exudative Pleurisy Be Treated with Pneumothorax? A. Jervell and B. Istre.—p. 2623.
*Primary Exudative Pleurisy—Prognosis and Treatment. After-Examination of 138 Patients. P. A. Nilsen.—p. 2630.
*Cirrhosis of Liver and Its Relation to Acute Epidemic Hepatitis. E. Wang.—p. 2634.
Follow-Up of 200 Patients Treated with Thoracoplasty in Bodø Hospital. R. Lund.—p. 2641.
Three Cases of Intoxication with Cleavage Products of Tetraethyl Lead. A. Bruusgaard.—p. 2644.

Hygiea

Experiences with Regard to Reconstruction Surgery from Study Trip in United States. E. Severin.—p. 2649.

Pneumothorax in Exudative Pleurisy.—Of 143 patients with primary exudative pleurisy observed for from one to five years after treatment 132 are well, in 11 (7.7 per cent) pulmonary tuberculosis developed and 4 (2.8 per cent) have died. Study of the 11 cases, Jervell and Istre assert, shows that in the 8 pneumothorax would have been useless, while in 3 it might perhaps have been of value. They conclude that systematic pneumothorax treatment in their material would not have been justifiable.

Primary Exudative Pleurisy.—Tuberculosis developed in 17 of 138 patients with primary exudative pleurisy treated in Drammen Hospital from 1935 to 1944, with 7 deaths. Nilsen says that both morbidity and mortality from tuberculosis after pleurisy seem at present to be considerably lower than reported earlier in the literautre. Most of the cases of tuberculosis and deaths from tuberculosis occurred in the years immediately after the pleurisy. Pulmonary tuberculosis was equally frequent on the side affected by the pleurisy and the opposite side. Morbidity and mortality were greater after bilateral than after unilateral pleurisy. In cases with demonstrable pulmonary infiltration or hilus adenitis the morbidity was quadrupled, in the cases with demonstrable infiltration the mortality likewise. Early drainage of the exudate with replacement of the exudate by air apparently reduces morbidity and mortality and may prevent shrinkage. It seems rational to treat by continued pneumothorax all cases of pleurisy with infiltration on the pleurisy side and those with tubercle bacilli in the sputum without demonstrable infiltration on the opposite side.

Cirrhosis of Liver and Its Relation to Acute Epidemic Hepatitis.—Wang found fully developed cirrhosis of the liver in 447 cases out of 18,952 necropsies from 1929 to 1945. Fifty-two cases followed hepatitis, 10 after an interval, 42 directly. In the latter the cirrhosis is attributed to the hepatitis. While during the first fifteen years the disease occurred in 10 men and 12 women, in the last two years 3 men and 17 women were affected, with incredibly rapid development of the symptoms of cirrhosis. The increased incidence of cirrhosis of the liver due to hepatitis and the preference for women also reported from Denmark are unexplained.

Book Notices

Synopsis of Physiology. By Rolland J. Main, Ph.D., Professor of Physiology, Medical College of Virginia, Richmond. Fabrikoid. Price, $3.50. Pp. 341, with 21 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1946.

No better review of Professor Main's brief textbook can be offered than the first paragraph of his preface: "Physicians and senior medical students often ask me to recommend a physiology text for review purposes, or to learn what has been added to our knowledge of physiology since they studied the subject. When, with yearly increasing exertion, I lift a standard text from my desk, they recoil in horror at its size, stating emphatically that they want a *little* book which hits the high spots. So here is a small book which attempts to cover the essentials." The book seems to accomplish its author's purpose. Here is a practical work for the reader who is determined to cover the field of physiology in the least possible time, who requires each bit of information to be catalogued as either known, unknown or speculative. No words are wasted; there are no eponyms, no references to original publications, and only twenty-one illustrations to detract from what the author calls a "shockingly dogmatic" approach to the subject. The textbook is not intended for use of students who seek to master the science of physiology, with its broad historical and experimental traditions.

Medical Biochemistry. By Mark R. Everett, Ph.D., Professor of Biochemistry, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma Second edition. Cloth. Price, $7. Pp. 767, with 106 tables. Paul B Hoeber, Inc., 49 E. 33d St., New York 16; 90 Great Russell St., London W. C. 1, 1946.

The author has closely adhered to the same general principles he set up for the preparation of the first edition, namely to present a straightforward systematic outline of the fundamentals of biochemistry without the aid of the historical approach, thus omitting names and references and saving considerable space. While some will question whether this is the most interesting or best method of approach, they must admit that the author has presented a surprisingly large number of facts in a logical, accurate and scholarly manner. In a further effort at simplification, discussions of the various secretions (aside from the digestive secretions) and tissues are given under suitable subheadings in other chapters.

The subject is presented in ten chapters, on acid-base relations, colloids, enzymes and oxidation, digestion, lipids, carbohydrates, proteins, prosthetic radicals of nucleoproteins and chromoproteins, inorganic substances, vitamins and avitaminoses, and hormones and endocrinoses. The order in which the chapter discussions are taken up is chemistry, metabolism, pathology—the logical order of thought for the future physician. While there are those who believe that biochemistry should be presented to the medical student as a pure science, interpretations being given later in the curriculum, the author's sequence of discussion shows the medical student the practical importance of biochemistry while he has an opportunity of acquiring the necessary fundamental knowledge and thus stimulates his interest in biochemistry. For those students who desire further information, bibliographies of selected modern reviews covering the theoretical and practical aspects of the different topics follow each chapter.

Despite its comparatively small size, the book gives some attention to practically all topics of fundamental importance in biochemistry and clinical biochemistry as well. The criticism might be made that in the author's efforts to cover the subject completely in this small compass the brevity might mislead some students to underappreciate the numerous fundamental facts presented.

The book appears to be relatively free from errors of fact and type, for which the author and publisher should be commended. It will be found a reliable textbook for medical students and a valuable review for students who have employed other textbooks. Medical graduates who wish to reappraise their knowledge of biochemistry and clinical biochemistry also will find the book useful.

Les ultravirus des maladies animales: Nature des ultravirus, immunité, méthodes physiques et chimiques, virus des maladies animales. Par C. Levaditi, P. Lépine et J. Verge. En collaboration avec J. Bailly, et al. Fabrikoid. Pp. 1,226, with 202 illustrations. Librairie Maloine, 27 rue de l'Ecole-de-Médecine, Paris 6^e, 1943.

This volume, composed and published during the war, bears ample testimony to the remarkable intellectual capacity and productivity of the French under trying circumstances. There is need for a comprehensive treatise such as this on the virus diseases of animals. None exists in the English language, and the German "Handbuch der Virus Krankheiten," which appeared in 1939, is not well known. Under the editorship of Levaditi, Lépine and Verge, twenty-four specialists reflect in their respective chapters the continuous progress which has been made. Each author discusses his specialty; for example, J. Bailly writes on pseudorabies and G. M. Findlay on Rift Valley fever. For each disease included in the book there is a section which deals with history, geographic distribution, epidemiology, clinical and pathologic pictures, experimental infection, the infective viral agent, pathogenesis, immunity and immunization, and prophylaxis.

On the whole, this excellent and authoritative work includes within its scope only knowledge available up to 1941-1942. The first 239 pages consider the general characteristics and the nature of the viruses and the modern methodology employed in their study. Particularly interesting are the discussions on the use of the electron microscope. This section is well illustrated with photographs from the articles of Ruska. These articles, which appeared in German publications in 1939 and 1941, are not readily available in the United States.

According to Lépine, who reviews the present knowledge on the mechanism of immunity in virus infections, the refractory state to a reinfection is entirely cellular in nature. The deciding influence of antibodies at the port of entry and their role in such infections as yellow fever, encephalomyelitis and influenza are unfortunately not discussed. Although he hesitates to generalize in his opinion, Lépine does not correlate the enduring immunity which follows certain virus infections with the persistence of the virus in the host tissues. However, in this connection the role of carriers and the importance of latent infections in general were overlooked. One would like to know the biologic significance attached to the persistence of the hog cholera virus in the blood of goats for forty-two days (p. 593). In addition, a brief discussion of the virus infections transmissible to man, if readily available in such a volume, would be invaluable to the physician.

A cursory reading of the descriptions of 28 virus infections of animals discloses a number of interesting facts. The virus of foot and mouth disease is claimed to be present occasionally in the intestinal tract of a healthy human being. Contagious ecthyma of sheep and pox of goats have been transmitted to man. Pseudorabies may induce a mild human infection. The importance of the encephalitis agents of horses, sheep and cattle in producing human disease is fully described. The experimental transmission of the dog distemper virus to man is stated to produce an inapparent infection. According to recent accounts, human beings are resistant against the virus of infectious anemia of horses.

Especially interesting to the laboratory worker are the sections which deal with the virus infections of small animals, in particular the guinea pig and the rabbit. The role of viruses in the formation of tumors of rabbits and chickens and in the transmissible leukosis of birds is fully discussed. Other chapters deal with pleuropneumonia infections in goats and cattle and the viruses responsible for diseases of insects. These and all of the other chapters are concise and informative and are provided with selected bibliographies in footnote form. For quick orientation the chapter on rickettsia infections in dogs, sheep and particularly in cattle deserves consideration in view of the increasing importance of these animals as a possible source of Q fever in man.

The size and format of the book are convenient. The illustrations as a whole are excellent. It is an indispensable reference work and will serve as an excellent supplement to the companion volume, Les ultravirus des maladies humaines, by Levaditi and Lépine (1938).

Following repeated transfusions of blood of subgroups A_1 or A_1B to recipients of subgroups A_2 or A_2B, or vice versa, sensitization may develop and further transfusion of blood of the incompatible subgroup may cause a hemolytic transfusion reaction.

If donor and recipient are Rh positive, sensitization may occur if the Rh types of the two differ. The Rh factor is not a homogeneous single substance. It consists of several qualitatively differing types.

Tests for the Rh antibody in the blood of the recipient may prove sensitization.

The best way to prevent hemolytic reactions due to incompatibility after repeated transfusions is to test for the Rh factor and to give only Rh-negative blood to Rh-negative recipients. Another precaution is to do crossmatching tests with the serum of the recipient and the red cells of the donor according to a technic similar to the one that is used for Rh testing: place a few drops of the donor's red cell suspension in a narrow test tube, centrifuge, discard supernatant saline, add one to two drops of the recipient's serum, shake and incubate for thirty to sixty minutes at 37 C. in a water bath or incubator. If negative centrifuge for one minute at about 500 to 600 revolutions. Shake gently, read and check with microscope. Include control with recipient's own cells. Absence of clumping, if confirmed microscopically, suggests strongly that there is no incompatibility.

Reducing the speed of the transfusion will help to prevent untoward reactions.

Reference:

Wiener, A. S.: Blood Groups and Blood Transfusions, ed. 3, Springfield, Ill., Charles C Thomas, 1945.

TREATMENT OF GONORRHEA

To the Editor:—What is the best treatment of gonorrheal urethritis in men (new infections) with especial emphasis on the following points: 1. What is the total dosage of penicillin employed? 2. Is antecedent or concurrent sulfadiazine therapy helpful as a synergist and will it increase the percentage of "cures"? 3. What is the proper interval between injections of penicillin (single injection of penicillin in beeswax and oil as compared with the hourly injection technic reported by Heller of the U. S. Public Health Service)? 4. How many negative smears and/or cultures are advisable to insure that the patient is not capable of transmitting infection?

M.D., California.

Answer.—Gonorrheal urethritis in men responds well to intramuscular injections of 25,000 units of penicillin every three hours for eight injections. For office treatments 50,000 intramuscular units every two or three hours for four to six injections will cure 90 per cent of acute gonorrhea. About 10 to 13 per cent of gonorrhea is now resistant to penicillin, the percentage of failures increasing with inadequate dosages. Penicillin resistant gonorrhea should be treated with oral sulfathiazole or sulfadiazine 1 Gm. every four hours night and day to a total dosage of 30 Gm. Synergistic action of sulfonamides and penicillin occurs in some instances. Penicillin in beeswax is effective in many cases, but the therapeutic effect is slowed and becomes less positive. Beeswax penicillin is useful when interval injections are not practical.

Except in penicillin resistant gonorrhea, previous unsuccessful sulfonamide treatment does not preclude a favorable penicillin therapeutic cure.

The cessation of the urethral discharge, the subsidence of urinary symptoms and a clear morning urine without shreds are excellent indicators of a clinical cure. Following treatment, three consecutive negative smears and/or cultures of the urinary secretions at weekly intervals are extremely helpful to determine a bacteriologic cure. A persistent urethral discharge following treatment, in the absence of a stricture, is a common sign of a treatment failure.

SEX HORMONES FOR CARCINOMA

To the Editor:—The administration of the opposite sex hormone is an accepted procedure to help to arrest the progression of carcinoma of the prostate. Are the sex hormones of the opposite sex of value in the treatment of retroperitoneal sarcoma, bone sarcoma, lymphoma, Hodgkin's disease, carcinoma of the colon, bronchogenic carcinoma or carcinoma of any organ other than the reproductive organs?

M.D., Florida.

Answer.—Sex hormones of the opposite sex are not of value in the treatment of the tumors described in the query or of carcinoma of any organ other than the reproductive systems. Treating carcinomas of the reproductive organs by hormones of the opposite sex is at the very best of temporary benefit, and their efficacy is questionable. Treatment of carcinomas of the sex organs with opposite sex hormones should not prevent the use of adequate surgery or irradiation, which are methods of proved value.

TRAUMA AND TEAR OF LESSER OMENTUM

To the Editor:—I wish to record an unusual case. On Oct. 7, 1946 I performed an exploratory laparotomy on a married woman aged 22, who complained of severe abdominal cramps and vomiting of sixteen hours' duration. The patient weighed 110 pounds (50 Kg.), her temperature was 97.6 F., her pulse 68 to 84 and her blood pressure 100/60. The findings were those of an acute condition of the abdomen. When the peritoneum was incised a large amount of fresh blood and numerous clots were evacuated. With considerable difficulty the bleeding finally was found to be coming from a 6 cm. vertical tear in the center of the gastrohepatic ligament (lesser omentum). Closure of the tear controlled the hemorrhage. Approximately 1,000 cc. of blood was lost. This was the only pathologic finding in the abdomen. The patient made an uneventful recovery. There was no history of any trauma except for lifting a heavy tub of wash water forty-eight hours previous to the onset of pain. Are any cases recorded of injury or tear of the gastrohepatic ligament, caused either by indirect trauma or spontaneously? What is the explanation of the unusual feature of a slow pulse preoperatively in spite of hemorrhage and shock?

K. L. Jenkins, M.D., Marysvale, Utah.

Answer.—The case described in the query is unique. The factor of trauma, though somewhat questionable, is still the most likely explanation of the phenomenon. A search of the extant medical literature fails to reveal any analogous case in which a tear of the lesser omentum occurred as a result of spontaneous effort or trauma of a direct blow. The proximity of the common bile duct and portal vein in the free edge of the gastrohepatic ligament would subject them to injury were such an occurrence as a tear from spontaneous effort a common event. During the war direct injury to the lesser omentum from stabs, bullet wounds and shrapnel and grenade bursts were encountered frequently and easily controlled.

Such a physical effort as the lifting of a heavy tub of water is recognized as a traumatic factor in initiating both hemorrhage and/or perforation of a peptic ulcer in the same anatomic region. It is plausible to believe that a similar violent exertion in a woman weighing only 110 pounds might initiate a tear in a mesentery, leading to extensive intra-abdominal hemorrhage.

The slow pulse indicates the absence of shock, owing to the fact that the hemorrhage, though considerable, took place slowly over a forty-eight hour period.

EMPYEMA AFTER LOBECTOMY

To the Editor:—Will you please let me know if empyema occurs after lobectomy for pulmonary bronchiectasis? If it does occur, in about what percentage of lobectomies does empyema develop?

M.D., New York.

Answer.—With the present lobectomy technic of individual ligation of the blood vessels, interrupted fine sutures of the bronchial stump, and the routine use of penicillin, the postoperative incidence of empyema is only about 5 per cent. When empyema occurs it is almost always due to the failure of the remaining lobe or lobes to come into early contact with all parts of the parietal pleura when pathogenic organisms are present. Such failure is usually due to (1) occlusion of the water-seal drainage system that is often used for a day or so in order to empty the pleural cavity of air and pleural effusion, (2) the development of a bronchopleural fistula at the lobectomy stump or from the pulmonary parenchyma that must be transected when an interlobar fissure is incomplete or (3) atelectasis resulting from bronchial occlusion by secretions.

PHYSICAL ACTIVITY AFTER SPONTANEOUS PNEUMOTHORAX

To the Editor:—How long should a patient who had a spontaneous pneumothorax from a ruptured emphysematous bleb be kept from his usual duties as a railroad brakeman after complete reexpansion of the lung?

R. L. Donald, M.D., Meridian, Miss.

Answer.—One month's rest after complete pulmonary expansion should permit the formation of as firm pleural adhesions as would develop during a longer period of rest. However, there is a strong tendency for spontaneous pneumothorax to recur if there has been insufficient obliteration of the pleural cavity by adhesions, the extent of the obliteration depending on the extent and degree of pleuritis that may have been present. Recurrence of a spontaneous pneumothorax is more likely to take place in persons who lead a strenuous life than a sedentary one. If repeated recurrences take place or if the lung fails to expand within a month or two after collapse has occurred, temporary phrenic nerve paralysis, thoracoscopic division of isolated pleural adhesions that may be holding open a bronchopleural fistula, surgical resection of the fistulous area of the lung or the artificial production of pleuritis by pleural poudrage or the interpleural injection of certain solutions should be considered, the method to be chosen depending on the condition of the particular patient.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 3 — Chicago, Illinois — May 17, 1947

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THE USE OF ISOTOPES IN MEDICAL RESEARCH

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The word isotope refers to forms of the same element having different atomic weights. For example, there are five isotopes of ordinary iron in nature, and a preparation of iron used therapeutically contains these different isotopes in the following percentages:

Fe^{54}	6 04%	Fe^{57}	2 11%
Fe^{56}	91 57%	Fe^{58}	0 28%

All have the same nuclear charge, which means that they are iron, but each has a different total atomic weight. Similarly, other elements have different isotopic forms. For instance, there is hydrogen, with atomic weight 1; and heavy hydrogen, with atomic weight 2, which is twice as heavy. Hydrogen in nature contains 99.98 per cent H^1 and 0.02 per cent H^2. Other examples are nitrogen, with two isotopes, N^{14} (99.62 per cent), and N^{15} (0.38 per cent) and carbon, with two isotopes C^{12} (98.9 per cent) and C^{13} (1.1 per cent). In a given chemical or biologic sample, the percentage of these isotopes in the material can be determined by use of the mass spectrograph; and by employing compounds containing enriched percentages of a particular isotope, one can trace an element or compounds of that element in a biologic process. In the mass spectrograph the ionized atoms of different weights are accelerated in a magnetic field, which causes them to travel in a circular path, the radius of which depends on the mass of the particular particle. The collecting plate accumulates the charges brought to it, and the amount of the particular isotope is determined from this value. Important and extensive biologic, biochemical and medical research have been done with this tracer technic, particularly with N^{15} and C^{13}.[1]

There is another type of isotope, which I would like to discuss in somewhat more detail. This is the radioactive isotope. In addition to having different atomic weights, these isotopes emit rays of various types, somewhat like the rays emitted by radium and its decay products. The quantity of the isotope present can be determined by use of a Geiger counter, electroscope or electrometer, which count or measure the number of rays emitted per unit time. With methods now available radioactive forms of nearly all the ninety-six elements now known in the periodic system can be made artificially. The most efficient methods involve the use of the cyclotron or the uranium pile.[2]

In the cyclotron positively charged nuclear particles are accelerated. For example, if radioactive iodine is to be made, a target of the element tellurium (which is next to iodine in the periodic table) may be bombarded with deuterons. The result is the transformation of some of the tellurium atoms into I^{131}, a radioactive isotope which emits beta and gamma rays. The reaction may be written as follows:

$$ {}_{52}Te^{130} + {}_{1}H^{2} \longrightarrow {}_{53}I^{131} + {}_{0}n^{1} $$

tellurium + deuteron ⟶ iodine (radioactive) + neutron

Some of the transmutations that can be effected with the cyclotron may also be produced by the pile, and in many of these cases the pile is able to make larger quantities of isotope than is the cyclotron. For example, ordinary N^{14} can be converted into long-lived radioactive C^{14}. The reaction is as follows:

$$ {}_{7}N^{14} + {}_{0}n^{1} \longrightarrow {}_{6}C^{14} + {}_{1}H^{1} $$

Here, the target is nitrogen in the form of some compound of nitrogen, such as ammonium nitrate. The bombarding bullet is a slow neutron, and a pile is the source par excellence for slow neutrons. The nitrogen nucleus gains a neutron but loses a proton and thus is transformed to carbon of atomic weight 14.

There are two obvious uses for these new isotopes: one as a source of therapeutic irradiation in substitution for roentgen rays and radium and the other as tracers in metabolic studies. These elements and compounds made from them or containing them are chemically like their inactive relatives. Since they emit rays, they can be followed in the organism and a dynamic picture of metabolism can be obtained. Only one in several million atoms need be labeled with activity to enable all of them, including the nonactive atoms, to be followed.

In tracer work extremely weak activities of the elements are used so that there is no biologic effect from the irradiation. There is a so-called safe human tolerance level for irradiation (0.1 roentgen per day), and in tracer work one attempts to keep below this level. In their every day environment all persons are exposed, from cosmic rays and the radiations from the naturally occurring radioactive substances in the earth, to a small daily dose of irradiation. In therapeutic work, in contrast to tracer work, larger doses are used.

From the Division of Medical Physics (Radiation Laboratory and Department of Physics) and the Division of Medicine, University of California

This paper is abstracted from the second annual Alumni Lectures, University of Tennessee College of Medicine, 1946, and from a paper read in the General Scientific Meetings at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 2, 1946

[1] Wilson, D. W.; Nier, A O. C, and Reimann, S R.: Preparation and Measurement of Isotopic Tracers: A Symposium Prepared for The Isotope Research Group, Ann Arbor, Mich, J. W. Edwards, 1946.

[2] Lawrence, E O, and Cooksey, D.. On the Apparatus for the Multiple Acceleration of Light Ions to High Speeds, Phys Rev. **50:** 999-1005 (Dec 1) 1936. Availability of Radioactive Isotopes: Announcement from Headquarters, Manhattan Project, Washington, D. C., Science **103:** 697-705 (June 14) 1946.

In figure 1 are listed a number of radioactive isotopes which have been used in biologic and medical research. As with all unstable atoms, each isotope emits a characteristic type of radiation and has a definite half-life. The half-life is the time required for the sample to decay to one-half its original activity. There is H^3, radioactive hydrogen, which has a half-life of 31 years. There are two medically useful [3] radioactive isotopes of carbon, C^{11} and C^{14}, the former with a half-life of about twenty-one minutes and the latter with one of about 6,000 years. The former has been used in medical studies [3] in which experiments must be completed within a few hours because of the rapid loss of activity. With carbon of atomic weight 14 there is no appreciable decay during a human lifetime. Farther down the list are seen two isotopes of sodium, and one of phosphorus, also one of sulfur, calcium, iron, iodine and potassium—all with different half-lives and all of interest in physiology and medicine. The last few elements are those which occur in nature, as does radium. It has a half-life of almost 1,600 years. Another interesting natural radioactive element is uranium 235, which has a half-life of almost a billion years and is used in one of the atomic bombs. Element 94 is plutonium, which is made artificially from uranium (although it occurs in minute amounts in nature); it is the essential ingredient of another type of atomic bomb.

ISOTOPE	RADIATION	HALF - LIFE	ENERGY OF PARTICLES MEV	γ RAYS MEV
${}_{1}H^{3}$	β^-	31 yrs.	0.015	
${}_{6}C^{11}$	β^+	20.5 min.	0.95	
${}_{6}C^{14}$	β^-	25×10^3 yrs.	0.145	No γ
${}_{11}Na^{22}$	β^+, γ	3.0 yrs.	0.58	1.3
${}_{11}Na^{24}$	β^-, γ	14.8 hr	1.4	1.4 , 2.8 ; 2.87 ; 2.69 ; 3.22 , 3.61
${}_{15}P^{32}$	β^-	14.30 days	1.71	No γ
${}_{16}S^{35}$	β^-	87.1 days	0.120	
${}_{20}Ca^{45}$	β^-, γ	180 days	0.2 , 0.9	0.7
${}_{26}Fe^{59}$	β^-, γ	47 days	0.26 , 0.46	1.10 , 1.30
${}_{36}Kr^{79,81}$	β^+	34 hr.	0.4	
${}_{38}Sr^{89}$	β^-	55 days	1.50 ; 1.32	No γ
${}_{53}I^{131}$	β^-, γ	8.0 days	0.687 ; 0.595	0.4 ; 0.367, 0.080
${}_{54}Xe^{127}$	e^-, γ	34 days		0.9
${}_{7}N^{13}$	β^+, γ	9.93 min.	0.92 , 1.20	0.28
${}_{17}Cl^{34}$	β^+	33 min	2.5	
${}_{18}A^{37}$		34 days		
${}_{18}A^{41}$	β^-, γ	110 min.	1.5	1.37
${}_{19}K^{42}$	β^-	12.4 hr.	3.5	
${}_{20}Ca^{41}$	K , γ , e^-	8.5 days		1.1
${}_{29}Cu^{64}$	$\beta^-; \beta^+; K$	12.8 hr.	0.58 , 0.66	No γ
${}_{30}Zn^{65}$	β^+, K, γ, e^-	250 days	0.4	0.45 , 0.65, 1.0 , 1.14
${}_{35}Br^{80}$	$I.T. , e^-, \gamma$	4.4 hr.		0.049, 0.037 or 0.025; 0.037
${}_{35}Br^{82}$	β^- , γ	34 hr	0.465	0.547, 0.787, 1.35
${}_{56}Ba^{133}$	$I.T. , e^-, \gamma$	38.8 hr		0.30 ; 0.276
${}_{78}Pt^{197}$	β^- , γ	3.3 days		
${}_{79}Au^{196}$	β^- , γ, e^-	4.5 days	0.36	0.41
${}_{79}Au^{198}$	β^- , γ	2.7 days	0.8 , 0.78	0.28 , 0.44 , 2.5
${}_{80}Hg^{203,205}$	β^-, γ	51.5 days	0.46	0.30
${}_{82}RaD^{210}$	β^- , γ	22 yrs.	0.0255	0.047
${}_{83}RaE^{210}$	β^-	5.0 days	1.17	
${}_{84}Po^{210}$	α , γ	140 days	5.298	
${}_{85}85^{211}$	α , K	7.5 hr.	5.94	
${}_{86}Rn^{222}$	α	3.825 days	5.486	
${}_{88}Ra^{226}$	α , γ	1590 yrs.	4.791	0.19
${}_{90}Th^{232}$	α	1.39×10^{10} yrs.	4.20	
${}_{92}AcU^{235}$	α	7.07×10^8 yrs.		
${}_{92}U_I^{238}$	α	4.51×10^9 yrs.	4.15 ; 4.23 ; 4.21	
${}_{94}Pt$	α			

Fig. 1.—Partially complete list of artificial and natural radioactive elements. Radiation symbols are: β^- or β^+, negative or positive electrons emitted from the nucleus; γ, gamma rays; e^-, internal conversion electron; *k*, x-ray, and *I.T.*, isomeric transition.

In the consideration of the applications of these elements in research problems, first, examples can be given of several technics which have been developed. With the autoradiographic technic the animal or plant may be given a single dose of the tracer material, and at various periods thereafter tissues are sectioned and placed against photographic film for short periods of time. Then the film is developed. Figure 2 shows how one can visually demonstrate the location of a gas in the tissues. Here, a thin, frozen cross section of a rat has been placed against a film after the rat has been breathing a mixture of oxygen and radioactive krypton. This latter gas, like nitrogen, is quite soluble in fat, and the autoradiograph shows that the spinal cord and perirenal fat have taken up relatively large amounts of the gas. In the case of the cord the high uptake is presumably related to phospholipid content. The white area around the cord represents a cross section of a vertebra. Here, there has been no uptake of the gas.[4] Two other radioactive isotopes have been used in some interesting autoradiographic studies by Axelrod and Hamilton.[5] They obtained mustard gas which contained radioactive sulfur in its structure and lewisite gas which contained radioactive arsenic. These labeled gases were painted on a small area of normal skin, sufficient to cause vesication, and then a biopsy specimen of the skin was taken. Sections were made and autoradiographed. Comparative studies of the stained sections and the autoradiographs revealed that, although both gases are deposited in the skin, mustard was chiefly in the corium while lewisite was seen more in the epidermis and hair follicles.[5]

The second and most widely used technic is the in vitro method. In this case samples of material, such as blood, spinal fluid, urine, stools or tissues, taken at various periods of time after administration of the radioactive material are weighed, ashed and measured for activity. Perhaps the most interesting work with this technic has been that of several groups of investigators using radioactive iron in studies on the absorption of different compounds of iron by various routes and on methods for the preservation of whole blood. The development of the whole blood preservative, anticoagulant acid citrate dextrose solution (ACD), was greatly facilitated by the use of red cells labeled with radioactive iron;[6] and it has been shown that ferrous iron given therapeutically is more completely absorbed than the ferric form.[7] Figure 3 shows the use of the second technic in some studies on mice in which the objective was to determine the tracer dose versus the biologically destructive dose of radioactive phosphorus.[8] Tissues taken after killing each animal were weighed and extracted for various phosphorus-containing fractions, and the extracts were measured for activity. Curves for the synthesis of various compounds containing phosphorus were obtained. These showed the inhibition of synthesis by the larger dose of P^{32} used.

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[3] Tobias, C. A.; Lawrence, J. H.; Roughton, F. J. W.; Root, W. S., and Gregersen, M. I.: The Elimination of Carbon Monoxide from the Human Body with Reference to the Possible Conversion of CO to CO_2, Am. J. Physiol. **145:** 253-263 (Dec.) 1945.

[4] Lawrence, J. H.; Turpin, F. H.; Loomis, W. F.; Jones, H. B., and Tobias, C. A.: Preliminary Observations on the Narcotic Effect of Xenon with a Review of Values for Solubilities of Gases in Water and Oils, J. Physiol. **105:** 197-204, 1946.

[5] Axelrod, D. J., and Hamilton, J. G.: Radioautographic Studies of the Distribution of Lewisite and Mustard Gas in Skin and Eye Tissues, Am. J. Path., to be published.

[6] Gibson, J. G., II; Aub, J. C., and Evans, R. D.: The Circulatory Response to Therapeutic Measures, Including Blood Substitutes and Preserved Red Cells, in Experimental Shock. Development of Methods of Preserving and Storing Red Cells or Whole Blood for Transfusion, and Evaluation of Such Methods by Means of Measuring Survival of Cells After Transfusion by Means of Radioactive Iron, Committee on Medical Research, Report no. 131 (Shock Report no. 51), July 15, 1944. This report may be obtained by writing to the Office of the Publication Board, Department of Commerce, Washington 25, D. C.

The final technic is the in vivo method, in which the counter measures the uptake at local areas of the body. For instance, one can pass the counter tube over the surface of an animal that has received a radioactive compound localizing in a certain viscus, tumor or gland and note an increase in counting rate when the particular tissue is approached. Similarly, this technic has been used to measure the time required for the blood in a normal person to reach the heart from the arm after the injection into the antecubital vein of a small amount of radioactive sodium chloride in isotonic solution.

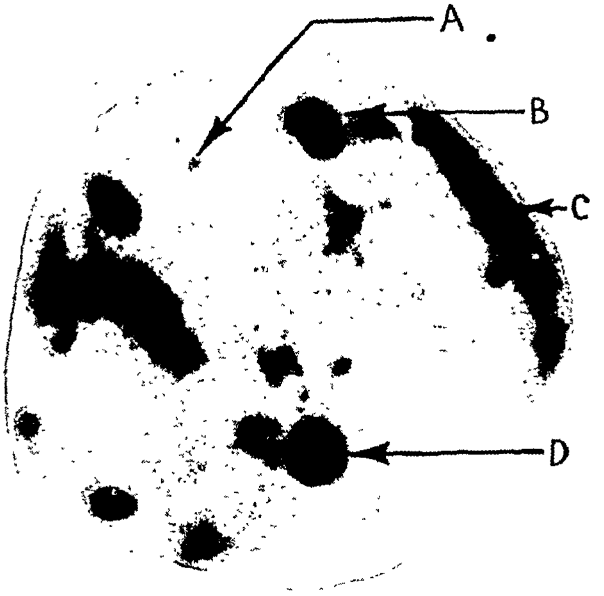

Fig. 2.—Autoradiograph showing localization of the isotope in cross section of rat previously exposed to atmosphere containing radioactive krypton. *A*, spinal cord; *B*, perirenal fat; *C*, gas trapped in hair, and *D*, mesenteric fat.

Again, thyroid metabolism has been studied subsequent to the administration of radioactive iodine: the counter tube is placed over the gland, and the uptake curve is determined and found to vary for different types of thyroid abnormality.[9] Circulation to the extremities may be studied by using intravenously injected radioactive sodium chloride or by inhaling one of the radioactive gases (figs. 4 and 5).[10] This technic is now finding use in association with skin temperature measurements in studies of vascular disease. The adequacy of the circulation can be estimated by this technic, and therapeutic measures can be evaluated. Figure 7 shows how one can measure the uptake and movement of a labeled compound in mouse tumors by the in vivo technic, as developed by Strajman.[11] The Geiger counter tube is long and narrow and can be inserted into the rectum or vagina for similar studies. One final example is shown in some recent investigations with carbon of atomic weight 11, the twenty-one minute half-life isotope.[3] The problem presented by the Navy was this. Why, after the inhalation of a definite amount of carbon monoxide, is it possible to recover only 60 per cent of it during the early periods after inhalation?[12] Is this unrecoverable carbon monoxide oxidized to carbon dioxide by the body, or does it go somewhere other than to hemoglobin? To answer this question radioactive carbon monoxide was employed, mixing it with ordinary carbon monoxide (150 cc. in 1,000 cc. of oxygen) in a Douglas bag. After inhalation the carboxyhemoglobin level of the subjects was raised significantly. While breathing oxygen all exhaled carbon dioxide was collected in soda lime and measured for radioactivity. There was no activity in any of the soda lime; hence, it was proved that the body does not oxidize carbon monoxide to form carbon dioxide. What had happened to the carbon monoxide? Counters were then placed over various parts of the body, and

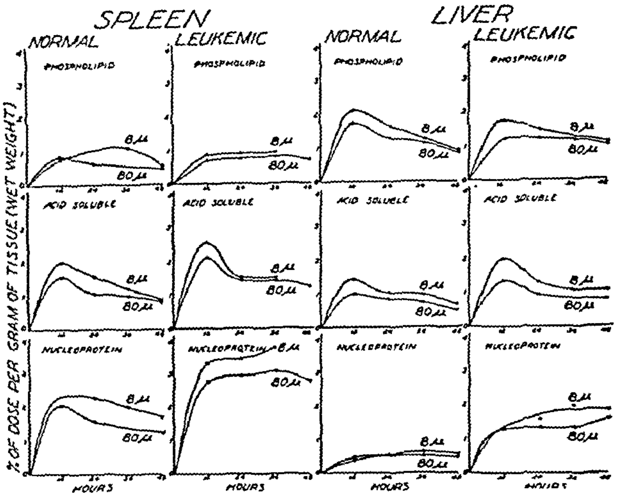

Fig. 3.—The comparable retention of radioactive phosphorus in fractions of tissues and carcasses of normal and leukemic animals twelve, twenty-four, thirty-six and forty-eight hours following the intraperitoneal administration of P^{32} emitting both 8 and 80 microcuries of beta radiation per mouse. (From Tuttle, Erf and Lawrence.[8])

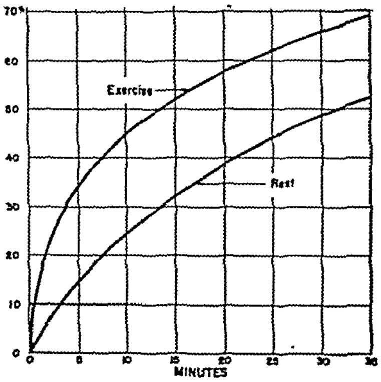

Fig. 4.—Hand krypton uptake curves at rest and after ten minutes of strenuous exercise by subject aged 25.

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[7] Hahn, P. F.; Jones, E.; Lowe, R. C.; Meneely, G. R., and Peacock, W.: The Relative Absorption and Utilization of Ferrous and Ferric Iron in Anemia as Determined with the Radioactive Isotope, Am. J. Physiol. **143**: 191-197 (Feb. 1) 1945. Moore, C. V.; Dubach, R.; Mennick, V., and Roberts, H. K.: Absorption of Ferrous and Ferric Radioactive Iron by Human Subjects and by Dogs, J. Clin. Investigation **23**: 755-767 (Sept.) 1944.

[8] Lawrence, J. H.; Tuttle, L. W., and Erf, L. A.: Studies on Neoplasms with the Aid of Radioactive Phosphorus: III. The Phosphorus Metabolism of the Phospholipid, Acid Soluble and Nucleoprotein Fractions of Various Tissues of Normal and Leukemic Mice Following the Administration of Tracer and Therapeutic Doses of Radio-Phosphorus, J. Clin. Investigation **20**: 577-581 (Sept.) 1941.

[9] Hamilton, J. G.: The Use of Radioactive Tracers in Biology and Medicine, Radiology **39**: 541-572 (Nov.) 1942.

[10] Smith, B. C., and Quimby, E. H.: The Use of Radioactive Sodium as a Tracer in the Study of Peripheral Vascular Disease, Radiology **45**: 335-346 (Oct.) 1946. Tobias, C. A.; Lawrence, J. H., and Hamilton, J. G.: The Measurement of Circulation to the Extremities with Radioactive Inert Gases, to be published.

[11] Strajman, E.: Small Mica Window Geiger-Muller Counter for Measurements of Radioactive Isotopes in Vivo, Rev. Scient. Instruments **17**: 232-234 (June) 1946.

[12] Roughton, F. J. W., and Root, W. S.: The Fate of CO in the Body During Recovery from Mild Carbon Monoxide Poisoning in Man, Am. J Physiol. **145**: 239-252 (Dec.) 1945.

figure 6 presents the rate of disappearance of carbon monoxide from the thigh and from the liver as meaured by a counter placed over these areas. The thigh disappearance rate corresponded to the disappearance rate of carbon monoxide from samples of blood taken from the antecubital vein; this was expected. But the other curve is the interesting one, that is, the curve obtained with the counter placed over the liver. It starts high and only gradually approaches the slope of the thigh curve, indicating that the liver has possibly "gobbled up" a large fraction of the carbon monoxide, as the blood carries a large amount through it, later releasing the carbon monoxide to the blood stream, from which it is eliminated by the lungs. Later experiments, in which all exhaled air was collected for several hours in 3 subjects, showed that nearly 100 per cent of all carbon monoxide taken from the Douglas bag was eventually recovered in the exhaled breath;[12] thus the liver eventually releases its carbon monoxide. These results, from the clinical point of view, throw further doubt on the reliability of using carbon monoxide for blood volume determinations, whether the retention of carbon monoxide by the liver is due to "gobbling" or to a circulatory phenomenon.

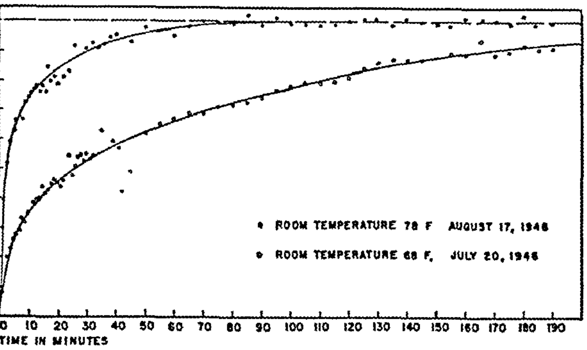

Fig. 5.—Uptake of radioactive sodium in the right hand of subject E E at 68 F and at 78 F. ambient temperature under basal metabolic conditions (G B.).

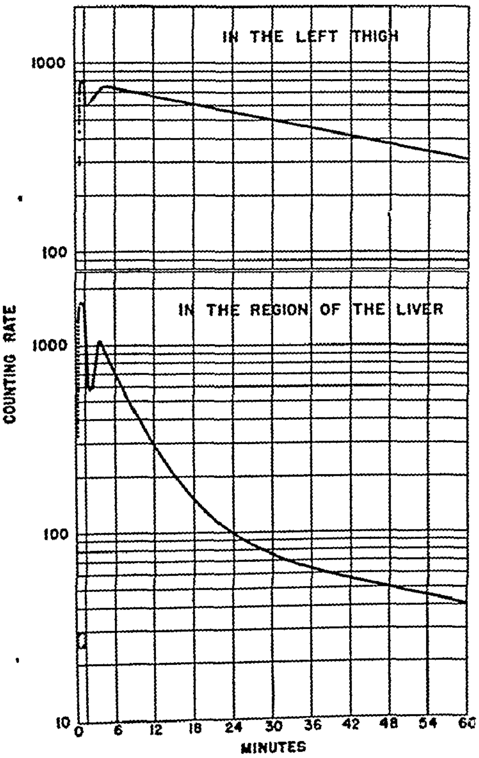

Fig. 6.—Decrease in the amount of C* while breathing oxygen and after one and a half minutes of inhaling C*O. (The asterisk indicates radioactive carbon)

Finally, the selective localization of certain compounds or elements in tissues has led to some therapeutic applications of the artificially made radioactive isotopes. The thyroid gland selectively absorbs iodine and constitutes the best example of selective localization. Actually the concentration of the iodine atoms in the gland may be several hundred times that in any of the other normal tissues, and Hamilton and Soley and their associates have shown that it is possible with larger doses in rabbits to remove their thyroid glands by this slow selective irradiation without damage to other normal tissues.[9] These and other studies have led to the successful use of radioactive iodine in the therapy of hyperplastic thyroid disease by several groups of investigators.[13] It has been found that certain cases of cancer of the thyroid concentrate radioactive iodine, and Marinelli and his associates[14] have successfully treated a patient with carcinoma of the thyroid, which had metastasized to bone, through the use of radioactive iodine. The patient was extremely ill, and emaciated but now, after three years, has gained weight, is up and around and enjoying normal life. This demonstrates what can be done through selective localization and irradiation.

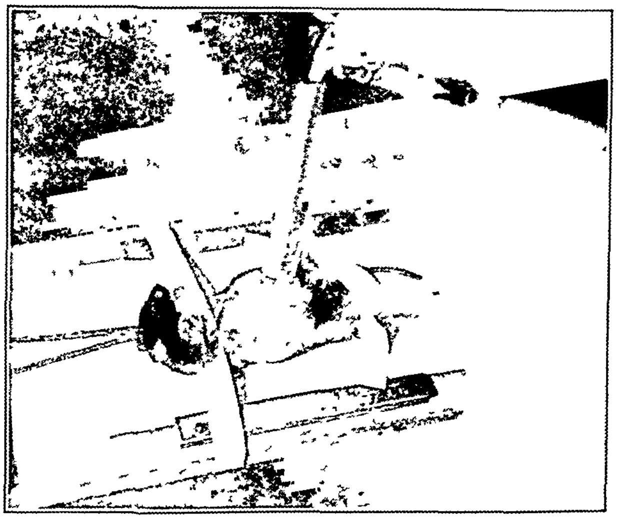

Fig 7—Small Geiger counter for in vivo study of metabolism of labeled elements or compounds.[11]

Figure 8 again shows selective localization, this time of a colloidal radioactive compound first used by Jones, Wrobel and Lyons in the liver and spleen, and this is clearly seen by comparing the section and the autoradiograph.[15] There is clouding of the film *only* in the regions of the liver and spleen. This, again, is genuine selective localization. The therapeutic use of isotopes is based on such selective localization.

Since 1936,[16] radioactive phosphorus in the form of sodium hydrogen phosphate has been used in the treatment of chronic leukemia and polycythemia vera. The use of radioactive phosphorus (P^{32}) in these diseases is based on the fact that in leukemic tissue and in the bone marrow there is some degree of selective localization; therefore, selective irradiation is the result. However, the degree of selective irradiation is not great, and the irradiation delivered to the abnormal tissues with reference to the normal tissues is not so great as would be desirable. The limitations of this form of therapy, particularly in the case of leukemia, has been brought out in a recent article.[17] In evaluating any new form of therapy the questions every one asks are "Does the treatment cure the disease?" and "Is comfortable life prolonged?" In the use of radioactive phosphorus for leukemia several groups of investigators have demonstrated that remissions can be produced without any complicating radiation sickness.[18] All reports have expressed the belief that this form of therapy is as good as, and possibly better than, roentgen radiation, but none has answered the preceding questions. Its one definite advantage is the lack of irradiation sickness. Another five years at least must elapse before the final evaluation can be made of any large series with reference to length of life after onset, but in a forthcoming paper there will be a preliminary detailed analysis of such a large series.[19] In this work the use of radioactive phosphorus (P^{32}) was considered to be a form of whole-body spray therapy with some slight localization in the leukemic tissue. Consequently, when spray therapy was not considered to be needed and when it was believed that local roentgen radiation to the spleen, liver and lymph nodes was indicated, such local therapy was given, but usually after a course of P^{32} had been administered. However, in the whole group many patients were treated with this isotope alone. Other supportive measures, such as transfusions and the administration of iron and liver preparations, were used as indicated. In other words, all patients in this series were not treated with radioactive phosphorus alone. Some of them received local roentgen radiation in addition. The patients were not selected, and all those treated from the very beginning have been included. As a group, these patients are apparently not representative of those with average chronic leukemia but are an unfavorable group, since many of them were failing to respond to standard methods of therapy and then were referred to us.[19] Of this latter impression one cannot be certain, however.

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[13] Hamilton, J. G, and Lawrence, J. H. Recent Clinical Developments in the Therapeutic Applications of Radiophosphorus and Radioiodine, J Clin. Investigation **21:** 624 (Sept) 1942. Hertz, S, and Roberts, A: Application of Radioactive Iodine in Therapy of Graves' Disease, ibid **21:** 624 (Sept.) 1942. Chapman, E. M., and Evans, R.: Radioactive Iodine in Hyperthyroidism, J. A. M. A. **131:** 86 91 (May 11) 1946

[14] Seidlin, S M; Marinelli, L D., and Oshry, E. Radioactive Iodine Therapy, J A M A. **132:** 838 846 (Dec 7) 1946

[15] Jones, H. B; Wrobel, C J, and Lyons, W. R.: A Method of Distributing Beta Radiation to the Reticulo-Endothelial System and Adjacent Tissues, J. Clin Investigation **23:** 783-788 (Sept.) 1944

[16] Lawrence, J. H: Nuclear Physics and Therapy: Preliminary Report on a *New Method for the Treatment of Leukemia and Polycythemia,* Radiology **35:** 51 59 (July) 1940.

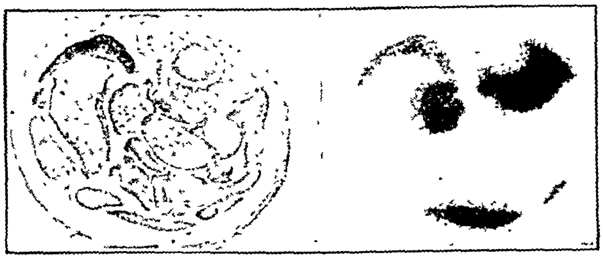

Fig. 8.—Cross section of mouse showing selective localization of chromic radioactive phosphate in the liver and spleen.

Figure 9 presents the results in the first 98 cases of chronic myelogenous leukemia. The duration of life is from the time of onset until death. The time of onset was determined from the appearance of the first symptom or sign that could definitely be related to the leukemic process, as proved either at the time or a short time later. In the determination of this time of onset, an effort was made to err on the side of favoring a short duration. All the patients have been seen by at least three physicians in the clinic. A glance at figure 9 shows that radioactive phosphorus (P^{32}) is far from the answer to the problem of chronic myelogenous leukemia, but the average length of life compares favorably with other reported series, and some of the patients are still living.[20] The 2 patients living at 8-9 years and 10-11 years have been treated with radioactive phosphorus only. Thus, this preliminary analysis shows that in addition to the other advantages of treatment

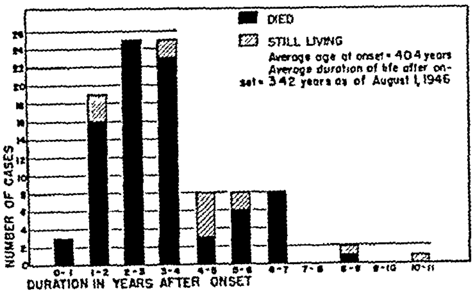

Fig. 9.—Results in the first 98 cases of chronic myelogenous leukemia treated with radioactive phosphorus.

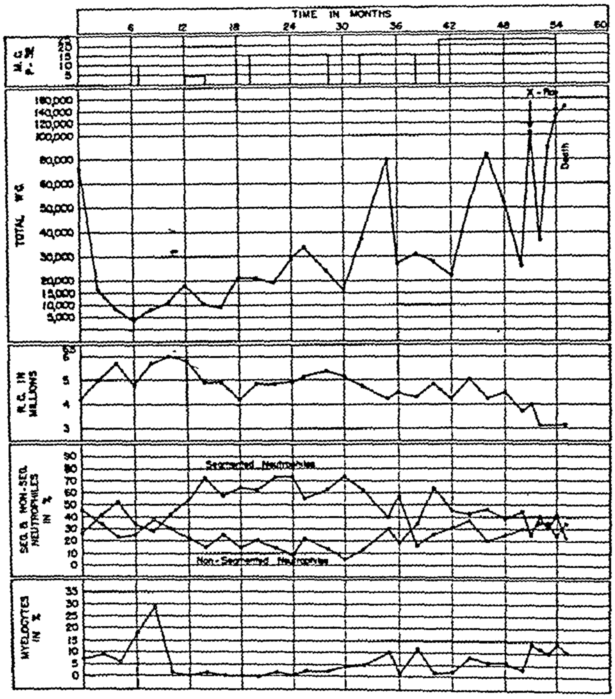

Fig. 10.—Hematologic response to P^{32}. The patient, J. M., a woman aged 55, with chronic myelogenous leukemia, who received four and a half years of P^{32} therapy preceded by two years of roentgen radiation, was kept in good condition for several years but eventually failed to respond to the further administration of the isotope. Total millicuries in divided doses and extent of time over which they were given is indicated at the top.

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[17] Graff, W. S.; Scott, K. G., and Lawrence, J. H.: The Histologic Effects of Radiophosphorus on Normal and Lymphomatous Mice, Am. J. Roentgenol. **55**: 44-54 (Jan.) 1946.

[18] (*a*) Reinhard, E. H.; Moore, C. V.; Bierbaum, O. S., and Moore, S.: Radioactive Phosphorus as a Therapeutic Agent, J. Lab. & Clin. Med. **31**: 107-218 (Feb.) 1946. (*b*) Warren, S.: The Therapeutic Use of Radioactive Phosphorus, Am. J. M. Sc. **209**: 701-711 (June) 1945. (*c*) Saralegui, J. A., and Pavlovsky, A.: Tratamiento de las leucemias con el fosforo radioactivo, Radiologia **6**: 88 (May-June) 1943.

[19] Lawrence, J. H.; Low-Beer, B. V. A.; Brown, B. R.; Stone, R. S., and Dobson, R. L.: Results in the Radiation Therapy of Leukemia, to be published.

[20] Minot, G. R.; Buckman, T. E., and Isaacs, R.: Chronic Myelogenous Leukemia: Age Incidence, Duration, and Benefit Derived from Irradiation, J. A. M. A. **82**: 1489-1494 (May 10) 1924. Craver, L. F.: *Treatment of Leukemia by Radioactive Phosphorus*, Bull. New York Acad. Med. **18**: 254-262 (April) 1942.

with radioactive phosphorus previously discussed by numerous writers, the length of life after onset is as long as that after other methods of therapy and may prove

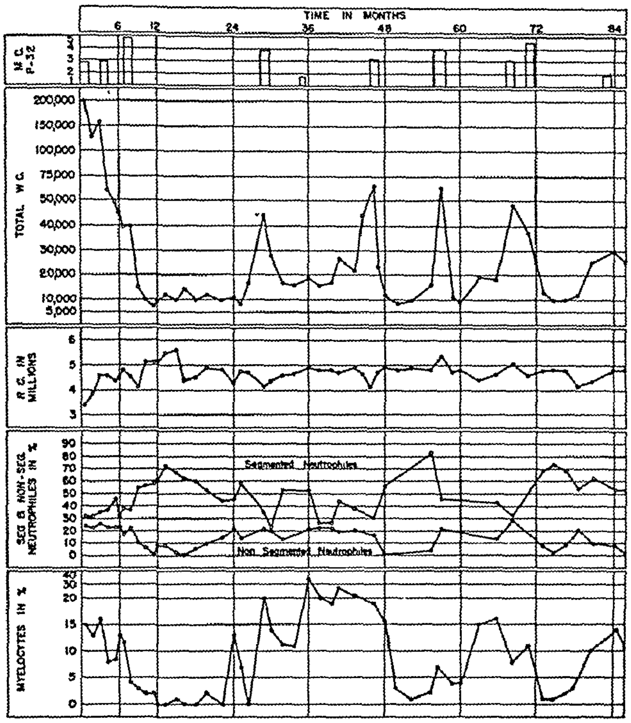

Fig. 11.—An unusual response to P^{32}. This patient, C. K., a man now 35 years of age, has continued for over eight years to respond to infrequently administered radioactive phosphorus. He has never received roentgen radiation or other forms of therapy for chronic myelogenous leukemia.

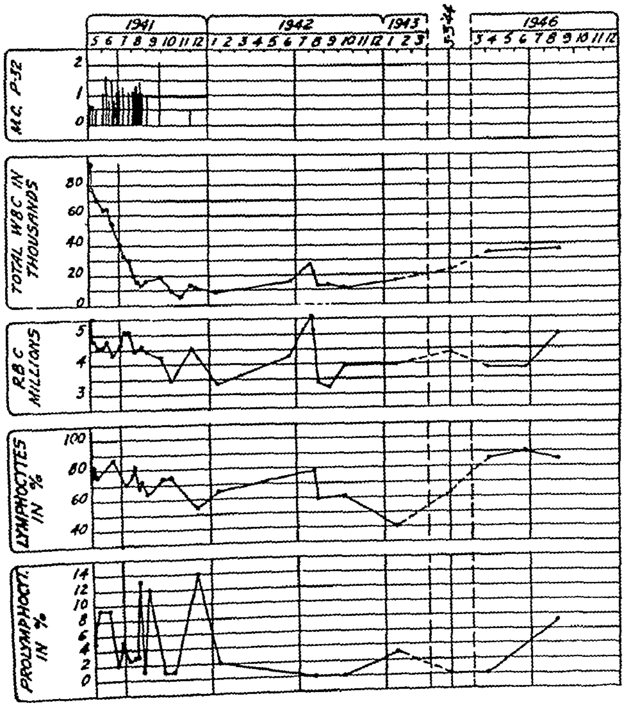

Fig 12.—Hematologic response during fifty-one months of intermittent radioactive phosphorus therapy in patient M. P., a woman aged 59, with chronic lymphatic leukemia. This patient has had no treatment since 1941.

to be somewhat longer. The typical reaction to this therapy and an unusual reaction to therapy are shown in figures 10 and 11.

In figure 13 are summarized the results in chronic lymphatic leukemia. Here, the series is smaller and the statistics are less valuable. Also, 2 patients who had the disease for several years prior to treatment with P^{32} are in the group, and they raise the figure for the average length of life after onset. Nevertheless, the results are good according to present criteria for the evaluation of the treatment of chronic lymphatic leukemia by standard methods.[21] Figure 12 shows the reaction to P^{32} in 1 patient with lymphatic leukemia. From ten years of experience in the use of radioactive phosphorus in chronic leukemia the impression has been gained that if radioactive compounds can be made to localize more selectively in leukemic tissue improved results from radiation therapy may follow. Some of the radioactive colloids have possibilities in this direction and are now under trial.

In forthcoming publications therapeutic and other investigations of a large number of patients suffering from polycythemia vera will be discussed in detail. The first patients were treated in 1939,[16] and numerous investigators [22] have confirmed the fact that with radioactive phosphorus, administered in small doses and infrequently, it is usually possible to control the polycythemia and the symptoms which result from it. As shown in figures 14 and 15, repetition of therapy may not be necessary for many years after the first course of treatment. Other than complicating disease, the chief causes of death in polycythemia vera have been: leukemia; thromboses, such as portal, coronary or cerebral, and a terminal anemia in the spent phase of the disease. There may be other intercurrent disease, such as infections, arteriosclerotic complications or neoplasms, particularly in the older patients. During the period 1939 to 1946 74 patients with polycythemia vera have been treated with radioactive phosphorus. Some of these had been previously treated by venesection, phenylhydrazine or roentgen radiation. The average age at onset of first symptoms of the disease was 48 years. The life expectancy at age 48 is about twenty-four years.[23] Since the initiation of the use of radioactive phosphorus there have been 10 deaths in the whole group from various causes, at an average age of 69, which is not far from the normal life expectancy, i. e.,

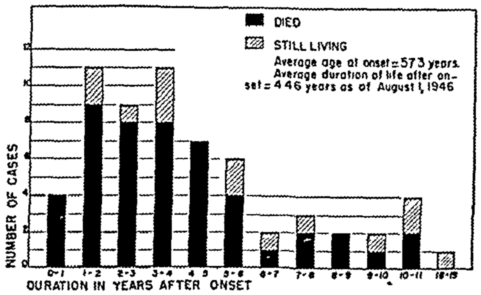

Fig 13—Results in treatment of chronic lymphatic leukemia with radioactive phosphorus.

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[21] Minot, G. R., and Isaacs, R.. Lymphatic Leukemia: Age Incidence, Duration, and Benefit Derived from Irradiation, Boston M. & S. J. **191:** 1-9 (July 3) 1924.

[22] (*a*) Erf, L. A., and Jones, H W Radio-Phosphorus: An Agent for the Satisfactory Treatment of Polycythemia and Its Associated Manifestations, a Report of a Case of Polycythemia Secondary Possibly to the Banti's Syndrome, Ann Int Med. **19:** 587-601 (Oct.) 1943. (*b*) Hall, B. E.; Watkins, C. H., Hargraves, M. M, and Giffin, H. Z: Radioactive Phosphorus in the Treatment of Polycythemia Vera: Results and Hematologic Complications, Am J M Sc. **209:** 712-717 (June) 1945 (*c*) Reinhard, Moore, Bierbaum and Moore.[15a] Warren.[15b]

[23] The Final Phase in the Conquest of Tuberculosis, Statist. Bull. Metrop. Life Insur. Co. no. 4 **26:** 1 (April) 1945.

twenty-one years instead of twenty-four years. The small number of cases, however, does not permit one to attach much significance to this figure; also several of the patients had previously been treated by methods other than the use of radioactive phosphorus. Perhaps one can hope that, in controlled polycythemia vera, a near-normal life expectancy may be reached. As has been pointed out previously, thromboses, leukemia and anemia are common complications of the disease, and the life expectancy in polycythemia is probably not over ten years on the average, although exhaustive search of the literature does not reveal the life expectancy in this disease, whether treated or untreated. In a series of 163 patients treated by other methods, 36 were reported to have lived longer than five years, and in about 17 per cent of the whole group there developed leukemia.[24] In the radioactive phosphorus series, 3 have died of leukemia. These were patients whose disease was of long standing and who had been treated previously with phenylhydrazine, roentgen radiation or venesection.

There is one other example of selective localization in therapy in which a radioactive element is being used. This is P^{32} in the treatment of skin cancer.[25] The localization is accomplished by soaking a piece of absorbent paper, such as blotting paper, with the desired amount of beta-ray-emitting radioactive phosphorus and applying it to the lesion for the calculated length of time. In this way the predetermined dose in roentgens of superficial irradiation is delivered during the following several hours or days; and since the beta rays penetrate less than 1 cm., most of the irradiation is delivered to the neoplastic cells and not to the deeper, uninvolved tissues.

In conclusion, these nonradioactive isotopes, such as N^{15} and C^{13}, and the radioactive ones provide the investigator with a valuable method for metabolic studies. There is a rich field of investigation with labeled hormones, antibodies, amino acids, antibiotics and other biologically important compounds, and our colleagues in the field of chemistry are now very active in this direction.[26] In the therapeutic field, if compounds containing radioactive elements emitting radiations which traverse only short distances and which localize to a high degree in neoplastic tissue can be found, important advances may be made. The localization of radioactive iodine in the hyperplastic thyroid is the best example of such localization at present. Recently much has been read of the atomic bomb and the uranium pile, and it is often inferred that these new developments are going to revolutionize medical research and even therapy and that the cancer problem soon may be solved with their aid. It is important, however, to keep in mind that there have been available from the cyclotron the various radioactive isotopes for biologic and medical research for over ten years; that is, since 1934. They have already facilitated numerous important contributions in medical investigation and will continue to do so; but one must not expect them suddenly to solve the cancer problem. In the development of the atomic bomb and the uranium pile most of the fundamental research which made the atomic bomb nearly a certainty in time had been carried out prior to 1939. In the case of the cancer problem this fundamental research has yet to be done. However, a continued stream of contributions can be expected now that isotopes will be widely available for experimental investigation. For animal studies and for certain clinical studies their careful use by competent workers is justified and indeed urgently indicated.

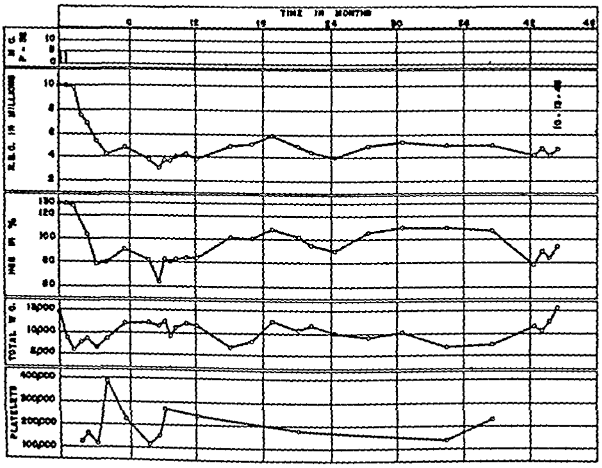

Fig. 14—Hematologic response to two injections of radioactive phosphorus. This patient, L J, a woman aged 36, with an enlarged spleen and typical polycythemia vera, which had not previously been treated, continues normal after five years, without further therapy

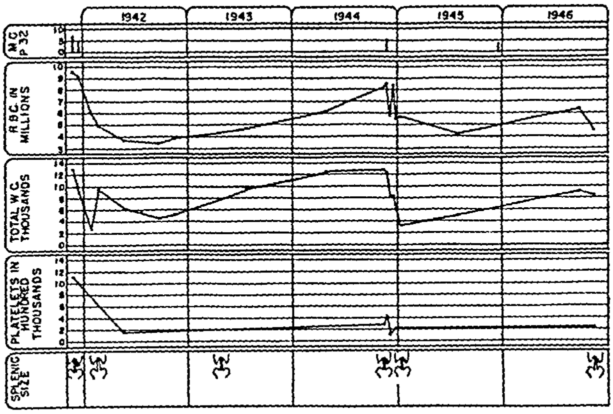

Fig 15—Patient M. J. M, a man aged 56, with polycythemia vera of one year's duration, treated in 1942, had a recurrence of symptoms and signs and was retreated in 1944.

ADDENDUM

It is assumed that physicians are aware that, as in the case of roentgen rays and radium, there are certain health hazards to both physician and patient when working with artificial radioactivity,[27] unless working conditions are carefully controlled, and unless dosage to the patient is also carefully controlled. Excessive dosage or long-continued administration of smaller doses may produce serious delayed effects. When individuals or groups begin to use these radioactive materials in the laboratory or clinic, it is important that they have the advice of and periodic checks by a physicist and a physician.

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[24] Tinney, W. S; Hall, B. E., and Giffin, H. Z: The Prognosis of Polycythemia Vera, Proc. Staff Meet, Mayo Clin. **20:** 306 310 (Aug. 22) 1945; Hematologic Complications of Polycythemia Vera, ibid. **18:** 227-230 (July 14) 1943.

[25] Low-Beer, B V. A: External Therapeutic Use of Radioactive Phosphorus· I Erythema Studies, Radiology **47:** 213 222 (Sept) 1946

[26] Heidelberger, C.; Brewer, P., and Dauben, W. G.: The Synthesis of 1,2,5,6 Dibenzanthracene Labeled in the 9 Position with C^{14}, to be published. Reid, J. C.: Synthesis of Tyrosine Labeled with C^{14}, Science **105:** 208 (Feb 21) 1947.

[27] Lawrence, J. H: Therapeutic Use of Artificial Radioactivity, Correspondence, J. A M. A. **129:** 91 (Sept. 1) 1945. Wirth, J. E.: Essential Safeguards in Production and Use of Atomic Energy, Occup. Med **2:** 428 438 (Nov.) 1946.

ROENTGENOLOGIC CONTRIBUTION TO THE DIAGNOSIS OF FUNCTIONAL INTESTINAL DISORDERS

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The intestine is anatomically constructed and physiologically equipped to digest food and to eliminate waste. To accomplish these purposes it has three fundamental kinds of activity: secretion, absorption and motility. Intestinal function is the sum of these activities. For purposes of study and discussion it has been expedient to consider them separately as distinct intestinal energies. This analytic manner of thinking about and investigating intestinal function may have the advantage of clarity and directness in many of the problems connected with this function, but it is important to realize that these activities actually cannot be divorced in this way. They have an essential interdependence. In health they cooperate in a literal sense to effect what is called a "normal" or "healthy" intestinal function. In disease any maladjustment of or interference with one of the basic activities is associated with or may actually cause observable change in the performance of the other two.

The roentgen rays have given to medicine a method of observing the intestine of man and animal in action without having recourse to laparotomy. By introduction of substances into the intestinal tract which are opaque to the roentgen rays it is possible to observe how the intestine handles a bolus with the physical and chemical properties so acquired. With some reservations roentgenologists infer that the intestine handles food in a similar manner. The particular intestinal activity thus observed is its motility, that is, the mechanics of intestinal movement. Increase in intestinal secretory activity or decrease in intestinal absorptive activity or a combination of both are observable also, but only in a limited way and largely by inference again—chiefly by noting the presence of an excessive amount of intraluminal fluid and gas. Roentgenologic studies on the physiology of the intestine are usually concerned, however, with the phenomena of its movements. Since the basic intestinal activities are interrelated so intimately, deductions about the secretory and absorptive activities may often be made from observations on intestinal motility, and so the roentgenologic method has earned a prominent place among other methods of studying the physiology of the intestine in health and in disease.

The causes of intestinal dysfunction are as many and as different in origin and kind as are the factors which can adversely affect any one or all of the fundamental intestinal activities.

Constipation, diarrhea, colicky or cramplike abdominal pain, nausea, vomiting, abdominal noises and intestinal distention are symptoms which direct attention to the intestine. They have a mechanical connotation, and we tend to relate them to a derangement of transport of intestinal content. They are manifestations of intestinal malfunction, but not of its cause. Any etiologic type of intestinal dysfunction may be manifested clinically by symptoms of this kind, singly or in various combinations.

INTESTINAL DYSFUNCTION ASSOCIATED WITH DISEASE IN THE INTESTINE ITSELF

Pathologic structural alteration in the intestine that has reached macroscopic proportions can be expected to produce functional change of some degree, although the functional change may not be great enough to be noticed by the patient or detected by the physician even with the use of his most direct and revealing diagnostic instruments. Such structural change may be the result of a neoplastic or inflammatory process arising in the intestine itself, or it may be the result of an extension of similar lesions to the intestine from neighboring or contiguous viscera. Included in this category are those congenital or acquired anomalies of intestinal structure which become pathogenic only under certain circumstances, such as diverticula, anomalies of size, fixation and position and other structural intestinal defects. Intestinal dysfunction that develops as a result of any of these changes is said to have an organic basis.

The first and most important objective of the physician confronted with a patient who exhibits the clinical manifestations of deranged intestinal function is to exclude the existence of organic intestinal disease or pathogenic structural abnormality as the cause of the disorder. To do this effectively he turns to diagnostic procedures which can deliver positive or negative evidence that is direct and objective. If abnormality is suspected to exist in the rectum or the sigmoid colon, the proctosigmoidoscopic examination is done first. This examination has obvious and insuperable advantages over even the most competently performed roentgenologic examination in the investigation of these portions of the large intestine. It takes advantage of direct vision and contact, and so the structure and the color of the mucous membrane and the presence and the nature of exudates and secretions are immediately perceived, and material for bacterial culture and biopsy can be taken at once. For the portions of the intestinal tract above the reach of the proctosigmoidoscope, the small intestine included, the roentgenologic examination has become the most important and revealing diagnostic maneuver which the modern physician has at his disposal. It is a method which can be made to reveal the existence of pathologic structural change at least as early in its pathogenesis as it is able to manifest itself by clinical signs and symptoms. The phrase "can be made to reveal" is used advisedly, because it must be presumed that the appropriate maneuver is chosen, that it is conducted competently and that the patient is strong enough to stand the rigors of the particular examination that his problem demands. Obviously this ideal is not always realized even by the most competent roentgenologic diagnosticians, but when they fail they are inclined to impugn the personal factor and not the method. If I seem thus to overestimate the efficiency of the roentgenologic method in the diagnosis of structural intestinal change,

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From the Section on Roentgenology, Mayo Clinic.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Meeting of the American Medical Association, San Francisco, July 4, 1946.

it is chiefly because I wish to underline my conviction that the most important contribution roentgenologic diagnostic maneuvers make to the diagnosis of functional intestinal disorders is the efficient role which they play in the exclusion of organic intestinal disease as the cause of a given set of clinical manifestations of functional intestinal derangement.

It appears that advances in roentgenologic diagnosis in general, and in the field of gastroenterology in particular, have been closely linked with the development and definition of morphologic syndromes on which a pathologicoanatomic diagnosis can be constructed, to the exclusion, by and large, of roentgenologically observable physiologic changes caused by pathologic changes in structure. The original roentgenologic efforts in gastroenterologic diagnosis were concerned principally with the normal and abnormal physiology of the alimentary tract, from the oral cavity to the anus. The roentgenologic diagnostic syndrome of gastrointestinal disease that were developed then were essentially and almost exclusively physiologic. Today such roentgenologically observable changes in the intestinal tract as local or general hypermotility, hypomotility, hypertonus, hypotonus, spastic phenomena and changes in the secretory and absorptive activities that can be exhibited with the use of roentgen rays are made use of chiefly to stimulate an intensified search for a cause, and the cause is presumed to be organic, that is, structural, until proved otherwise. This is not to minimize their importance, but there are few, if any, roentgenologic syndromes of organic gastrointestinal disease in which the accompanying functional alterations have the necessary quality of definitiveness. This trend toward the morphologic is observed also in other fields of roentgenologic diagnosis. In urography, cholecystography, ventriculography, encephalography and myelography, lienography and hepatography, hysterography and salpingography, the purpose is always the same, the achievement of a basis for a pathologicoanatomic diagnosis, even when the roentgenologic test depends primarily on a preserved functional capacity of the organ under consideration, as is the case in cholecystography and intravenous urography. Roentgenologic diagnosticians are expected to elicit diagnostic data which will enable them to use the diagnostic language of the pathologists. This trend is not surprising, nor is it to be strenuously opposed, for the pathologist is usually the final arbiter in matters diagnostic, and his influence has elevated the plane of roentgenologic diagnostic efficiency immeasurably.

INTESTINAL DYSFUNCTION ASSOCIATED WITH EXTRAINTESTINAL DISEASE OR DYSFUNCTION

Disturbance in the physiologic activities of the intestine, sometimes of considerable magnitude, is also observed to exist in association with organic change in or functional derangement of adjacent or neighboring extraintestinal but intra-abdominal viscera, such as the stomach, the gallbladder, the pancreas, the liver and the genitourinary organs. Most of the time the clinical manifestations of intestinal dysfunction are obviously of little consequence, but there are times when they are prominent enough to obscure the clinical manifestations of the primary disease. The manner in which the intestinal disturbance is brought about —its mechanism—may be obvious in most instances, but in others it is understood poorly or not at all. The same may be said of intestinal dysfunction resulting from, or seen in association with, organic and functional alteration in the central nervous system, in the cardiovascular system and in diseases that are more or less systemic in their effects and manifestations like the chronic infectious diseases, nutritional deficiencies, endocrinologic and metabolic disorders, ocular and labyrinthine diseases and addictions to drugs. In all these etiologic types of intestinal dysfunction the relationship of cause and effect may not be clearly perceived, but it is apparent that some such relationship exists. I designate all these varieties of intestinal dysfunction fundamentally neurogenic in origin, for in one way or another, and on final analysis, the intestinal disturbances may be considered as resulting from imbalance of the autonomic innervation of the intestine or from a functional or organic disturbance in its intrinsic innervation. Whatever the mechanism of their production, clinical manifestations of intestinal dysfunction of all types and of all grades of severity are encountered.

Roentgenologic examination of the intestine may or may not reveal confirmatory evidence of the dysfunction which the clinical manifestations indicate to be in operation. This seems to depend largely on the severity of the manifestations. As is the case when intestinal dysfunction occurs as a result of organic intestinal disease, there are observable changes in intestinal motility, in tonus and, to the extent that they are observable roentgenologically, in the secretory and absorptive faculties of the intestine. A description of the particular kind of intestinal functional change that occurs as a part of the diseases of the organs and systems which I have listed will not be included in this discussion. Roentgenologically demonstrable functional changes that are in any way characteristic are observed in one category only, that of the nutritional deficiencies, in which I include the poorly defined but similar syndrome developed as a result of digestive secretory deficiency. There, however, the physiologic alteration is of considerable magnitude, having been in operation long enough to cause, or to be caused by, certain possibly reversible structural changes in the intestine and probably in its intrinsic nervous system as well. In the other categories the functional changes are nonspecific, at least in the sense that their cause might be predicted or even guessed at objectively with only the roentgenologic changes noted in the intestinal tract at hand.

It is possible that we roentgenologists have been failing to realize the scientific possibilities of a more intensive roentgenologic study of these functional intestinal disturbances. The observations of Brown, Pendergrass and Burdick[1] on the changes in motility in the gastrointestinal tract in hyperthyroidism are illuminating, but I have not become acquainted with comparable observations in the other categories. At the moment, I do not foresee just how studies of this kind assist practical clinical diagnosis to an appreciable extent, but they may well serve to throw light on more fundamental problems of pathologic intestinal physiology.

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[1] Brown, R. B., Pendergrass, E. P., and Burdick, E. D.: Gastro-intestinal Tract in Hyperthyroidism, Surg., Gynec. & Obst. **73**: 766-783 (Dec.) 1941.

Quite obviously roentgenologic examinations of the particular organs and systems are used liberally in the process of localizing the disease or functional derangement which is in turn causing these secondary kinds of alteration in intestinal function. Once structural and functional change in intra-abdominal and extra-abdominal organs and systems capable of exerting an unfavorable influence on the intestine is excluded, then, simply by a process of elimination, the clinical manifestations of intestinal dysfunction are pronounced to be on a primary functional basis.

INTESTINAL DYSFUNCTION WITHOUT DEMONSTRABLE CAUSE OR ASSOCIATION

It is apparent that to entertain a diagnosis of *functional intestinal disorder, in the commonly accepted* restricted sense of the term, requires a much greater diagnostic effort than is usually needed for any other gastroenterologic diagnosis. Nevertheless this kind of a diagnosis must be made more frequently than any other. Bockus and Willard,[2] for instance, found some type of functional abnormality of the large intestine in 46 per cent of 1,000 consecutive office patients whose clinical records were studied, and Jordan and Kiefer [3] found a similar situation in 30 per cent of a large number of hospitalized patients.

Intestinal dysfunction without demonstrable anatomic or physiologic cause may be said to occur in the large intestine, in the small intestine, in restricted parts of either or in both divisions at the same time. In general the symptoms and the clinical manifestations point to a disorder in one or all of the fundamental digestive faculties of the intestines, just as they do in physiologic disturbances for which an organic cause can be found. The clinical manifestations vary in intensity from those that are considered to be mild or relatively inconsequential to those that are pronounced and severe enough to cause genuine alarm in patient and physician. They have been variously correlated and classified under the general heading of intestinal neuroses. One clinical type is recognized in which the symptoms and signs indicate that the intestinal motility is chiefly disturbed; in another type, symptoms of secretory dysfunction predominate; in a third type, evidence of disturbance of both functions is observed. Simple constipation and so-called functional diarrhea are either included in one of these types or are treated as separate functional entities. Roentgenologic classifications are not often seen, but when they are made they tend to follow a similar pattern. The disorders are usually ascribed to the large intestine as if the small intestine had no part in them, but many writers emphasize that the derangements are general in the entire gastrointestinal tract although the manifestations may be most prominent in or confined to the large intestine.

Again the manner in which the functional derangement is produced is unknown, but the underlying factor is presumed to be a subtle psychogenic or emotional disturbance related to the intestine through the medium of the autonomic nervous control of the several intestinal activities. As is so frequently the case in biologic science in general, there is considerable knowledge about what occurs, but relatively little is known about why or how it occurs.

I do not intend to describe or even to list the roentgenologic evidences of primary intestinal dysfunction that have been described. Presumably most of them are valid when properly controlled. To recognize the presence and to evaluate the significance of these changes require an intimate knowledge of the normal intestine and its variations in the morphologic as well as in the physiologic aspects. In no field of roentgenologic diagnosis is the exercise of critical judgment and objectivity more necessary if unwarranted deductions and correlations are to be avoided. The roentgenologic investigation which is instituted to explain clinical manifestations of intestinal dysfunction, to localize the abnormality to some particular part of the intestine, to designate its nature or otherwise define it is to be looked on as an experiment in clinical research subject to control of extraneous influences, unrelated to the immediate problem, but independently capable of effecting changes in intestinal activity. The roentgenologic investigation which is instituted to discover and to define structural change in the intestinal tract is different in this respect, that in it physiologic alterations are largely relegated to a position of secondary importance, sometimes disregarded entirely, often circumvented, all in an effort to obtain the essential morphologic data on which to construct a pathologico-anatomic diagnosis. It is often necessary to induce rather drastic changes in what is called the "normal physiologic condition of the intestine" preliminary to the roentgenologic examination; some of these changes are prolonged and not easily distinguished from preexisting physiologic abnormalities. I cite as instances the rigorous purgation necessary to prepare the colon for examination with the opaque enema, the prolonged fasts preliminary to examinations of the stomach and small intestine and the administration of antispasmodic drugs. These must receive their share of attention when the diagnosis of a functional intestinal disorder is being considered.

There are other more or less distinctly unphysiologic aspects of the roentgenologic investigation of functional disorders of the intestine which require deliberation, too. Some of them are related to the patient, and some to the method itself.

The patient submits himself to the examination under varying degrees and kinds of emotional stresses. The individual variation is great, practically beyond limits of description. No 2 patients react to the examination or to particular features of it in the same way. Fear, apprehension, modesty, impatience and many other adverse psychologic reactions immediately connected with the conditions of the investigation, and related indirectly or not at all to the reasons for it. may be the cause of minor, but also of major deviations from the somewhat arbitrary standards of normal intestinal activity.

Some of the unphysiologic features inherent in the roentgenologic method have already been mentioned.

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[2] Bockus, H. L., and Willard, J. H.: Functional Disorders of the Colon, Pennsylvania M. J. 37: 645-652 (May) 1934.

[3] Jordan, S. M., and Kiefer, E. D.: The Irritable Colon, J. A. M. A. 93: 592-595 (Aug. 24) 1929.

There are others. The opaque enema, for instance, is an unnatural, unphysiologic and to most patients an abhorrent procedure, even if administered without preliminary purgation and enemas. In my opinion the evidence of abnormal physiologic change brought to light with its use is highly unreliable, especially if the evidence is based on changes observed only once and perhaps only at the time of a single roentgenographic exposure. I hesitate to attach abnormal physiologic significance, for example, to a contracted portion of the sigmoid colon in which the pattern of the mucous membrane is essentially unchanged, to a general decrease or increase in the caliber and length of the intestine, again with the pattern of the mucous membrane unchanged, or to so-called functional changes in the pattern of the mucous membrane when evidence of other change is lacking. In view of the unphysiologic character of this particular examination it is easier to think of such changes as being inherent in the procedure than to ascribe clinical significance to them without due consideration of all possible factors in their production.

There are certain features about the opaque meal, too, which give cause for reflection when search is being made for roentgenologic evidence of intestinal dysfunction. The opaque suspension may be unpalatable or nauseating to the patient, a circumstance which may alter the motility of the small intestine, if only by causing delay in the emptying time of the stomach. The time required for standard opaque meals to pass from the stomach through the small intestine and thence through the colon is by no means constant. This transit time may be accelerated or decelerated by one or a combination of several of many extraenteral factors. For purposes of investigating the motility of the intestine, and by this I mean the character and effectiveness of its movements, the opaque meal must be standardized not only in its composition, but also in its temperature, quantity and viscosity and in the manner of administration—that is, in small quantities over a relatively long period of time or in total amount at one time. Medication that the patient has been receiving must be given consideration as to whether it has affected the intestine primarily or not. In the large intestine and even low in the ileum the contrast meal tends in most persons to become dehydrated and thereby loses some of the physical characteristics it had when it was administered. I cannot lose sight of this which seems to me to be an important factor of apparently abnormal intestinal activity, especially in the patient who is habitually constipated or is constipated for the time being for one of several reasons, such as recent purgation, change of diet, apprehension or other emotional upset. I visualize the physical state of that viscous heavy mass with which the colon is struggling and suspect that perhaps the colon which under these circumstances has a normal appearance is the one which should be held in suspect.

These are but some of the sources of confusion in the roentgenologic diagnosis of primary functional intestinal disorders. Another is related to the diagnostic nomenclature. For what it is worth, my experience leads me to suspect that the nomenclature was derived from clinical and not from roentgenologic sources. I say this because I so rarely find convincing roentgenologic evidence of intestinal irritability, of spastic phenomena, of intestinal instability or of hypersecretion of mucus in patients whose clinical symptoms warrant, in the opinions of my gastroenterologic consultants, such diagnoses as "irritable colon," "spastic colon," "unstable colon" and the current equivalent of the term "mucous colitis." I am impressed also with the frequency with which I see patients who have large dilated rectal ampullae, and other patients who have conspicuously long and comparatively voluminous colonic loops, who are not and never have been constipated. As I read the literature on functional intestinal disorders, I note that a narrow contracted descending colon can be the cause of constipation in one patient and the cause of diarrhea in another. The best examples of the mucous "string sign" of Crane which I have collected were in patients who happened to have no prominent clinical evidence of intestinal dysfunction, but were subjected to roentgenologic examination for entirely different reasons.

It is not without considerable chagrin that I set forth some of the difficulties which I personally encounter with the roentgenologic diagnosis of functional intestinal disorders. Some of them are, I think, real and are sensed by many roentgenologic diagnosticians; others are possibly peculiar to me and to the nature of my practice. In no sense is it my intention to discourage continued endeavor along these lines, but I would like to encourage the adoption of a critical attitude to avoid unwarranted conclusions and correlations which are made now and then.

COMMENT

Without doubt the greatest contribution which the roentgenologic examination of the intestine makes to the diagnosis of functional intestinal disorders is the facility and accuracy with which it can be made to exclude organic intestinal disease as the cause of the clinical manifestations of dysfunction. Roentgenologic diagnostic maneuvers are also called on to assist in the diagnosis of disease in extraenteral organs which cause intestinal dysfunction indirectly. To the diagnosis of what I have chosen to designate as primary functional intestinal disorders, that is, those that have no demonstrable somatic cause, the roentgenologic examination of the intestinal tract has, in my opinion, no definitive contribution to make. Possibly improvement in this field will come as knowledge of the fundamental neuromuscular mechanism of intestinal activity accumulates. In the meantime I venture to propose that the roentgenologic examination that is undertaken specifically for the study of intestinal function be better adapted to that purpose, chiefly by eliminating so far as it is possible to do so all extraneous factors that may influence intestinal function adversely. Some of these have been indicated; others will suggest themselves. Much knowledge will of course continue to be derived from careful correlation of clinical and roentgenologic data. The possibilities of newer roentgenologic technics, such as kymography, have only begun to be explored. The most salient information will probably originate, as it has in the past, from the physiologic clinical research laboratories.

TREATMENT OF INTESTINAL CONDITIONS AS BASED ON DISORDERED FUNCTION

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The therapeutic requisite for the functionally deranged intestinal tract is adequate knowledge of established normal enteric behavior coupled with cognizance of the many factors causing alteration in this functional pattern

The psychogenic functional intestinal disorders in motor, secretory, excretory or sensory physiologic disturbance may simulate or eventuate in clinical syndromes emanating from primary structural change. Conversely, organic intestinal impairment, systemic disease or infection, chemical reactions, deficiency states, endocrinopathies and metabolic disturbances often, in the bizarreness of their symptoms, adapt themselves to or actually arise from psychogenic disease. The difficulty in clinical distinction is readily discernible; the issue is reemphasized to insist that a meticulous case study is an essential of therapeusis. One cannot condone the suggestion of Pulsifer[1] that from the history and from physical examination alone it is permissible to conclude that a disease is psychogenic. It is preferable to gain a conclusive diagnostic evaluation; thereby, speaking with certainty, one can instill assurance into the patient who by nature is a skeptic.

The management of functionally manifest enteritides, specific in causation, immediately appears simplified in consideration of therapeutic attack on the causal factor. However, too frequently the concomitant or resultant physiologic alteration in the intestines dominates the clinical picture, so that the result of treatment directed at the specific cause is obscured by the more persistent secondary disturbances.

The actual therapy of the psychogenic derangements is necessarily involved No standardized program of treatment could be applicable to all patients with neurogenic disease. The specificity of pharmacologic aids is limited. Comprehensive interpretation of type of personality, structure and reaction evolves itself into evaluation of the intricate relationship of psyche and soma in the person susceptible to emotional precipitants. The true importance of emotional contribution to gastrointestinal disease is well appreciated, the classical work of S. Weir Mitchell, Pavlov and Beaumont and the more recent contributions of Alvarez,[2] Wolf,[3] Jones[4] and others[5] leave little for the authors on the psychodynamic aspects of battle reaction to add. It is disappointing that too few of the observers during this recent global strife felt that the indications for therapeusis fell within the realms of internal medicine; there was too great a tendency to label many easily rehabilitable patients neuropsychiatric and to discharge them so stigmatized. Now that large group of emotionally disabled patients with gastrointestinal disturbances who either should not or would not be permitted to be relegated to the psychiatrist for therapeusis returns to civilian life to join the "big time operators" (Dr. Sarah Jordan) at a time of great national instability. Evaluation to determine whether the entity is truly psychogenic in origin, existing with or without resultant organic disease, and whether the causal emotional factors are too deep seated and too complicated to permit management without the assistance of a neuropsychiatrist therefore is the first move It is immediately obvious that the constitutional psychoses are neuropsychiatric problems, that certain of the persons with depressive psychosis, hysteria, compulsive obsessions or hypochondria and the persons who are simply inadequate will require cooperative management with the neuropsychiatrist, and that the larger group would not appreciate being termed neuropsychiatric, but would resent it to the degree that resultant insult to the psyche would actually be detrimental to the patient's future. Eusterman[6] has suggested that a neuropsychiatrist should be consulted only if after eight weeks of management the patient has failed to respond. Sarah Jordan[5c] indicates that in most cases of acute disease there will be spontaneous response to reassurance, but warns that the cases of long standing require, besides reassurance and readjustment, the supplement of actual therapy of the gastroenteric tract in restoration of neuromuscular and secretory function and that if these measures precede the development of organic disease the prognosis is favorable.

MANAGEMENT OF THE PATIENT

Psychotherapeusis is difficult to break down to a simplified therapeutic process An attempt is made to bring forth the practical aspects applicable to the patient who can and will be best managed by a competent physician who has an understanding of personalities This paper cannot be an intensive review of psychotherapy. In agreement with Chester Jones[7] we feel that a competent "family physician" who has the confidence of the patient is in the best position to provide reassurance and stability if he is willing to dedicate the time in applying basic educational principles to create for the psychogenically disturbed person what will be for that person an artificial regulation of living habits, regularity of rest and exercise approaching as closely as attainable a normal life for his individual abilities

Yoskin[8] simply depicts the therapeutic picture to encompass the fields of rapport, ventilation, desensitization, restraint, reeducation and stabilization, psychotherapy of the family and compromise formation.

Most patients are best managed with an initial period of hospitalization whereby an environmental change is realized; they are relieved of annoying responsibilities and permitted a supervised regimen including physical and occupational therapy This period is equally important to the physician, permitting him an opportunity to study his patient in a stable environment with the assistance of trained observers.

From the [illegible] University School of Medicine, and the [illegible] nfirmary, New Orleans [illegible] and Proctology at the [illegible] ledical Association, San Francisco, July 4, 1946

Read before [illegible] Ninety Fifth [illegible]

1 Pulsifer, L Mil Surgeon **93**: 481 485, 1944

2 Alvarez, W C The Mechanics of the Digestive Tract, New York, Paul B Hoeber, 1928

3 Wolf, S G, and Wolff, H G Human Gastric Function, New York, Oxford University Press, 1943

4 Jones, C M M Clin North America **28**: 1154 1163, 1944

5 (*a*) Ivy, A C Ohio State M J **40**: 925 929, 1944 (*b*) Portis, S A Medical Treatment of Psychosomatic Disturbances, with Special Reference to Gastrointestinal Tract and Fatigue, J A M A **126**: 413 418 (Oct 14) 1944 (*c*) Jordan, S M Gastroenterology **3**: 73 78, 1944 (*d*) Palmer, W L M Clin North America **28**: 416 428, 1944

6 Eusterman, G B, in discussion on Vorhaus, M G, and Orgel, S Z Psychosomatic Relationships to Gastrointestinal Diseases, J. A M A **126**: 225 231 (Sept 23) 1944

7 White, B J, Cobb, S, and Jones, C M Mucous Colitis A Psychological Study of Sixty Cases, Psychosomatic Medicine Monograph 1, Menasha, Wis, George Banta Publishing Company, 1939

8 Yoskin, in Bockus, H. L Gastroenterology, Philadelphia, W. B Saunders Company, 1945, vol 3

The practical application of principles by the average physician requires the desire and ability on his part to attempt physical and mental reeducation of the patient to create that mode of life termed "normal," though "artificial" to most patients.

The physical factors are concerned with modification of the method and mode of expenditure of physical effort to the abilities of the person. This evolves itself into regularity of living, individual application of physical exercise in competitive or noncompetitive activities as is elected best, adequate and well organized rest and recreational routine, regular eating habits and normal bowel hygiene.

Mental alteration assumes ability of the physician to alter the patient's reactions and with the patient to adjust certain flexible environmental influences. This includes correction of rigid attitudes of resentment, anxiety and sympathy. Creation of "insight" follows along the same line with evaluation of the patient's problems in terms of symptoms arising from emotional precipitants. Patient guidance in solution of conflicts is substituted for flight from reality. When possible, adjustment of social, economic, occupational, domestic, marital, sexual and other conflicts is achieved by alteration of environment to patient or vice versa. Disciplinary measures are especially applicable in the high strung hysteroid persons to aid them in understanding that they may not be permitted to aggravate their fears or use them for exploitation. Reassurance by the confident physician is of value, permitting a degree of transference of responsibility for judgment and well placed praise for accomplishment. Suggestion therapy in the form of hypnosis, placebos, "vaccines" and "medications" has limited value; hypnosis alleviates many hysterical manifestations temporarily, and the inadequate person may be favorably influenced by the judicious application of the other forms of "ritual" suggestion. The mental reeducation of the patient will involve the application of all these measures to some degree; elected instances will require adjunct psychiatric consultation for psychoanalysis, "shock" therapy and more intensive psychotherapy. Careful management and intense interest on the part of the gastroenterologist will tend to achieve "resolution" of the neurosis, which amounts to adjustment of patient and environment to an extent where he is able to live in a degree of compatible harmony with the "rest of the world."

Chester Jones [7] suggested that a psychiatrist who has combined his knowledge of psychiatry with an understanding of the mechanisms of the enteric tract has much to offer gastroenterology; he added that such men are few in number. He concluded his analysis of the situation with the statement, "No one psychotherapeutic approach is universally applicable and the prescription must generally be based on a complex mixture." This unquestionably is true; a diagnostic issue, a psychiatric problem and a gastroenterologic management demand one competent to handle all three issues, and, further, besides the management of the patient there are dietary and medical considerations.

DIETOTHERAPY

It is agreed that unnecessary dietary restriction is detrimental and possibly may increase the patient's preoccupation with somatic complaints. Often, however, we are concerned with removing fads and fancies from the patient's concept of dietary management derived from injudicious medical advice or from self judgment of food idiosyncrasy. The simplest plan is to emphasize the importance of regular eating habits, stressing their relation to regulating gastroenteric motility and secretion, to indicate the requisite amounts of the essential ingredients and to incorporate these essentials in a typed-out, normal, nonirritating diet, preferably dictated in the patient's presence to indicate its applicability to his instance. Since the extremely irritable gastrointestinal tract is stimulated by any and all foods, some patients may be benefited by a twenty-four hour starvation period. In all cases having the additional instruction to grind all meats and purée all fruits and vegetables and to limit the quantities in the initial weeks of treatment is worth considering, with removal of these restrictions when the patient's condition is responding satisfactorily. Since to our way of thinking such is actually a normal dietary program, with condiments and special dishes the design of restauranteurs to persuade one to be indiscreet in diet, we consider it wise to point out to the patient that he is merely being instructed to behave normally and that he, being a gastrointestinally sensitive person, must not depart into dietary extremes at any time for fear of recurrent manifestations.

If one considers reflex (enteric) esophagospasm, reflex biliary dyskinesis and certain instances of hypoglycemia and ulcerative colitis as psychogenic in association or origin, then for these exceptions a more elaborate dietary program must be individualized to each instance.

Portis' [9] "fatigue" syndrome related to hypoglycemia may be managed as he vaguely suggests, by a "high protein, moderately high fat and relatively high carbohydrate diet," with the omission of free sugar and the addition of feedings at night. (Considering the possibility that this may be related to hypermotility of the bowel, we include it in this consideration.)

Respect for a patient's observations may lead one cautiously to outline an elimination diet when history of allergy is elicited. The principles outlined by Rowe or careful evaluation of the patient's assumed allergies may be adhered to until the physician has satisfied himself and the patient that no definite allergic phenomena exist.

In those instances of nutritional and vitamin deficiency, endocrinopathy and metabolic disease, specific dietotherapy is established.

PHARMACOLOGIC AIDS

The judicious administration of drugs is essential, though rarely specific. In most instances they are used for symptomatic relief in the period of adjustment. It is erroneous to use any drug which is habit forming or induces tolerance, and we therefore advise against all narcotics and amphetamine-like products.

The use of sedatives should be limited to the relief of pain and nervous tension. Analgesics in combination with sedatives and antispasmodics may often, by synergistic action, be more efficient. Narcotics should be limited to specific severe seizures. The barbiturates and bromides are most commonly used and either alone or in combination should be efficient; occasionally idiosyncrasy requires one to resort to chloral hydrate or the carbamide preparations. The minimum dosage should always be used and assurance against dependency emphasized, so that as the patient improves he comes to need such aid only in contingencies.

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[9] Portis, S. A.: Psychosom. Med. 6:71-73, 1944.

A multitude of antispasmodics are available; atropine and its derivatives persist in most common usage. When an idiosyncrasy to atropine exists one may elect to use one of several synthetic proprietary products. No antispasmodic approaches the efficiency of glyceryl trinitrate in the relief of esophagospasm and biliary dyskinesis. Theophylline ethylenediamine also is effective in the relief of esophagospasm.

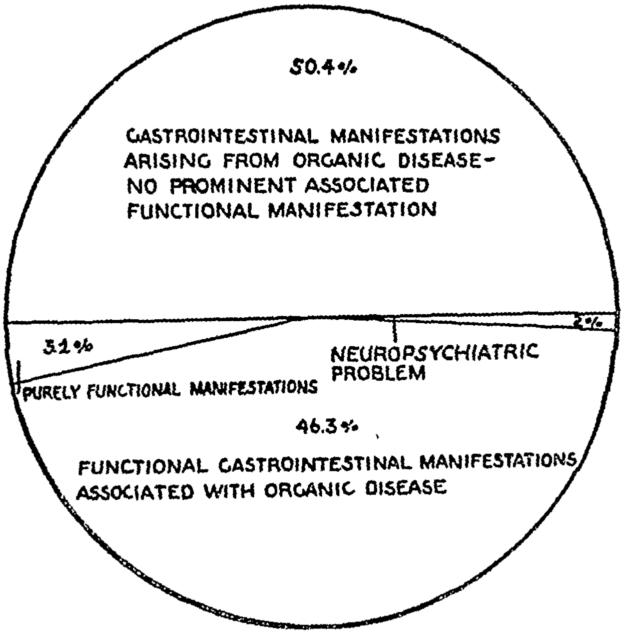

Chart 1.—Analysis of 500 consecutive cases of gastrointestinal disease.

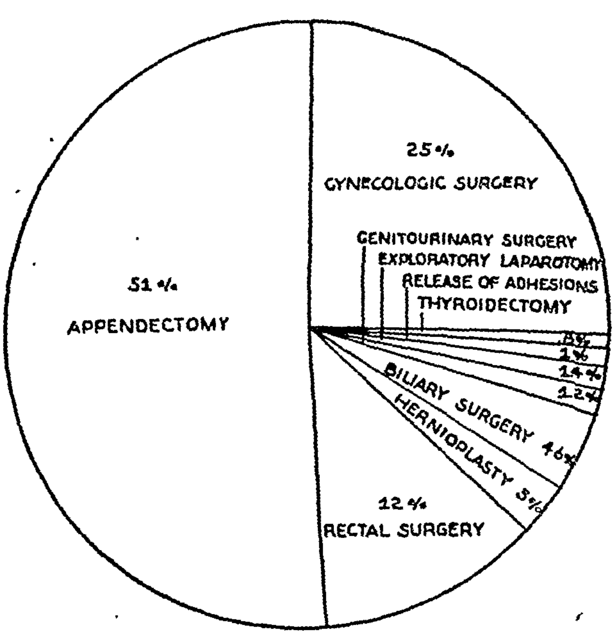

Chart 3.—Previous surgical treatment of functional manifestations.

Perhaps administration of calcium salts and parathyroid is an adjunct when there is sufficient suspicion of irritability of the smooth muscles of tetanic variety, and in certain of the deficiency states as sprue and celiac disease.

When patients have functional achlorhydria the administration of dilute hydrochloric acid is indicated as long as the status persists. So also in hyperacidity neutralizers such as alkaline powders and aluminum hydroxide have clinical application.

Substances aiding regulation of the bowels are essential in the irritable colon resulting in either constipation or diarrhea. The constipated person may occasionally be permitted mild cathartics initially in combination with liquid petrolatum, agar preparations and the other bulk-producing hydroscopic substances. As efficient management progresses all laxatives are withdrawn and use of rectal instillation of warm vegetable oils satisfies the patient's need for an occasional emergency evacuation.

We cannot establish an indication for therapeutic enemas and irrigations of the colon in the management of psychogenic colonic dysfunction. We are inclined to doubt clinically the value of sodium ricinoleate for *detoxification.*

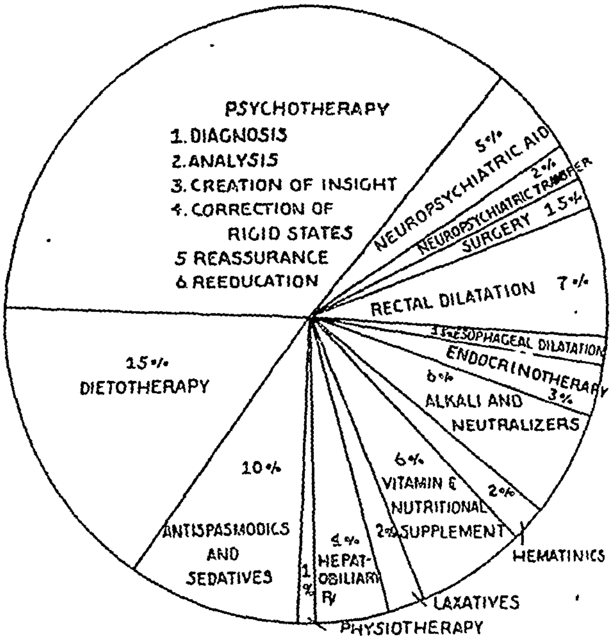

Chart 3.—Relative amounts of different types of treatment.

In the acute episodes of diarrheal states opiates may be required in general, absorptive astringents such as kaolin and pectin are excellent aids to supplement dietary instruction and sedation.

It is difficult to be tolerant with the advocates of bacterial vaccines for uncomplicated mucous colitis.

When dietary restriction, hypermotility or abnormal secretory response has resulted in anemia due to deficiency of iron, subclinical or clinical hypovitaminosis, these must be corrected specifically. We are inclined to favor various simple "tonic prescriptions" and the careful use of insulin to stimulate the appetite of the malnourished patient.

We are not attempting an intricate therapeutic outline for each of the symptoms arising from the physiologic disturbance, for the patient must be considered on the whole with a broad attitude of management covering the disturbance in its entirety.

ADJUNCTIVE MEASURES

Operative measures include operation on the sympathetic nerves for megacolon, correction of associated diseases requiring operative measures, rectal dilation for uncomplicated anal spasm and esophageal dilation, when necessary, for reflex cardiospasm. In general one should adopt an attitude of extreme conservatism in advocating any surgical measure. On the whole operation on the sympathetic nerves for relief of pain is not acceptable.

Physical therapy, including simple massage, exercises (passive and active), hot packs and diathermy have both a general and a specific application. Often simple measures such as contrast showers and warm tub baths do much to relax the tense patient.

Occupational therapy coupled with an effort at social and economic adjustment may call for more than passing consideration in aiding the patient to outline a useful constructive program of living.

To illustrate the relation of the issue to gastroenterologic practice, we surveyed 500 consecutive ambulatory patients with gastroenterologic disorders in an attempt to gain an evaluation of the problem (chart 1).

These results were surprising to us. In recent years so great a prominence has been given to disease of neurogenic causation that we had anticipated its predominance. Perhaps review of a larger series of cases would alter the relation to some extent, but we are forced to the conclusion that meticulous study of cases will eliminate many of the purely functional instances.

This left us 247 patients in whom functional disturbances existed. The average duration of symptoms prior to examination was 7.8 years. All had had previous medical care: a group (51.2 per cent) subjected to various surgical measures without relief is charted (chart 2). This evidence of mismanagement is recognized and is mentioned only to reemphasize the importance of diagnosis.

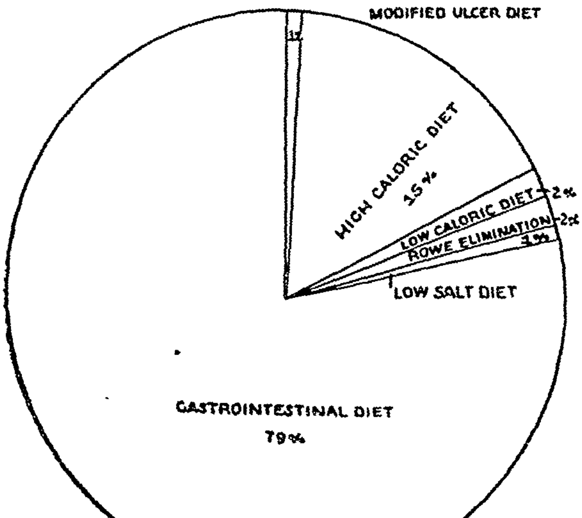

Chart 4.—Dietotherapy.

The breakdown of our management of these cases exclusive of correction of the causal organic factor is approximated as closely as possible in relation to importance of application (chart 3). Hospitalization was considered necessary in 10.2 per cent of cases.

Dietary instruction was meticulously exacted. In general the principles mentioned earlier in the paper were applied. Our specific application in these cases is illustrated (chart 4).

An approximation of what we might hope to achieve by this management is outlined in chart 5.

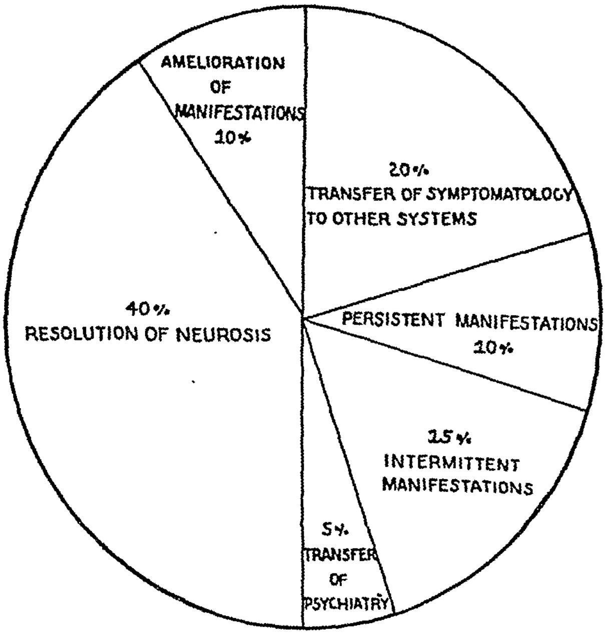

Chart 5.—Effectiveness of therapy.

CONCLUSION

There is no summarization for this presentation; it deserves expansion. It is hoped that we have stimulated an interest in the treatment of these functional intestinal disorders and the inclination properly to evaluate the problem first and then to treat the patient sincerely and rationally, discarding the indifference commonly felt toward those easily labeled neuropsychiatric.

1534 Aline Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. WEBER AND DRS. BROWNE, MC HARDY AND WELCH

Dr. Sara M. Jordan, Boston: In this era when the word "psychosomatic" is used so glibly, this symposium on intestinal dysfunction seems appropriate. We are accustomed to think of functional indigestion as of two categories: (1) that which is psychosomatic, altogether or in part, and (2) that which is somatic in origin. It is my opinion that the cases which are of short duration are often on a psychogenic basis, and in those instances psychotherapy is completely effective. In this group, however, certain cases of longer duration originally were on a psychogenic basis, but indigestion and dysfunction have become habitual. In these cases I believe that treatment for the somatic condition is definitely a necessity. In the second group of cases, I believe, functional indigestion is purely on a somatic basis, and I should like to use a new word in this connection, the word "somatopsychic," because one should not forget that there are not only psychosomatic but somatopsychic persons. There are some somatopsychic persons in this group of patients whose symptoms are produced by various causes, such as excessive food roughage, colonic interference in the form of laxatives and colonic irrigations, infections which leave a residue, physical stress and strain, and sometimes allergy, and in that group of patients there is a definite somatic factor, with occasionally an effect on the nervous system and the psyche, the reverse of the psychosomatic. Here treatment with digestive management is exceedingly important. These patients will not be cured by psychotherapy; they must be treated with digestive management. A few words about the roentgenologic diagnosis of functional indigestion: I disagree with Doctor Weber, inasmuch as I believe that if the patient is not prepared with purgation as roentgenologists are accustomed to do, there is an excellent opportunity to find out by roentgenologic examination much about digestive dysfunction, both with the meal and particularly with the barium enema. A gastrointestinal study is carried out, of course, to exclude organic disease, as he said; but it is also done in order to find out how that digestive tract—particularly the small and large intestines—functions, and repeated observations usually confirm the single observation. Furthermore, follow-up results after treatment show the changes from intestinal dysfunction to good intestinal function.

Dr. Zachary Sagal, New York: I wish to call attention to the importance of taking a detailed initial history in these cases of psychosomatic disease, for the purpose of subsequently evaluating the results of management, not so much from the standpoint of the physician as from the standpoint of the patient. We are dealing here with highly suggestible and self-indulgent persons to whom every minor discomfort looms large, and who will be dissatisfied with the treatment, although a good deal may have been accomplished. It has been my experience often that, after a period of management of eight months or a year, the patient will say "Here, Doctor, I have been coming to you so long and I don't see any improvement in my condition." If one is able to go back to the initial history and check up and confront the patient with statements such as, "When I first saw you, you complained of this, and that and the other thing," each time one will get the reply, "Yes, that hasn't bothered me much," and, "Well, that has improved." One will find that the patient is satisfied to realize that the major complaints, or at least 75 per cent of the initial complaints, have been alleviated. Otherwise the few complaints which the patient still has seem to loom large in his or her imagination, so that the patient has the notion that he has not been at all benefited. From the standpoint of therapy it is important, because the patient will be relieved of the anxiety that there has not been any improvement in his condition.

Dr. A. F. R. Andresen, Brooklyn: It has been a treat to me to listen to this conservative discussion today of psychosomatic influences on the gastrointestinal tract. I do not know where the radical psychosomatists are today. The fine presentation by Dr. Bargen[1] would keep us on even keel in regard to this subject of the influences of the psyche on the gastrointestinal tract. I like the term "somatopsychic" which Dr. Jordan gave us. I consider that important. On the other hand, I agree with Dr. Weber that one must not depend too much on what one sees in the roentgenogram as an indication of functional disturbances because, as he pointed out, many of the functional changes that are seen are really physiologic, or may be due to a variety of causes which some physicians have overlooked. He spoke of the distaste for the mixture as one of the points, and I might say that my colleagues and I made experiments with different flavors to try to decrease the distaste for the barium meal, starting with milk. We started with a delicious chocolate mixture, and many people were allergic to chocolate. We tried Coca-Cola as a flavoring, and that set up various disturbances in persons allergic to various constitutents of the Cola mixture. So one must be careful. One must not consciously look for evidences of psychic causes for these disturbances in the gastrointestinal tract; one should first rule out organic conditions. I recently had a man who was put through all sorts of psychologic tests and was given shock treatments over a period of several months, but who never had been given a thorough study. He was found to have a large retroperitoneal carcinoma which was involving his entire abdomen and chest, and everything else, by the time that he reached us; and he had been through a thorough course of shock therapy!

Dr. Harry M. Weber, Rochester, Minn.: Could Dr. Jordan and I have reviewed the cases which she presented together we would, I feel certain, be in complete unanimity of opinion. It was my purpose to argue for two distinct examinations of the intestine, one for the purpose of disclosing significant change in the physiologic activity of the intestine, the other for the purpose of determining the presence or absence of organic intestinal disease and of those congenital and acquired intestinal abnormalities capable of affecting the physiologic activity of the intestine adversely. To accomplish the latter satisfactorily it is necessary first to induce an unnatural or abnormal intestinal state, and then proceed to treat the intestine in a manner that in several ways is distinctly unphysiologic. A fundamental prerequisite, for example, is an empty intestinal lumen and an internal intestinal surface as free of "normal" intestinal content as it is possible to make it. To achieve this condition a prolonged fast is used in the preparation of the small intestine for roentgenologic examination, vigorous purgation in the preparation of the large intestine. These maneuvers are unphysiologic, and individual responses to them are extremely variable. Other factors are frequently introduced which alter the physiologic activity of the intestine, but that very alteration serves to make pathologicoanatomic change more clearly demonstrable. The roentgenologic examination conducted for the purpose of estimating the functional activity of the intestine should, I think, be conducted in a different manner. Factors capable of producing change in intestinal activity should be recognized and avoided or attenuated. Organic intestinal disease should have been excluded in a preliminary examination. The physiologic state of the intestine should certainly not have been altered by purgation, by a prolonged fast or by sedative medication. The patient should have been coached to present himself in the state which for him is routine and ordinary. As long as the insoluble salts of heavy metals continue to be used as contrast substances it will be necessary to make allowances for the specific effects which these substances have on intestinal motility. I would like to suggest that those who are conducting roentgenologic examinations of the intestine acquire and preserve an objective approach to this part of their work. It may have disadvantages, but these are outweighed by the critical attitude which this approach promotes. I would encourage such an attitude until there is more general agreement about the roentgenologic criteria used in the estimation of abnormal intestinal function.

Dr. Donovan C. Browne, New Orleans: I have nothing further other than to thank Dr. Jordan and Dr. Andresen for their talks.

Blood Pressure.—The first to measure blood pressure was Stephen Hales in England, who in 1733 attached a glass tube 12 feet 9 inches long to the left carotid artery of a horse, held the tube vertically and found the blood to rise to a height of 9 feet 6 inches. Poiseuille introduced the U form of mercury manometer in 1828. Von Basch, who was the first to perfect a sphygmomanometer for clinical use, had a glass cylinder containing a rubber bulb connected with a mercury manometer, later with a spring manometer. The open end of the glass cylinder was covered with a membrane. The cylinder was filled with water and was called a pelotte. The membrane of the pelotte was pressed over an artery against a bone. Potain's sphygmomanometer, 1889, replaced the water by air. Riva-Rocci in 1896 introduced the manometer of which most of the modern types are modifications. There has always been a question as to the effect on the blood pressure reading of the amount of soft tissue of the arm and the width of the cuff.—Downing, M. Elizabeth: Blood Pressure of Normal Girls from 3 to 16 Years of Age, *Am. J. Dis. Child.*, March 1947.

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[1] Bargen, A.: Modern Concepts of Intestinal Function, J. A. M. A. **132**: 313 (Oct. 12) 1946.

BENIGN STRICTURES OF THE BILIARY DUCTS

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Boston

The management of benign strictures of the biliary ducts is one of the most difficult problems in abdominal surgery. While the diagnosis is usually evident from the history, the operative intervention to restore the normal flow of bile into the gastrointestinal tract presents many technical problems and requires the greatest ingenuity on the part of the surgeon. This paper will report on a series of 123 patients operated on at the Lahey Clinic previous to Jan. 1, 1945. Since that time 38 additional patients have been treated, and some of my most recent experiences will be discussed, because further improvements in technical methods have been made during this period.

No presentation of this subject should be made without particular emphasis on the prevention of benign strictures, since most of them are the result of a surgical accident during cholecystectomy. Furthermore, strictures that result from inflammation or from a stone that ulcerates the duct are preventable if early operative removal of gallstones is urged. The prevention of strictures will be discussed later when the causes of their formation are enumerated.

LITERATURE

During the past decade considerable interest in this subject has been demonstrated by a number of reports. Most of these have been concerned with methods of repair. Walters and his associates,[1] in a series of articles, have reported the largest experience, and a further report was made from the Mayo Clinic by Gray [2] in 1938. Lahey [3] described nine different methods of repairing strictures in a general survey of the problem in 1937. Later experiences from this clinic have been reported by Lahey [4] and by me;[5] we have described the causes and method of repair. Repair of strictures by anastomosis to the gastrointestinal tract was emphasized by Brackin and David.[6] Dragstedt and his associates [7] and Walton,[8] as well as new modifications, by Allen [9] and Cole.[10] The use of vitallium tubes was introduced by Pearse [11] in 1941 and in two subsequent reports.[12] There is general agreement as to the causes of strictures but a wide variation in methods employed for their repair. This suggests that no one method is applicable to all cases, and it is important that further review of experiences be made with particular reference to the results following the different procedures.

INCIDENCE

It is difficult to determine with any accuracy the frequency of strictures of the biliary ducts. Since it is most frequently a complication of previous surgical intervention on the gallbladder, some cases are included in the mortality of that operation, and other patients die subsequently of an obstructive cirrhosis with the underlying condition unrecognized. In over 5,000 gallbladder operations in this clinic only 1 operative stricture has been produced. A relative idea of the frequency can be obtained from the ratio of the number of strictures operated on to the total number of gallbladder operations. In a four year period, 1938 to 1941 inclusive, 909 gallbladder operations were performed, and during this time 19 strictures were encountered, an approximate ratio of 1 to 50, or 2 per cent. In the past eighteen months, however, 38 patients with stricture have been operated on, which represents 8 to 9 per cent of all gallbladder cases. This high incidence resulted in a specially selected group of cases, since all were referred. The ratio of benign strictures to obstruction of the biliary ducts due to cancer is 1 to 2.5.

Table 1.—*Age and Sex of One Hundred and Twenty-Three Patients*

Sex	No. of Cases	Age	Cases
Female	99 (80%)	20-29	11
Male	24 (20%)	30-39	26
		40-49	46
		50-59	33
		60-69	6
		70-72	1
		Youngest 21, eldest 72	

There were 99 women (80 per cent) and 24 men (20 per cent) in this series of 123 patients. This high proportion of strictures in women is in excess of that encountered in patients having cholecystectomy.

The age incidence is shown in table 1. Thirty per cent of the strictures occurred in patients under 40 years of age. It seems logical to assume that many of these patients had had disease of the biliary tract for a relatively short period of time, and the operative difficulties should not have been serious. The youngest patient was 21 and the eldest 72.

CAUSES OF STRICTURES

The histories of these patients have been reviewed and the operative findings scrutinized in an attempt to determine the underlying cause for the production

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From the Department of Surgery, the Lahey Clinic.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] Walters, W.: Strictures and Injuries of Bile Ducts; Study of Results of Operations in Eighty Cases, J. A. M. A. **113:** 209-213 (July 15) 1939. Walters, W., and Lewis, E. B.: Strictures of the Common and Hepatic Bile Ducts with a Report of Ninety-Eight Cases, in Frank H. Lahey Birthday Volume, Springfield, Ill., Charles C Thomas, Publisher, 1940, pp. 443-457; Strictures of Common and Hepatic Ducts, Proc. Interst. Postgrad. M. A. North America (1939), 1940, pp. 319-344; Estrechez del colédoco y del hepático: Informe sobre 98 casos, Dia Méd. **14:** 596-599 and 602 (June 29) 1942.

[2] Gray, H. K.: Injuries to Extrahepatic Bile Ducts, Am. J. Surg. **40:** 217-222 (April) 1938.

[3] Lahey, F. H.: Strictures of Common and Hepatic Ducts, Ann. Surg. **105:** 765-790 (May) 1937.

[4] Lahey, F. H.: Satisfactory Substitution of a Rubber Tube for a Destroyed Hepatic Duct Over a Period of Six Years, Lahey Clin. Bull. **3:** 98-101 (April) 1943; Finding the Lower End of the Cut Common Duct in Strictures of the Common Duct, S. Clin. North America **23:** 714-716 (June) 1943; Strictures of the Common and Hepatic Bile Ducts, editorial, Surg., Gynec. & Obst. **80:** 555-556 (May) 1945.

[5] Cattell, R. B.: Strictures of Common Duct, Proc. Interst. Postgrad. M. A. North America (1942), 1943, pp. 133-137; Benign Strictures of the Bile Ducts: Causes and Methods of Repair, S. Clin. North America **23:** 701-713 (June) 1943.

[6] Brackin, R. E., and David, V. C.: Anastomosis of Bile Ducts to Gastro-Intestinal Tract by Method of Transfixion Necrosing Suture, Ann. Surg. **114:** 616-634 (Oct.) 1941.

[7] Dragstedt, L. R.; Julian, O. C.; Allen, J. G., and Owens, F. M., Jr.: Implantation of Hepatic Duct into Duodenum or Stomach, Surg., Gynec. & Obst. **77:** 126-129 (Aug.) 1943.

[8] Walton, J.: Reconstruction of the Common Bile Ducts, Surg., Gynec. & Obst. **79:** 57-69 (July) 1944.

[9] Allen, A. W.: A Method of Re-Establishing Continuity Between the Bile Ducts and the Gastro-Intestinal Tract, Ann. Surg. **121:** 412-424 (April) 1945.

[10] Cole, W. H.: Strictures of the Common Duct, editorial, Surg., Gynec. & Obst. **82:** 104-105 (Jan.) 1946. Cole, W. H.; Ireneus, C., and Reynolds, J.: Ann. Surg., to be published.

[11] Pearse, H. E.: Benign Stricture of Bile Ducts Treated with Vitallium Tube, Surgery **10:** 37-44 (July) 1941.

[12] Pearse, H. E.: Management of Injuries of Common Bile Duct, New York State J. Med. **44:** 403-404 (Feb. 15) 1944; paper read before the meeting of the American Surgical Association, Hot Springs, Ark., April 1946.

of the stricture. In many cases the previous operative records were available, so that it could be determined definitely; in others the probable cause was decided on and listed from the operative findings in the absence of previous surgical records. Since this method is subject to individual interpretation, some of the causes listed might properly be questioned.

The causes of the strictures are shown in table 2. Patients with congenital obstruction of the biliary ducts are not included in this series.

Operative injury had occurred in 99 patients, or 80 per cent of all cases. Since these injuries must be considered preventable, they will be discussed separately later in the paper. Eleven patients had a stricture resulting from long-standing inflammation of the common hepatic or common bile duct. In some the entire extrabiliary duct system was narrow and fibrotic. Others had localized narrowing and ulceration that was probably the result of the presence of a calculus in the duct. These represent long-standing cases of biliary tract disease and might have been prevented by earlier operative intervention.

Fibrosis and narrowing of the ampulla of Vater accounted for 9 strictures. Insufficient attention has been called to this cause of benign obstruction to the biliary ducts. The frequency of this condition is probably much greater than has been represented in this series. It was usually found in patients with recurrent calculi in the common duct. This cause of obstruction of the common duct is frequently unrecognized and can be determined only by the passage of graduated probes or by transduodenal exploration of the ampulla. Infrequent causes of benign strictures were adhesions in 2 patients and external trauma in 1.

TABLE 2.—*Causes of Stricture in One Hundred and Twenty-Three Patients*

	No of Cases
Operative injury	99
Cholangitis	11
Fibrosis of ampulla	9
Adhesions	2
Trauma	1
Unknown	1

TABLE 3.—*Site of Operative Injury*

	No. of Cases
Hepatic duct	49
Cystic duct area	23
Common duct	9
Excision of both	18

Operative injury to the ducts was recognized at the initial operation in a number of these cases, but usually the previous operative report contained no description of injury to the duct. The occurrence of hemorrhage during cholecystectomy, usually from loss of the cystic artery, is a common observation. An attempt to control it by the blind use of artery forceps or by mass suture of the area frequently results in injury to the common hepatic duct. This can be avoided by pressure on the hepatic artery, compressing it between a finger in the foramen of Winslow and the thumb anteriorly on the gastrohepatic omentum until the cystic artery stump can be accurately secured. Two other typical stories were given in a review of the operative and postoperative records, both of these following an apparently uneventful cholecystectomy. The first described the profuse drainage of bile from the wound which shortly followed the operation and continued as an external biliary fistula. The second stated that jaundice occurred a few days after operative intervention and became persistent, with acholic stools.

At reoperation, these were usually shown to be caused by obstruction of the common duct at the junction of the cystic duct as a result either of interference with the lumen of the duct because of too close ligature of the cystic duct or of removal of a portion of the duct at this point.

The site of the stricture aids in determining the manner of operative injury and is shown in table 3. The common hepatic duct or both hepatic ducts were injured in 49 patients, many of these patients giving the story of hemorrhage encountered at operation. The lower end of the common duct was injured in a localized area in 32 patients, the common duct being involved just proximal to the duodenum in 9 and in the region of the cystic duct in 23. Excision of large portions of extrabiliary ducts was encountered in 18 patients, and in many of these no remaining duct could be found between the hilus of the liver and the edge of the duodenum.

Strictures produced as a result of operative trauma are preventable. They may be the result of poor anesthesia, with the resultant difficult operating conditions, or failure to recognize the variation of the entrance of the cystic into the common duct, as well as the difficult situation in which a badly inflamed and contracted gallbladder may distort the anatomy. The experience of the surgeon with operations on the gallbladder is a determining factor. Whether the surgeon chooses to remove the gallbladder from below upward or to dissect the gallbladder down to the region of the ducts, it is important that the anatomy be fully demonstrated before the division of any structures is attempted. With the exception of patients with acute forms of gallbladder disease, it is my plan to open the gastrohepatic omentum, secure the cystic artery separately and demonstrate clearly the junction of the cystic duct with the common hepatic and common ducts before removing the gallbladder. Careful demonstration of this anatomy in every case will give the best assurance of avoiding injury to the ducts, but good anesthesia and good exposure are necessary to accomplish this. While cholecystectomy is the operation of choice for all patients with gallstones, it is much better to perform cholecystostomy if the surgeon feels that satisfactory dissection is not possible, rather than to risk possible injury to the duct. Frequent explorations of the common bile ducts during gallbladder operations as practiced in this clinic have not contributed to the formation of strictures.

Since this paper is primarily concerned with the prevention and repair of benign strictures, the diagnosis of the condition will not be included. It will suffice to state that all patients had obstructive jaundice unless an external biliary fistula was present. Internal fistulas into the duodenum were commonly encountered, often resulting in intermittent jaundice as the fistula opened and closed. Common duct stones and malignant obstructions of the duct must be excluded as well as jaundice of intrahepatic origin.

PREPARATION FOR OPERATION

Once the diagnosis of benign stricture is made, the time selected for effecting the repair is quite important. The best chance for success is at the original operation if operative injury is discovered. The dissection and mobilization of the ends of the duct at this time can be satisfactory, and a good suture can be obtained. If the injury is discovered during the postoperative period, unless the secondary operation is performed within a few days it is better to wait until the inflammation and edema subside in order to have pliable structures with which to deal. Many of the failures are the result of too early intervention. If an external biliary fistula persists, there is no urgency and the operative procedure should be delayed for at least three months. If obstructive jaundice persists throughout the postoperative period, such a delay cannot be tolerated and reoperation should be done in four to six weeks. If too early operation is attempted further portions of the duct system may be destroyed, as each attempt at repair that is unsuccessful makes further procedures more hazardous. In an editorial on this subject Dr. Lahey called attention to the many difficulties encountered and suggested that it usually would be better for the surgeon who had the misfortune to produce a stricture to refer the patient to one of the many surgeons who had had considerable experience in the repair of strictures. His opinion was based on the fact that many of the patients encountered had had multiple operations, and in 1 patient eight previous procedures had been performed.

A short period of preoperative preparation will suffice for those patients who have an external biliary fistula. Those who have severe obstructive jaundice, however, require a period of two to three weeks to get them in the best possible condition. A high caloric, high protein, low fat diet is best tolerated. This should be augmented by adequate vitamin therapy, particularly vitamin B complex, ascorbic acid and vitamin K. The last mentioned should be given parenterally in excessive doses, with or without the oral administration of bile salts. Four milligrams of "hykinone" (menadione sodium bisulfite) given twice daily subcutaneously or with intravenous fluids should suffice. Intravenous dextrose solutions, amino acids and blood transfusions may be required for a short period previous to operative intervention.

In view of the technical difficulties usually encountered and because of the length of time required for the repair, I employ fractional spinal anesthesia, utilizing tetracaine hydrochloride weighted with dextrose solution. This gives the best operating conditions possible for whatever time may be required. If general anesthesia is preferred, intratracheal cyclopropane supplemented with curare to aid in relaxation may prove satisfactory.

OPERATION

The seriousness of this problem is clearly shown by the number of operative procedures carried out in this series of 123 patients. A total of 344 operations was performed, 180 of these having been done previous to the patients' admission to this clinic. This figure includes 57 previous repairs of stricture before the patients came under observation here. There were 164 operations for repair performed, which included 32 repeat operations. The extent and number of the surgical procedures are only part of the picture. Severe hepatic damage was present as a rule, and long periods of disability with economic loss resulted from the stricture formation.

There are two general plans for the operative repair of stricture. The first includes the plastic procedures and end to end suture for restoration of the continuity of the duct itself, preserving the sphincter of Oddi and the normal entrance of the biliary passage into the duodenum. The second method of repair, usually employed when portions of the duct system are missing, consists of the suture of the proximal end of the duct to some portion of the gastrointestinal tract—stomach, duodenum or jejunum. All methods of repair are modifications of one of these two methods.

The general principles underlying a successful repair are listed in table 4, and these apply to either of the general methods of repair. The most important principle is accurate approximation of mucosa to mucosa in any type of anastomosis, whether this be duct to duct or duct to gastrointestinal tract. This must be obtained without tension; in order to accomplish this, adequate mobility of the two ends is essential. Every attempt should be made to avoid leaving any defect in the biliary duct, as operations utilizing a tube to bridge a defect have given poor results. The repair should be performed over a mold or tube, and this should remain in place for a period of several months whenever possible. This maintains an adequate opening during the initial healing period as well as during the final reparative process, when fibrous tissue is absorbed after several months.

TABLE 4.—*Principles of Treatment*

Mucosa to mucosa in any anastomosis
Accurate approximation without tension
Insert T tube through a separate incision in the duct
Indwelling biliary duct tube is anchored
Avoid leaving defects in the biliary ducts
Prolonged tubal drainage is essential after repair

TABLE 5.—*Type of Operation: First Series, Eighty Patients*

		No. of Operations
External fistulas performed		7
External fistulas transplanted		8
Defects bridged by tube		3
[illegible]		19
[illegible]		22
[illegible]		20
[illegible]		14
[illegible]	2	
[illegible]	6	
[illegible]	6	
Division of band		1
Total, 80 patients		94

If a T tube is used, the vertical limb should be brought out through a separate incision in the duct, making the repair over the horizontal limb.[13] If a tube is implanted within the duct it should be anchored. If the tube passes through the ampulla of Vater it will pass in most instances. Likewise, most tubes will pass irrespective of anchorage if the duct is anastomosed to the gastrointestinal tract.

RESTORATION OF THE CONTINUITY OF THE BILE DUCTS

Whenever possible, a method of repair should be employed which restores the continuity of the duct and preserves the sphincteric action at its entrance to the duodenum. In the past insufficient emphasis has been placed on methods which will accomplish this. As a result of the experience reported here, far better results will be obtained in the future. Because of the technical difficulties involved in finding the lower end of the duct when portions of the duct have been excised, the surgeon has been content to anastomose the proximal end of the duct to the gastrointestinal tract. There is no question that this is the easiest method, since the distal end of the duct is collapsed, contains no bile and is buried in scar tissue. With an increasing experience with strictures, it has now been found that it is possible to obtain adequate portions of the distal duct even when none can be demonstrated beyond the duodenum or head of the pancreas. In my opinion one of the greatest improvements in effecting a repair has been a procedure which mobilized the duodenum and the pancreas fully, permitting it to be drawn forward and turned to the left so that the posterior portion of the pancreatic head can be visualized. The anterior division of the superior duodenal artery can then be sectioned and the pancreas split so that the intrapancreatic portion of the common duct can be identified and dissected free for a distance of 2.5 to 5 cm. Care must be taken not to free the left side of the duct near the ampulla in order to avoid injury to the pancreatic duct. The mobility of the duct, head of the pancreas and duodenum which is thus obtained permits its approximation to a short common hepatic duct stump at the hilus of the liver, and this can be accomplished without tension. During the past seventeen months 38 patients with strictures have been operated on in addition to the series reported in this paper, and it has now been demonstrated that it is possible to do end to end suture of the ducts irrespective of the amounts that had been previously excised or can no longer be used for repair. Particular attention is called to this procedure because this method, which permits restoration of continuity of the duct, has given the best results. It must be admitted that this is a difficult technical procedure, but with increasing experience it has been accomplished with less difficulty.

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[13] Cattell, R. B.: A New Type of T-Tube for Surgery of the Biliary Tract, Lahey Clin. Bull. 4: 197-204 (Jan.) 1946.

Table 6—*Type of Operation—Second Series, Forty-Three Patients*

	No. of Operations	
Dilatation		8
Plastic repair		2
End to end suture		31
Hepaticoenterostomy		14
Duodenum	6	
Jejunum	8	
Tube implantation		1
Fistula transplantation		0
Total, 43 patients		56

Since there has been a considerable change in the operative treatment of benign strictures, this series of cases has been divided into two groups. Eighty patients were operated on prior to 1940 and 43 from 1940 to 1944, inclusive (tables 5 and 6). The chief difference in the two series is the great increase in the number of end to end sutures following excision of the stricture. Transplantation of fistulas has been discontinued. There were 14 anastomoses of the duct to the gastrointestinal tract in each series. In the more recent group of 38 cases not included in this study, anastomoses of the duct to the gastrointestinal tract have been discontinued, with rare exceptions.

Table 7.—*Operative Mortality*

No. of Patients	Mortality	
	No.	%
80	14	....
43	3	....
123	17	13.8

The type of material over which the repair is performed is not as important as the way the procedure is carried out. It is important, however, to have as large a lumen in the tube as possible in order that it will not become encrusted with bile salts or pigment. The best repair of the duct in my experience is performed over the horizontal limb of a T tube brought out through a normal portion of the duct. Unfortunately, this is possible only when considerable portions of the duct remain. When large portions of the duct have been excised the use of the vitallium tube, which has been described by Pearse, has been satisfactory. It was used in 30 patients in this series of 123 repairs and has been employed in 14 additional patients during 1945 and 1946. Indwelling tubes, some form of French catheter or black rubber tubes have been used in a number of cases. More recently, Dr. Lahey has employed a new tube of bouncing clay, with satisfactory results. When a T tube has been used it has been left in place for from six to twelve months, and I prefer the longer period.

Table 8.—*Hepaticogastrointestinal Anastomosis (Results in Twenty-One Patients)*

Well	12
Improved	4
Unimproved (8 reoperated)	9
Deaths	4
Total	29

Table 9.—*Results of Vitallium Tube Repair*

	Duct Repair	Duct to Gastro-Intestinal Tract	Total
Well	17	5	22
Improved	2	1	3
Failure	2	0	2
Deaths	2	1	3
Total	23	7	30

ANASTOMOSIS OF THE DUCT TO THE GASTROINTESTINAL TRACT

This method of repair was performed in 14 cases in each series, or a total of 28 patients. In the first group the proximal duct was anastomosed to the stomach in 2 cases and to the duodenum and jejunum each in 6 cases. In the second series no anastomosis was done to the stomach, since it was considered an unsatisfactory method. The duct was anastomosed to the duodenum in 6 cases and to the jejunum in 8 cases. I consider hepaticojejunostomy the procedure of choice if this method of repair is chosen. Hepaticojejunostomy is carried out by bringing a long loop of jejunum in an antecolic position and anastomosing the duct approximately 25 cm. from the ligament of Treitz. It should always be accompanied by enteroenterostomy. The Y loop or Roux principle has not been utilized for these anastomoses, although other surgeons have found it satisfactory. Allen described an ingenious method for repair, utilizing such a defunctionalized loop of jejunum, and modified it by turning in the serosa and anastomosing it to the proximal duct, with a temporary catheter brought out through the anastomosis. Cole utilized a similar method but produced a valve by enfolding the defunctionalized loop of jejunum to prevent reflux. The type of material over which this anastomosis is performed makes little difference since all will pass.

I have employed the de Pezzer catheter, an ordinary black rubber tube with a flange, as well as vitallium tubes. The latter were used in 7 patients, and in 6 the tube passed within a short period of time. Vitallium offers no particular advantage in this method of anastomosis.

POSTOPERATIVE TREATMENT

The postoperative treatment is similar to that of any serious abdominal operation. The parenteral administration of vitamin K is continued, and the prothrombin time is followed. Large amounts of intravenous dextrose, amino acids and blood transfusions are used as necessary. Vitamin K therapy should be continued for at least one week after operative intervention. Drainage of bile from the wound is commonly encountered, but if an effective repair has been obtained, it should stop within a period of two weeks. Bile salts are given during the first week. A cholagogue is continued for several months postoperatively when a tube remains within the duct system. If a T tube has been used it is irrigated twice a day after the first week, and this is continued for an indefinite period.

The operative mortality is shown in table 7. In the first series of 80 patients, 14 deaths occurred. In the second series of 43 patients there were 3 deaths. This reduction in mortality is largely the result of better preoperative preparation and particularly of the reduction of postoperative bleeding or hemorrhage by the use of vitamin K. An increasing operative experience with cases of this type has been a factor in reducing the mortality.

RESULTS

No detailed analysis of the results will be presented. The longer these cases are followed, the more recurrences of symptoms will be noted. In table 8 the results of anastomosis of the duct to the gastrointestinal tract in 21 patients who have been followed are shown, follow-up data not being available in the other 7 patients. Only 12 obtained a completely satisfactory result, while 4 were improved but had infrequent attacks of jaundice or fever. Nine were unimproved, and of this number all but 1 were reoperated on. There were 4 deaths in this selected group.

In table 9 the 30 patients who had a vitallium tube repair are listed. Seven of these had the duct anastomosed to the duodenum or jejunum, while 23 had an end to end repair of the duct over a vitallium tube. There were 2 deaths in the latter group, and satisfactory results were obtained in 19 cases. It was necessary to remove the tube in 2 of these cases as well as in a subsequent case not included in this series. In 2 patients the tube, in spite of its flange and anchorage, passed through the common duct into the duodenum.

The most satisfactory results followed end to end repair of the duct or plastic repair of the duct over a T tube. In both these procedures accurate approximation of the duct without tension can be obtained and the tube can subsequently be removed.

SUMMARY

A series of 123 benign strictures of the biliary ducts is reported. Eighty per cent were the result of operative injury.

The prevention of strictures is emphasized. Good anesthesia, adequate exposure and a careful anatomic dissection are prerequisites for the avoidance of this complication.

Two general methods of repair are available: first, anastomosis of the proximal end of the duct to the gastrointestinal tract and second, restoration of continuity of the duct by suture over a tube, preserving the normal sphincteric action at the lower end of the duct. The type of material used for the repair is less important than accurate suture without tension.

Repair of the duct is the method of choice and gives the best results. Anastomosis of the duct to the duodenum or jejunum can usually be avoided.

A method to obtain the portion of the distal duct by splitting the pancreas in patients in whom a large portion of the duct has been removed is described.

One hundred and sixty-four operations were done on 123 patients, with 17 deaths, a mortality of 13.8 per cent.

The best method of repair of the duct is by utilizing a T tube. When this is impossible, the use of an indwelling tube, either of rubber or of vitallium, may be satisfactory. Recurrence of stricture may take place at any time and require reoperation.

ABSTRACT OF DISCUSSION

DR. H. GLENN BELL, San Francisco: One point might be added for the prevention of a stricture in the removal of the gallbladder, a procedure in which the common duct has to be opened and drained. Whenever possible, if the common duct is drained through the cystic duct so that the primary opening of the common duct can be closed, this may lessen the chance of the patient getting a stricture. It requires judgment to know when to explore the common duct. Some patients have a stricture of the common duct because the duct was explored and probed, reprobed and dilated when it had nothing in it and when the wall was nothing more than chronic inflammatory tissue, which would probably have fuctioned very well if the duct had not been traumatized. I have had the same experience that Dr. Cattell has had; some patients have had up to six operations before I see them and, as Dr. Cattell modestly said, these cases are very difficult. I agree that an end to end anastomosis of the common duct is the one procedure of choice, and when one realizes how many methods have been described, it is apparent that no one method will apply to every single case. Dr. Cattell's method of increasing the amount of the common duct distally by rolling the head of the pancreas to the left and exposing it to get 2.5 to 5 cm. of distal duct is extremely ingenious and certainly will make it more possible to do the end to end anastomosis. The method of anastomosis of the proximal common duct to the gastrointestinal duct, with mucosa to mucosa, over a rubber tube or a vitallium tube, is the next procedure of choice. I have had to remove some vitallium tubes which had become plugged with inspissated bile.

DR. FRANK H. LAHEY, Boston: A great many strictures of the biliary ducts are caused by hemorrhage from the cystic artery or from the hepatic artery. They are the result of large accumulations of blood in a deep cavity. With a poor light and inadequate exposure, in despair, the worried surgeon blindly places a clamp on the bleeding point, a procedure which, if it controls the hemorrhage, always will include either the hepatic duct or the common duct. If one could teach these surgeons that a few precautions would avoid this—wide incisions, good light and the retraction of the duodenum to the left, which puts the common duct on the stretch and which visualizes the foramen of Winslow, even so that the vena cava can be seen on its back—I am sure that these accidents would not occur. It is pertinent to recall how easy it is to control these hemorrhages from the cystic or hepatic artery even if they occur. If the surgeon will only put his finger in the foramen of Winslow and lift up or put his thumb on the artery, the hemorrhage will be immediately controlled so that the clot can be wiped out, the bleeding point accurately found and ligated and the injury to the duct avoided. There are a few things that ought to be stressed about duct strictures; that is, since surgeons have learned to find the lower end of the common duct in every stricture, the problem has been simplified, even if not solved. This is the method that was learned in doing partial gastrectomies—the mobilizing of the duodenum, turning it over to the left and splitting the lower edge of the pancreas. There one will always find a good section of common duct because it is so situated behind the duodenum that it is impossible to injure it at the time of the cholecystectomy. This makes possible the end to end anastomosis which Dr. Cattell has stressed and which can be accomplished only when the lower end of the common duct has been mobilized. Long ago I proposed that when these end to end anastomoses are done and the T tube is inserted, it should not be brought out through the suture line, because when it is removed it will tend again to produce strictures. It should be put in through a separate incision above, and when it is withdrawn the end to end anastomosis remains intact. As to vitallium, all have misinterpreted the value of these tubes. They do have the advantage of being tolerated by the tissues because they are nonelectrolytic, but they have no advantage over any other tube in their ability to be plugged. The whole problem of implantation of tubes is, do they plug? Some of them plug regardless of the material used. I have now for some time employed a material called "bouncing clay," which was developed by the General Electric Company. It is a silicon which has all the qualities of rubber. It will stretch, it will bounce, it is flexible, it can be cast so that its caliber is of any size, it can have shoulders or bumps put on it so it will not pass, and it has the great advantage of fitting the tortuous channels that one has to deal with in these strictures.

Dr. Richard B. Cattell, Boston: Both Dr. Bell and Dr. Lahey emphasized that strictures are preventable. Adequate exposure and careful dissection of the cystic artery and cystic duct before their division will avoid injury. Dr. Bell raised the question that frequent exploration of the common duct might result in a higher incidence of stricture. This has not been true in my experience. In approximately 5,000 gallbladder operations at the Lahey Clinic the common duct has been explored in 1,800 patients and only 1 stricture has occurred, and in this patient the duct was not explored. If exploration of the common duct is indicated and the surgeon's experience justifies it, it can be done without any increase in the incidence of stricture formation.

APPRAISAL OF SURGERY IN THE TREATMENT OF BRONCHIECTASIS

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This report is an analysis of 50 consecutive, surgically treated cases of bronchiectasis at the Lahey Clinic in the five year period ending August 31, 1945. There has been no death, either in the hospital or during the follow-up period, and the series again confirms the prediction of early workers in thoracic surgery that invalidism from bronchiectasis may be cured and functional usefulness restored by appropriate pulmonary resection. In space of time covered, this five year period may be considered that in which thoracic surgery came of age. These years encompass those patients who received the benefits of improved surgical technic, effective chemotherapeutic agents and more seasoned judgment in clinical management. Granted that the care of bronchiectatic patients cannot be regarded as perfect until the disease is prevented from occurring, it would seem appropriate at this time to record the observations, practices and results emerging from one carefully studied group of cases.

From a socioeconomic viewpoint, bronchiectasis is an important pathologic entity, and no method of therapy has been more beneficial to bronchiectatic patients in altering their social destiny than surgical treatment of the disease. In order to comprehend fully the ramifying aspects of bronchiectasis, the social and psychologic distress found in such patients should be investigated as well as the purely physical manifestations. With this knowledge aforethought, and the fact that surgery offers a cure in most instances, the surgeon's role in reconstructing the social, psychologic and physical outlook of patients with bronchiectasis is self evident.

The opportunity to observe the sad result of chronic illness on character and life itself falls within the experience of every physician. The alterations in personality caused by physical distress have led psychologists to postulate a definite temperament resulting from physical deformity. There can be little doubt that a prolonged struggle against chronic disease may influence the character and career of any man. Patients with bronchiectasis often fall into this category. By the general public, these patients are branded as having tuberculosis. Oftentimes they have been studied in vain for tuberculosis; sometimes they have spent prolonged periods of time in tuberculosis sanatoriums. In the young, schooling is neglected because illness renders the child unable to keep pace with his classmates. With expressive but cruel wit, one child with a chronic cough was nicknamed "The Barker" by his fellows and another with foul sputum "Stinky," and they thenceforth attended school only under duress. The antisocial pattern may be more clearly defined in the late teens, when social contacts are made only under the handicap of a productive cough or foul sputum. The young man may be unable to hold his job because of recurring respiratory infections or chronic fatigue. The young woman may worry about scanty menstruation or suspected personal unattractiveness. Marriage is frequently postponed. If entered into, lack of libido and interruption of normal marital relationships by the necessity of cough and evacuation of sputum often strain the bonds of happy marriage. The increasing responsibilities of life in the late twenties and early thirties and the decrease of the recuperative powers of youth account for the large number of bronchiectatic patients who "break down" in this age period. Thus it can be appreciated that the social, economic, mental and physical aspects of bronchiectasis make this a subject of paramount concern.

ETIOLOGY

No one cause can be indicted in the etiology of bronchiectasis. Many factors may be incriminated, singularly or collectively, in the development of the disease. Among the most common contributing causes are:

I. Diseases of the accessory air passages
II. Respiratory infections and infectious diseases
  (*a*) Recurrent bronchitis, acute and chronic
  (*b*) Pneumonia
  (*c*) Measles, influenza, whooping cough, scarlet fever
III. Congenital malformations
  Cystic disease of the lung
IV. Bronchial obstruction
  (*a*) Foreign body
  (*b*) Hyperplasia of mediastinal lymph nodes
  (*c*) Carcinoma or adenoma of bronchus
V. Emphysema, atelectasis
VI. Situs inversus and sinusitis

From the Lahey Clinic.
Read before the Section on Surgery, General and Abdominal, at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

From this categorization it can be realized that the basic mechanisms in the development of bronchiectasis are two: infection of the bronchial wall and bronchial obstruction. When disease of the nasal sinuses acts as a nidus for the production of chronic inflammation of the bronchial walls, damage, even destruction, of the musculoelastic tissue may occur. This is followed by loss of resiliency in the bronchial segment involved and dilatation of that segment. Dilatation of this type is conducive to an accumulation of secretions. The secretions may remain incarcerated in the bronchi for prolonged periods, with associated secondary infection.

The initiation to the development of bronchiectasis may be an acute infection of the upper respiratory tract, bronchitis or the diseases of measles, influenza, whooping cough or scarlet fever. In 31 of these cases, the basis on which bronchiectasis developed was found in causes of this category. In 10 cases bronchiectasis was a sequel to bronchopneumonia. In 6 cases the onset was insidious and lacking of a definitive or determinative cause.

Congenital defects in the bronchial tree have been mentioned as a basis for bronchiectasis. This thought is postulated in conjunction with cystic formations in the lung which appear to be true structural malformations. Often this is closely simulated by cystic bronchiectasis associated with bronchial stenosis. One of these patients had cystic bronchiectasis of an upper lobe, but it was not possible to determine whether the cystic disease or the bronchiectasis appeared first.

Obstruction to a bronchus may easily result in bronchiectasis. This occurs because of the interference with normal bronchial drainage. Foreign bodies, adenoma or carcinoma obstructing the bronchial lumen, or extrinsic bronchial compression often are factors in the production of bronchiectasis. Cases of bronchiectasis secondary to tumors are not included in this report. One of our patients had a peanut lodged in his bronchus at age 1. He coughed for the next nine years and finally had a left lower lobectomy for bronchiectasis, with alleviation of his symptoms.

Emphysema and migratory atelectasis have been incriminated as predecessors to the formation of bronchiectasis. Both of these fall into the category of obstruction to bronchial passages, with the related increase in intrabronchial pressure resulting in distention of the bronchus. Such bronchiectasis shows a tendency to be tubular rather than saccular in type and is largely related to the emphysematous state. Such cases are not true bronchiectasis and are not included in this study. Tuberculous ulcers of the bronchus are a potent source of local bacterial contamination and inflammatory bronchial obstruction which might antedate the onset of bronchiectasis, but this occurrence is more properly considered as a complication of endobronchial tuberculosis.

One of us reviewed 23 cases of situs inversus at the Massachusetts General Hospital,[1] in 5 of which there was bronchiectasis as well as associated diseases of the accessory air passages. One of the cases in the present group fulfilled the requirements of that syndrome: situs inversus, sinusitis and bronchiectasis.

Mention should be made of pseudobronchiectasis[2] which has been reported following pulmonary infections—especially virus pneumonia. In some cases following pneumonia roentgenographic evidence of bronchiectasis has appeared and then disappeared in one or two months as silently as it was developed; hence the name "pseudobronchiectasis," or "reversible bronchiectasis." A more appropriate name for this condition would be "transitory bronchiectasis." No such cases are here included.

From this brief discussion of the etiology of bronchiectasis it is apparent that causative factors are equally as interesting as the disease itself.

PATHOLOGY

The foundation on which bronchiectasis forms is bronchial infection and obstruction. Initially, the pathologic process commences with hyperemia and thickening of the mucosa, which results from infection. Eventually the mucosa may protrude into the lumen as papillary projections. These projections are extremely vascular, and from this source hemoptysis may arise. From dilatation peripheral to an obstruction, cylindrical bronchial enlargement or cavitation is produced. By continuation of the pathologic process the lung parenchyma is replaced by fibrous tissue. When a previously formed cavity harbors infection, purulent material is accumulated and offensive odors are associated with secondary invasion by putrefactive organisms. On occasion the formation of secondary pulmonary abscesses results. This is an infrequent occurrence, produced when septic material becomes sufficiently localized to cause sequestration of pulmonary tissue.

The histologic picture in bronchiectasis is one of inflammation, proliferation and destruction of tissue. The bronchial wall is infiltrated with leukocytes and lymphocytes. If the disease is of long duration, the glands, muscle fibers, elastic tissue and often the cartilage may be replaced by fibrous tissue. The epithelial lining is the last to be involved, and although its continuity may be disrupted its identity remains. Perforations in the bronchial wall may occur. If the blood vessels in the wall become greatly dilated and rupture, a second potential source of hemoptysis is present. In the event that these vessels become thrombosed, the thrombus may produce an infected embolus resulting in a metastatic brain abscess. From recurring episodes of bronchopneumonia the adjacent pulmonary tissue becomes infected, and later fibrotic. This situation produces peripheral zones of compensatory emphysema.[3]

A cough present from birth may indicate congenital bronchiectasis. The lung in such instances may have many cystlike cavitations. These cysts are lined with a layer of epithelium, flattened or cuboidal, which may be ciliated. This pathologic entity may be rightfully termed congenital cystic disease of the lung. It must be remembered that formation of a cyst in the lung that appears to be a true structural malformation may be closely simulated by cystic bronchiectasis associated with bronchial stenosis.

Bronchiectasis may be limited to one or more bronchopulmonary segments within a lobe, other segments of the lobe being normal. Although the lower lobe of the lung is the site of most frequent involvement by bronchiectasis, there is a striking tendency for the disease to be localized to the basal division and for the dorsal division to be spared. This fact stands in sharp contrast to the localization of putrid pulmonary abscess, which is found with greater frequency in the

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[1] Adams, R., and Churchill, E. D.: Situs Inversus: Sinusitis, Bronchiectasis; Report of Five Cases, Including Frequency Statistics, J. Thoracic Surg. 7: 206-217 (Dec.) 1937.

[2] Blades, B., and Duggan, D. J.: Pseudobronchiectasis, J. Thoracic Surg. 13: 40-48 (Feb.) 1944.

[3] Boyd, W.: Surgical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1942, p. 782.

dorsal division of a lower lobe than in any other single location. Bronchiestasis may also be multilobar in its distribution. Because of this tendency of the disease toward selective localization the rationale for proposing the resection of the involved bronchopulmonary segment is justified. This principle of segmental resection finds special merit in early cases of bronchiectasis and in those patients with bilateral disease. In 2 cases of this series, the lower lobe was divided with removal of the diseased basal division, and preservation of the anatomically normal and functionally useful dorsal division.

By the time bronchiectasis is diagnosed the disease usually has reached its greatest pathologic status. It is not believed that bronchiectasis spreads insidiously from lobe to lobe. Occasionally bronchiectasis may spread after an acute pneumonitic episode, but our observations are in agreement with those of Churchill and Belsey.[4] "In general, however, the anatomic pattern of the disease remains static over long periods of time. Although the symptoms may vary, any attempt to explain an unsatisfactory surgical result on the basis of postoperative extension of the disease appears contrary to the observed facts of preoperative pathology. . . . The disappointing clinical results of some lobectomies can be explained by the failure to appreciate the high incidence of residual disease in an unresected lingula."

COMPOSITE CLINICAL PICTURE

The manifestations of bronchiectasis are more protean than the local pathologic entity would indicate. A type of inhibited personality encountered in patients with bronchiectasis has previously been mentioned. Such an alteration may be attributed to the serious, mentally disturbing social handicaps of a foul breath and an uncontrollable, productive cough. Patients in whom bronchiectasis develops in childhood rarely live beyond their fiftieth birthday without treatment.[5] The chronicity of their disease and the associated secondary respiratory complications frequently limit their work to an inefficiency level. Such a situation often ends in unemployment, poverty and personality problems. In the clinical picture of bronchiectasis it must be remembered that when bronchial dilatation alone is present symptoms may not be in evidence. However, episodes of hemoptysis of variable degree may occur. The term "dry or hemorrhagic bronchiectasis" has been applied to such cases. When chronic infection is pronounced, the chief symptoms are cough and purulent sputum. These symptoms usually are more evident in the morning because of accumulation of the purulent secretions during the night. In extensive disease, producing widespread destruction of pulmonary tissue, dyspnea on exertion may be present.

Physical signs vary according to the extent of the secondary phenomena of infection and atelectasis. Dulness, diminished breath sounds and moist rales over the involved pulmonary segments are positive findings. Dry bronchiectasis may yield no detectable sign even though an entire lobe be completely collapsed.

The presence of clubbed fingers in patients with longstanding disease may be a noticeable sign.

Roentgenography and bronchography are valuable aids in the diagnosis and evaluation of the extent of bronchiectatic disease. The roentgenologic findings of collapse, dilated bronchi and compensatory expansion of adjacent pulmonary tissue are characteristic. Fluoroscopy and lateral views are desirable, as the ordinary posteroanterior roentgenogram will often fail to reveal the shadow of an atelectatic lower lobe lying in the costovertebral gutter behind the heart.

Although bronchography is only rarely indicated or necessary in order to establish a diagnosis of bronchiectasis, it is, nevertheless, essential to a critical study of the pattern of the disease process. The extent of bronchiectasis can be accurately determined if bronchography is performed in such a way that every segment of the lung suspected of harboring the disease is outlined. A complete study of this type, adequately interpreted, permits a practical program to be outlined for the satisfactory surgical treatment of the disease. A simple, effective technic of bronchography which is safe for use by the general practitioner has been described by one of us.[6] A word of caution is not amiss, however, in calling attention to the danger of bronchography in the presence of emphysema.

SELECTION OF CASES AND PREPARATION

The advancement in pulmonary surgery has been accompanied by a remarkable diminution in operative mortality. As surgical experience increased it became evident that almost every patient with bronchiectasis who is a satisfactory operative risk should have the diseased pulmonary tissue resected. The operation of necessity temporarily jeopardizes the reserve capacity of the respiratory and circulatory systems. This reserve is initially endangered because the bronchiectasis has already diminished the physiologic efficiency of these vital systems. Bilateral bronchiectasis entails operative dangers out of proportion to the mechanical extent of the disease. Rarely do patients who have passed beyond the middle of life's span have sufficient reserve to warrant surgical intervention. Advanced emphysema and fibrosis may present intolerable deficiencies of blood oxygenation to the heart and the brain. Persons with chronic asthma have proved poor candidates for thoracic surgical procedures. The ravages of longstanding bronchopulmonary suppuration, sometimes complicated by empyema, cause nutritional, hemic and vitamin depletions that preclude operative success until they are corrected.

Patients under 50 with unilateral disease limited to one collapsed lobe, with infection temporarily quiescent and who are otherwise in good physical condition, constitute the best candidates for surgical treatment. Many patients whose condition is less favorable have been and can be subjected to a surgical regimen with satisfactory results, but at a greater risk.

In the preoperative preparation of the patient with bronchiectasis, it must be remembered that pulmonary resection is not an emergency but an elective procedure in point of time. For this reason, the patient should be subjected to operation under the most propitious circumstances, and should be operated on only when he is in the best attainable physical condition. Both general and local measures are employed in order to achieve this objective. The candidate for operation is placed on a nutritious diet with the addition frequently of iron and vitamin therapy, stated daily periods of rest and graded exercise. Postural drainage is carried out at least twice daily and is supplemented by aspiration bronchoscopy at intervals if necessary. Associated pleural infections are given dependent drainage, and resection is postponed until active infection is at a minimal stage. Treatment of sinus infection and other disorders of the accesso [illegible] should precede pulmonary resection. [illegible] true if the sinuses are actually blocked and filled with pus. The surgical procedure should be planned, so far as possible, for a season when epidemic respiratory infections are least prevalent.

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[4] Churchill, E. D., and Belsey, R.: Segmental Pneumonectomy in Bronchiectasis: Lingula Segment of Left Upper Lobe, Ann. Surg. **109**: 481-499 (April) 1939.

[5] Perry, K. M. A., and King, D. S.: Bronchiectasis: Study of Prognosis Based on Follow-Up of Four Hundred Patients, Am. Rev. Tuberc. **41**: 531-548 (May) 1940.

[6] Adams, R., and Davenport, L. F.: Technic of Bronchography and System of Bronchial Nomenclature, J. A. M. A. **118**: 111-116 (Jan. 10) 1942.

One of the sulfonamide compounds, usually sulfadiazine, is given orally for at least twenty-four hours preoperatively, and sometimes for a week or more, in a dosage of 1.5 to 4 Gm. daily. Since the advent of commercially available penicillin, it has been used as a preoperaitve measure to diminish infection. Patients with large amounts of purulent sputum, a febrile type of temperature chart, leukocytosis, rapid sedimentation rate or a recent exacerbation of the disease may be given penicillin for as long a period as two weeks. The drug is administered preoperatively either intramuscularly or by inhalation. The inhalation method may be employed to augment the effects of penicillin given intramuscularly. When given by inhalation, 20,000 units of penicillin is dissolved in 1 cc. of isotonic solution of sodium chloride and given five times daily. The inhalation route is especially beneficial in patients with large volumes of thick purulent sputum.

OPERATION AND POSTOPERATIVE CARE

The operative technic at present employed has previously been described by one of us.[7] The technical details need not be repeated here, but a few principles can profitably be reemphasized. Incomplete fissures should be completed by gentle, careful dissection until the hilus is reached in order to minimize injury to pulmonary tissue and to reduce the likelihood of traumatic pneumonitis. Even when dividing a lobe (segmental pneumonectomy) we have several times found that the parenchyma can be separated along a segmental septum well down toward the hilus without the use of clamps. The hilar vessels should be individually exposed, anatomically identified and divided between ligatures. The bronchus should be isolated, so that it stands clear of all arteries, veins and parenchymal tissue, and closed in a meticulous fashion. No other feature of technical progress has equaled in importance the knowledge of how to close the bronchial stump so that it probably will heal promptly and without even a temporary fistula. Our personal preference indicates an infolding of the posterior membranous bronchus into the anterior cartilaginous portion with two rows of fine interrupted silk stitches, buttressed by a pedicle flap of parietal pleura or a free graft from the fascia of the serratus magnus muscle. The free lung graft and pedicle flap of lung are effective means of providing collateral support to the bronchial stump closure, but are no longer used. They possess the disadvantage, theoretically at least, of increasing the hazards of postoperative infection. The tourniquet technic of lobectomy, useful and valuable as it was in an earlier period, should now be considered only as a method of historical interest.

The immediate requirements following pulmonary resection are to prevent shock or anoxemia and to facilitate expansion of the remaining lobe or lobes. These objectives are accomplished by preventing accumulation of fluid in the pleural space, and by removal if it occurs. Secondly, obstruction to the bronchial tree must be prevented, for this is another possible source of pulmonary collapse (atelectasis).

Blood transfusion and oxygen therapy have been used in every case. A negative intrapleural pressure is maintained through an intercostal drainage catheter. The catheter is removed when the effusion becomes clear and serous, usually about the third postoperative day. Opiates are used sparingly, and efforts to raise bronchial secretions by voluntary coughing are encouraged. Fluids are administered by the parenteral route judiciously when indicated. If secretions accumulate which the patient cannot eliminate, catheter or bronchoscopic aspiration is employed.

The chief complications to be feared are infection and empyema. Empyema is still the most frequent complication following pulmonary resection, although it fortunately has not occurred in the past eighteen months in this series. Since the general abandonment of the tourniquet or mass ligature method of treating the hilus, the frequency of empyema has decreased. All these resections were done with individual ligation of the hilar structures. The most beneficial aids in eradicating postoperative infection are effective closure of the bronchial stump, administration of the sulfonamide compounds, both locally and parenterally, and more recently penicillin.

Penicillin has been administered routinely in a dosage of 40,000 units intramuscularly every three hours. It is discontinued as a prophylactic measure when temperature, pulse rate, leukocyte count and sedimentation rate are within normal limits. Another criterion for discontinuing the drug after lobectomy is complete reexpansion of the remaining lobe or lobes and obliteration of the pleural space. With complete expansion the possibility of empyema is diminished. Usually the drug is administered for about one week.

If delayed development of empyema is feared, penicillin is given intramucularly for a longer time. In addition, daily intrapleural instillation of 100,000 units of penicillin in 20 cc. of isotonic solution of sodium chloride may be employed until the pleural effusion has subsided. The classical indications for surgical drainage are to be followed if the effusion should become purulent. Penicillin is deposited in the pleural space after each paracentesis. When paracentesis is performed it is always desirable to remove as much fluid as possible before instilling the penicillin. If atelectasis should occur postoperatively, bronchoscopic aspirations may be followed by the introduction of 20,000 units of penicillin into the tracheobronchial tree.

This study has revealed that bronchiectasis is essentially a disease of young adults. Forty-five of our patients contracted the disease before reaching the fifth decade of life. Hence the complex social problems usually confronting young adults were intensified in these patients who carried the burden of an inhibiting disease. Almost all of these patients had some major or minor social, economic or mental problem. The disappearance of these problems paralleled the improvement in their health.

An analysis of the symptoms presented categorized the major complaint as cough (in 47 cases) productive of foul sputum (in 43 cases). Hemoptysis occurred in 21 patients and was more frequent in those persons with long-standing bronchiectasis. The complaint of dyspnea was recorded in 11 patients who also had been afflicted with the disease for many years. Pain in the chest was a proffered symptom in 16 patients; these, too, had suffered from the disease for many years. Clubbing of the fingers was noted in 5 patients, all of whom had known symptoms of the disease for five or more years.

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[7] Adams, R.: Surgical Treatment of Bronchiectasis, S. Clin. North America 22: 687-701 (June) 1942.

Salient Features in Fifty Consecutive Operative Cases

Age, Yr.	Cases	Sex	
1- 9	2	Male	19
10-19	10	Female	31
20-29	18		
30-39	15		
40-49	4		
50-59	1		
Major symptoms			
Cough			47
Expectoration			43
Hemoptysis			21
Dyspnea			11
Pain in chest			16
Clubbing of fingers			5
Aspiration of foreign body			1
Duration of symptoms			
1 to 4 years			25
5 to 9 years			15
10 to 14 years			5
15 to 19 years			3
20 to 29 years			2
Associated diseases			
Sinusitis			20
Pneumonia			10
Tonsillitis			6
Pleurisy			5
Postpneumonic empyema			3
Deviated nasal septum			2
Nasal polyps			2
Mastoiditis			1
Foreign body (peanut)			1
Cystic disease			1
Situs inversus			1
Operation performed			
Right pneumonectomy			1
Right upper lobectomy			1
Right middle lobectomy			6
Right lower lobectomy			6
Right bilobectomy			
Upper and middle lobes			1
Middle and lower lobes			4
Left upper lobectomy			1
Left lower lobectomy			15
Left lower lobectomy and lingulectomy			13
Segmental resections			2
Treatment of hilus			
Individual ligation of hilar structures in all cases			
Anesthesia			
Cyclopropane-ether intratracheally sometimes supplemented with nitrous oxide			50
Year of operation			
1940			4
1941			6
1942			8
1943			10
1944			10
1945			12
Complications			
			5
			2
			1
End results			
Hospital deaths			0
Death later			0
Living			
Follow-up			
1 to 12 months			21
1 to 3 years			24
3 to 5 years			5

The duration of the symptoms in 50 per cent of the patients ranged from one to five years; in 30 per cent bronchiectasis had manifested itself from five to ten years. Two persons carried their disease for over twenty years. The chronicity of bronchiectasis is thus self evident. In 1 of the patients, aged 10, the disease was present for nine years.

A statistical critique correlating associated diseases as to etiologic factors clearly indicates the close causal relationship of infections of the accessory air passages and respiratory tract to bronchiectasis. Forty per cent of the patients had sinusitis of variable degree. Twenty per cent had a sinus operation before pulmonary resection. Pneumonia antedated bronchiectasis in 20 per cent of the cases studied. Other diseases encountered were: tonsillitis in 6, pleurisy in 5, postpneumonic empyema in 3, a deviated nasal septum in 2, nasal polyps in 2 and mastoiditis in 1 patient. Thus of the 50 patients studied almost all had some previous disease of the accessory nasal sinuses or the respiratory system.

All 50 patients were treated by pulmonary resection. The disease was more frequent in the lower lobes and lingula than in the upper lobes. In 19 cases the disease was predominantly right sided, in 31 predominantly left sided, and in 5 there was bilateral involvement. One right pneumonectomy was done. One right upper lobectomy, 6 right middle lobectomies, and 6 right lower lobectomies were performed. Right bilobectomies were done in 5 cases. There was 1 left upper lobectomy. The lower lobe of the left lung was resected in 15 cases. The lower lobe and lingula were removed in 13 cases. Two segmental resections of the basal division of the lower lobe of the left lung were performed. From the distribution of these surgical procedures it is evident that the dependent lobes were most often involved. The lingula was also affected in 43.3 per cent of the cases in which surgical treatment was carried out for bronchiectasis in the lower lobe of the left lung.[4]

All the patients received intratracheal anesthesia with cyclopropane-ether. At times these gases were supplemented with nitrous oxide. The treatment of the hilar structures was by individual ligation. Meticulous care was devoted to closure of the bronchus. It is felt that this technic diminishes the possibility of bronchopleural fistula and other complications.

Postoperative complications occurred in 8 patients. There were 5 instances of empyema which necessitated drainage; in 2 cases there was a peristent bronchopleural fistula. These have been successfully closed.[8] Another patient had thrombophlebitis which responded to anticoagulation therapy and paravertebral injection of procaine hydrochloride.

In these 50 consecutive operative cases there was no hospital death and no death has occurred during the follow-up period. Five cases have been followed from three to five years, and there was complete alleviation of complaints. Twenty-four cases have been followed from one to three years. Two patients in this group still have symptoms from bronchiectasis in the opposite lung. Twenty-one cases have been followed from one to twelve months. All members of this group are well except 2 who have contralateral disease as yet untreated. It is interesting to note that most of these patients have secured a renewed competence to enjoy life and to assume its responsibilities. In no surgical group of patients can more grateful persons be found than among those who have been cured of bronchiectasis.

PROGNOSIS

The present status of the surgical treatment of bronchiectasis clearly indicates that prognosis following pulmonary resection is favorable. Our current experience with 50 consecutive operative cases accentuates the excellent prognosis, as almost all patients are cured or significantly improved.

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[8] Adams, R.: Bronchopleural Fistula: Description of a Technic for Closure of Fistula *Persisting After Lobectomy*, Lahey Clin. Bull. 4: 78-85 (Jan.) 1945.

Patients are termed cured when certain criteria have been fulfilled: Cough and sputum must be absent; no hemoptysis must occur, and there must be no residual pulmonary or pleural infection. The final test is the patient's ability to resume normal activity. Forty-two of this group of 50 patients have fulfilled these postulates.

SUMMARY

A presentation is made of 50 consecutive cases of bronchiectasis in which surgical treatment was carried out at the Lahey Clinic during the five year period from Sept. 1, 1940 to Aug. 31, 1945. The physical and psychologic manifestations of this disease are described. The survey has indicated that bronchiectasis is essentially a disease of young adults. In the majority of the patients symptoms developed before the fifth decade of life. In this series, 31 women and 19 men were victims of the disease.

The major symptoms, in order of frequency, were cough, expectoration productive of fetid sputum and hemoptysis.

The chronicity of the disease extended over many years. Twenty-five patients had the disease from one to five years; 15 more carried the disease from five to ten years, and the remaining 10 patients had bronchiectasis from ten to twenty years.

The high frequency of preexisting sinusitis and pneumonia in the series of cases emphasizes the causal relationship between disease of the accessory air passages, infections of the respiratory tract and bronchiectasis.

Our surgical experience has confirmed the frequency with which the lingula and lower lobes are involved.

All these patients were anesthetized with cyclopropane and ether administered intratracheally. On occasion, nitrous oxide was employed as supplementary anesthetic.

In 8 cases of the series there was a postoperative complication. In 5 there was empyema which was treated surgically. In 2 a bronchopulmonary fistula developed, and in another thrombophlebitis.

The end results were: no hospital deaths and no deaths recorded during the follow-up period. Forty-two patients are apparently cured.

CONCLUSIONS

This present study of bronchiectasis has permitted certain conclusions. First, bronchiectasis is a chronic disease which often produces serious physical and mental debility. Second, comparison with the beneficial surgical results should clearly indicate the inefficacy of medical treatment as a curative procedure. In spite of the fact that symptomatic relief may be obtained by other measures, real cure can be effected only by resection of the diseased pulmonary tissue. Surgery, therefore, should not be advised as a last resort after other procedures have been tried and found to be ineffectual. Third, the surgical treatment should be advised early in the course of the disease. It is only by treatment in this way that most patients with bronchiectasis may be relieved of their economic handicaps, social ostracism and psychologic problems. Cure of the disease will encourage such patients to rehabilitate themselves and assume their normal place in society with a renewed courage and confidence.

ABSTRACT OF DISCUSSION

Dr. Lyman A. Brewer III, Los Angeles: The physical effects of the disease are well known; however, the psychologic effects may completely overshadow those of a physical nature. The character of the symptoms, cough and expectoration, make the patient an unwelcome member of society. For fear of embarrassment he more and more shuns society. The psychologic symptoms become manifest in the first decade of life, usually show a decided increase during puberty, and by the second and third decades are so firmly fixed as to change completely the patient's personality. Antibiotics have only a temporary effect in the treatment of bronchiectasis. Sooner or later the patient must make up his mind whether he is going to live with his disease or have a pulmonary resection. In many of the cases of milder disease resection is not needed. However, one must not be misled by an apparent minimal involvement as seen by the bronchogram, when severe hemoptysis or repeated pneumonia has been present; the symptoms must be the deciding factor and not the apparently small involvement as shown with iodized poppy seed oil 40 per cent. In the cases of moderately advanced disease, resection is usually indicated if the symptoms warrant and if the pulmonary reserve is sufficient. In the cases of advanced disease, resection is always desirable. However, one must be sure that a reasonably normal pulmonary tissue is present so that near normal life can be carried on. The improvement in the operative results has been due mainly to the development of the individual ligation of the lobar stump. It is in the meticulous handling of the bronchial stump that the main problems are solved. Our technic of closing the bronchus differs from that of Dr. Adams. We use interrupted fine tantalum wire on swedged needles. We have used no coverage of the stump. There have been less than 2 per cent of bronchial fistulas, all of them transitory and healing spontaneously. We have operated in over 60 cases in the last few years with this technic and have had no operative deaths and have had excellent results as far as alleviation of symptoms is concerned.

HERPES ZOSTER APPEARING AFTER TRAUMA

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Herpes zoster appearing after direct injury to large nerves or to the vertebrae in the region of a ganglion was observed by Mitchell and Keen during the Civil War. Herpes zoster also occurs after peripheral nerve injury, secondary to trauma of the skin or cornea which may be trivial.

Herpes zoster appearing after peripheral nerve injury has been frequently reported in the European literature although there are but few reports in the English literature. Such occurrence is of importance in view of laws governing workmen's compensation. Of added interest is consideration of the many untoward effects of trauma and possibly, also, of factors concerned in the awakening of viruses from a condition of dormancy.

REVIEW OF CASES REPORTED IN THE LITERATURE

Of the reported cases, the following were selected in order to illustrate certain features. Herpes zoster, with few exceptions, affected the nerve supplying the region injured. Injury to the surface of the skin or to the cornea was inflicted in various ways and was of variable degree.

Jadassohn's [1] patient injured the left thenar eminence with a splinter of iron, which was promptly extracted. Four days later vesicles appeared at the site of injury, and other lesions of herpes zoster developed on the

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From the department of dermatology and syphilology, Wills Hospital.

[1] Jadassohn, W.: Zoster nach peripherem Trauma, Schweiz. med. Wchnschr. 68:93, 1938.

left forearm and arm. The author regarded the initial appearance of the disease at the site of injury as proof of the relationship of injury to the occurrence of herpes zoster.

The patient reported by Künstler [2] was bitten by a person below the left nipple, causing laceration of the skin. Thirty-six hours later the site of injury became infiltrated and was surrounded by a well defined area of redness. Three days after the injury small papules appeared within this area of redness and also in the region of the fifth vertebra. After two days the papules became vesicles, and other vesicular lesions of herpes zoster appeared below the left axilla. The person by whom the patient was bitten recalled having had an eruption several months earlier. The description of the eruption suggested herpes zoster. Kunstler stated the opinion that the virus of herpes zoster may remain potent for some time in the mouth of persons who have had the disease.[3]

Bernard [4] has reported the case of a man who was injured on the left calf by the stroke of a whip. Seven days later an eruption of herpes zoster appeared on the posterior aspect of the injured calf. In Parfitt's [5] patient, trauma by lightning was attributed as a causal factor. A man while shaving was struck by lightning; the razor was flung from his left hand, and he experienced a stabbing pain radiating up the left arm. Two weeks later, after having had pain in the distribution of the left supraorbital nerve, an eruption of herpes zoster appeared along the distribution of this nerve.

The following cases from the literature are illustrative of herpes zoster appearing in twenty-four hours or less after trauma. Such cases have caused controversy as to the role of trauma on account of the short incubation period.

In Mendel's [6] patient, the sharp edge of a heavy wooden box fell against the anterior aspect of the right side of the chest. The skin remained intact, the ribs were not fractured and there were no pulmonary symptoms. The same evening the patient had a chill; the next day the initial lesions of herpes zoster appeared at the site of injury.

Barthélemy's [7] patient was forcibly hit on the right side of the trunk by a crane. There was swelling, but the skin remained intact. The same evening the patient had pain in the right side of the chest; the next day an eruption of herpes zoster appeared at the site.

The occurrence of herpes zoster about one month after injury is exemplified in the 2 following reports:

The patient whose case was reported by Netter and Ernoul [8] was a physician. One finger of the left hand was pricked while the physician was enucleating an eye, the cornea of which was the site of herpes zoster. Twenty-six days later he experienced pain in the forearm and arm. This was followed two days later by an outbreak of herpes zoster on the left side of the chest. The patient's two children had chickenpox twenty days after the onset of their father's herpes zoster. Chalier and Etienne-Martin [9] report the case of a man who fell, injuring the right frontal region. The site of injury remained swollen and red for about fifteen days. Twenty-five days after the injury herpes zoster supraorbitalis appeared.

Herpes zoster ophthalmicus has been reported as occurring after injury to the eye or in the region of the eye. Ammann [10] reviewed 8 cases collected from the literature. The injuries in these cases were: (1) the eye was hit by the branch of a tree; (2) by a piece of wood; (3) by a fist, and (4) by the tail of a cow; [5] the eye was splashed by solution of indigo and lime, and (6) by solution of sodium hydrate and trisodium phosphate; (7) a gas explosion caused burn of face, and (8) a piece of wood injured forehead.

In the 5 cases in which the interval between the injury and the appearance of herpes zoster was given, it was three days in 2 cases, six days in 2 cases and eight days in 1 case.

Generalized herpes zoster has been observed after injury. The patient whose case was reported by Pernet [11] burned the left thumb; two weeks later pain appeared in the left upper portion of the chest, followed one week later by an eruption of herpes zoster involving the same area, the front and back of the left axilla and the upper inner posterior aspect of the left arm. In addition there were scattered discrete vesicles on the face and scalp, over the trunk and thighs and a few below the knees.

Barker [12] reported the case of a man who was struck over the left eye (the nature of this injury was not detailed). Severe pain in this region persisted; one week later an eruption of herpes zoster ophthalmicus appeared on the left side. Five days after its onset, there was an outbreak of vesicles and papulovesicles on the trunk and arms.

Herpes zoster has been observed to occur after intramuscular injections in the buttocks, lumbar puncture, deep roentgen therapy in the region of a ganglion and from pressure of pathologic processes.[13] Schonfeld [14] reviewed some of the reported cases which occurred in such circumstances. The interval between trauma and the onset of herpes zoster varied between two and ten days. In Fox's [15] patient herpes zoster appeared about five days after an osteopathic manipulation of the spine.

REPORT OF CASES

In the following cases,[16] observed by me, herpes zoster appeared after injury. The injury was of variable degree and of variable causation. The disease appeared in the region of injury after an interval varying from one to nine days. In some of the patients, symptoms of sensory disturbance intervened between injury and the outbreak of herpes zoster.

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[2] Kunstler, W. E · Beitrag zu der Frage der traumatischen Entstehung des Herpes zoster, Schweiz med Wchnschr **67:** 900, 1937.

[3] I have been unable to find laboratory proof of this The virus of herpes simplex has been demonstrated in the mouth, nasal secretion and conjunctival sac of persons who have, or recently have had, herpes simplex and also of those who are predisposed to the disease

[4] Bernard, R Zona et traumatisme, Bruxelles med. **18:** 83, 1937.

[5] Parfitt, D N. Herpes Zoster as a Sequel to Lightning Trauma, Brit M J. **1:** 111, 1936

[6] Mendel, K . Herpes zoster nach Unfall, Neurol. Zentralbl. **33:** 859, 1914.

[7] Barthelemy, R.: Zona traumatique, Bull. Soc. franç. de dermat. et syph **34:** 893, 1927.

[8] Netter, A., and Ernoul, J. Zona dans le territoire du médian gauche vingt six jours apres une legère piqûre a l'extremite du median gauche au cours d'une eviscération d'un globe oculaire atteint de fonte purulente de la cornée suite d'un zona ophtalmique, Bull. et mem Soc. med. d. hôp de Paris **50:** 798, 1934.

[9] Chalier, J , and Martin, P. E : Le zona traumatique, J de med. de Lyon **13:** 697, 1932.

[10] Ammann, E . Herpes zoster ophthalmicus traumaticus, Klin Monatsbl. f Augenh **95:** 793, 1935.

[11] Pernet, G Generalized Herpes Zoster, Brit. J. Dermat **26:** 399, 1914

[12] Barker, L P.: Generalized Herpes Zoster. Report of Nine Cases, Arch Dermat. & Syph. **40:** 974 (Dec) 1939.

[13] Carter, H R. Herpes Zoster Following Lumbar Puncture, Am. J. Psychiat **94:** 373, 1937. Pogany Herpes zoster nach Quecksilber succinimide, Zentralbl f. Haut u. Geschlechtskr **17:** 626, 1925.

[14] Schönfeld, W Die traumatischen Formen des Zoster, in Jadassohn, J Handbuch der Haut und Geschlechtskrankheiten, Berlin, Julius Springer, 1928. vol 7, pt 1.

[15] Fox, H.. Herpes Zoster Following Osteopathic Manipulation of the Spine, J Cutan Dis **34:** 773,1916.

[16] The herein reported case records of patients with herpes zoster ophthalmicus were presented at a meeting of the Philadelphia Ophthalmology Society on Oct. 18, 1945.

Case 1.—A machinist arising from a stooping position bumped the left side of the forehead against a fixed object. The injury did not lacerate the skin. The injured area pained for a short time. He felt otherwise all right and continued to work. The injury occurred at 6 a. m. Headache appeared the same day and became progressively worse throughout the next forty-eight hours. It was described as a dull pain radiating from the back of the head to the forehead, confined to the left side. The third day after injury an eruption of herpes zoster appeared, involving the supraorbital branch of the fifth nerve on the left side. The upper and lower lids were swollen; the eye was closed. The cornea was not affected. The patient resumed work two weeks after the onset of herpes zoster.

Case 2.—A woman getting out of the rear seat of an automobile struck the right side of her head on the frame of the door. The skin was not cut, and no swelling resulted. She regarded the bump as inconsequential, causing no inconvenience. The injury occurred at 5 p. m. The next morning pain appeared, which was confined to the right side of the head and neck and became more severe in the ensuing twenty-four hours. On the third day after the injury an eruption of herpes zoster appeared, confined to the right side of the scalp and forehead. The cornea was not affected. The eruption disappeared about two weeks after onset, but the pain in the head and neck persisted about three months.

Case 3.—A mechanical engineer during working hours carried in his right upper vest pocket a micrometer, a steel rule and a gage plug. He fell against a table, and the impact pressed these tools against the right breast. At the time he experienced pain which was not severe and soon disappeared. The skin was not broken. The injured region did not show any evidence of being bruised. About two days later the right breast, especially the nipple, was tender to touch, and a dull ache appeared in the right side of the chest, which prevented sleeping on the right side. One week after the injury herpes zoster appeared, involving the right side of chest at the level of the right breast, extending onto the back. The first eruption of vesicles appeared on the right breast. On account of pain he was incapacitated for one month.

Case 4.—A man was bitten by a horse on the outer aspect of the lower third of the right forearm. The resulting laceration was superficial and healed in a few days. Nine days after the injury an eruption of herpes zoster appeared on the right arm and forearm. There was pain in the region of the shoulder, radiating down the arms. Sleep was disturbed. The site of injury on the forearm was represented by congestion.

Case 5.—A painter working on a ladder slipped, striking the left side of his chest against a hard object in the region of the tenth and eleventh ribs. He had some pain, although it was not severe; he continued to work. He did not inspect the site of the injury until the next day, at which time there was no evidence of injury. In two days an eruption of herpes zoster appeared on the left side in the region of the injury.

Case 6.—A janitor, while sweeping, experienced a sensation of a foreign body in the right eye. The eye became red; the sensation of a foreign body persisted. Two days later an ophthalmologist removed a foreign body from the cornea. The day following its removal an eruption of herpes zoster, accompanied by pain, appeared on the right side of the scalp and forehead, extending to the base of the nose. There was an involvement of the cornea. Three weeks were lost from work. Pain disappeared in about two months.

Case 7.—A mechanic repairing refrigeration apparatus in a dairy forcibly turned a rusty valve; a leak resulted. A jet of sulfur dioxide squirted out. (Sulfur dioxide is a gas which is toxic when inhaled; cold reduces it to a liquid. It is an irritant to the skin, mucous membranes and eyes.) At the time of the accident he jerked back, his mask was dislodged and the jet of liquid struck his forehead and eyes. He experienced a burning sensation of both eyes with tearing. He said the left eye was more affected than the right.

The accident occurred in the early afternoon. When he arrived home about 4 p. m. the eyes were still burning, and the left side of the head became numb. That evening his wife noticed redness of the left side of the forehead. The next morning the burning sensation of the right eye disappeared but the left eye was swollen and the adjacent skin was red. An outbreak of blisters appeared on the scalp and the left side of the forehead. He then saw an ophthalmologist, whose diagnosis was herpes zoster with corneal involvement.

Case 8.—A boy aged 12 had a wart on the right side of the forehead removed by electrodesiccation. The operative area healed uneventfully. Two weeks after removal of the wart, herpes zoster appeared on the right side of the scalp and forehead. The cornea was not affected.

ETIOLOGIC MECHANISM

It is not reasonable to ascribe herpes zoster appearing after the aforementioned circumstances to a chance occurrence. What is the mechanism of the association with trauma and what should be the interval between trauma and the occurrence of herpes zoster in order to reasonably ascribe to trauma a causal role? Does the virus [17] of herpes zoster exist in the body at the time of injury, the latter producing a locus minoris resistentiae; is the virus introduced at the time of injury, resulting in an ascending infection of the nerve, or is the nerve involved through a transfer by the blood stream of the virus, since it is neurotropic?

It is well known that herpes simplex may follow exposure to the sun or appear during fever. Herpes zoster may occur as an untoward reaction to arsenic. These occurrences evidence the influence of endogenous and exogenous factors in awakening viruses from a condition of dormancy.

Neurologic complications varying from palsy of a single peripheral nerve to fatal meningoencephalitis following the administration of serums and vaccines, indeed, following almost all of the therapeutic procedures, have been recorded.[18]

In Keim and Wakefield's [18b] review of these complications, symptoms usually appeared within fourteen days. Some authors attribute the awakening of inapparent or latent viruses from a condition of dormancy as a cause of these complications. Keim and Wakefield regard such awakening as an explanation of Milian's theory of biotropism.

It is generally believed that the virus of poliomyelitis attaches itself to the endings of the olfactory nerve and enters the spinal cord by this route.

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[17] Experiments made to ascertain if zoster is caused by a virus have given conflicting results. The opinion is stated by some that it has not been conclusively shown that zoster is caused by a virus and that the disease may represent a syndrome resulting from any process causing inflammation of the spinal ganglion. Others accept experimental evidence as valid proof of virus causation and regard the elementary bodies demonstrable in herpes zoster vesicles, particularly in the first forty-eight hours, as representing the specific virus of the disease. Proof that a virus causes herpes zoster is not as readily demonstrated as is such proof in the cause of herpes simplex.

[18] (*a*) Young, F.: Peripheral Nerve Paralysis Following Uses of Various Serums: Report of Case and Review of Literature, J. A. M. A. **98:** 1139 (April 2) 1932. (*b*) Keim, H. L., and Wakefield, R. F.: Flaccid Paraplegia Following the Diagnostic Use of Frei Antigen, Arch. Dermat. & Syph. **40:** 709 (Nov.) 1939.

Chalier and Etienne-Martin[9] formulated two circumstances in order to associate trauma with the occurrence of herpes zoster. 1. Herpes zoster should appear in the region or within the range of the injury, even though slight and not productive of a wound. 2. The disease should appear within one day to one month after the injury.

The incubation period of spontaneously occurring herpes zoster is not known. In discussing this period, the following considerations are pertinent:

It is perhaps generally accepted that the occurrence of chickenpox in children after exposure to a patient with herpes zoster, and vice versa, is not a chance occurrence.[19]

Of the reported cases of herpes zoster appearing after exposure to chickenpox and occurring in circumstances in which the time of exposure could definitely be established, the incubation period was about twelve days.

In experiments to ascertain whether herpes zoster is transmissible to animals, some investigators (Lipschütz,[20] Lamothe and Bernadou,[21] Pette,[22] Kuga and Masuda[23]) produced keratitis in rabbits forty-eight hours after inoculation with demonstration of inclusions within the nuclei of the epithelial cells of the cornea. Kuga and Masuda[23] observed such inclusions twenty-four hours after corneal inoculation.

Teague and Goodpasture[24] produced herpes zoster by inoculating the tarred skin of guinea pigs and rabbits. Vesicles appeared at the site of inoculation in three to four days in guinea pigs and not later than six to seven days in rabbits.

COMMENT

It is to be recalled that there are revolutionary implications in recent work on viruses. From considerations herein discussed, it is reasonable to believe that trauma may precipitate herpes zoster. The minimum degree of trauma and the interval between trauma and the appearance of herpes zoster in order to ascribe to trauma a causal role cannot precisely be defined. There is no experimental criterion of what this interval should be. From experimental evidence and clinical observations, the incubation period of herpes zoster ranges from a few days to about two weeks. From the cases herein reported and from the review of the literature, an interval of about one day to about three weeks from the time of injury to the appearance of herpes zoster predominated. It is difficult to exclude one or a few days, since in some cases there was a connecting link of subjective symptoms of nerve involvement in the interval between injury and an eruption of herpes zoster. From this pragmatic evidence the longer the interval beyond three weeks, the greater is the probability of a noncausal role of trauma.

PROGNOSIS OF HERPES ZOSTER TRAUMATICUS

The prognosis in herpes zoster traumaticus is that of spontaneously occurring herpes zoster. The disease in the majority of patients pursues an uneventful course to recovery; pain is not sufficiently severe to incapacitate. Of patients above middle age, however, pain may be severe and protracted, causing incapacitation.

The prognosis of ophthalmic zoster is more guarded on account of ocular complications which may cause impaired visual acuity, or, indeed, blindness. Geniculate zoster (Ramsey-Hunt syndrome) and glossopharyngeal-vagal zoster may have sequelae referable to the nerves affected.[25]

Associated with herpes zoster, a variety of paralytic accidents—Landry's paralysis, sympathetic paralysis of the deltoid and of the hand, of the third and seventh nerves—have been reported.[26] Other complications include a generalized eruption resembling chickenpox, myelitis or encephalitis, symptoms of spinal nerve degeneration.

SUMMARY AND CONCLUSIONS

In 8 cases, herpes zoster appeared in the region of injury to the skin or to the cornea, inflicted in various ways and to a variable degree, after the following intervals in days—fourteen, nine, seven, three (3 cases) and about one. In some of the patients, symptoms of sensory disturbance or pain intervened between injury and the outbreak of herpes zoster.

Review of the literature disclosed many reports of herpes zoster appearing in from one day to thirty days after injury, at times trivial, to the skin or cornea. Herpes zoster has also been reported as appearing after lumbar puncture, intramuscular injection of a medicament, osteopathic manipulation of the spine and deep roentgen therapy in the region of a ganglion.

It is therefore reasonable to believe that trauma may precipitate herpes zoster. The minimum degree of trauma and the interval between trauma and the appearance of herpes zoster in order to ascribe to trauma a causal role cannot precisely be defined. From experimental evidence and clinical observation of spontaneously occurring zoster, the incubation period of the disease ranges from a few days to about two weeks. From the cases reported in this study and from review of the literature, an interval of from one day to three weeks predominated.

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[19] This suggests a relationship of the two viruses. Whether they are distinct species or a variety of the same species is unknown. Amies (The Elementary Bodies of Herpes Zoster and Their Serologic Relationship to Those of Varicella, Brit. J. Exper. Path. **15:** 314, 1934) conducted agglutination tests with suspension of elementary bodies obtained from early vesicles of herpes zoster. Such suspension was agglutinated by the serum of several patients convalescing from herpes zoster in a dilution of 1: 128. Serum from patients with chickenpox was agglutinated in a dilution of 1: 16. Serum from 15 normal persons gave negative results.

[20] Lipschütz. B.: Untersuchungen über die Ätiologie der Krankheiten der Herpesgruppe: Herpes zoster, Herpes genitalis, Herpes febrilis, Arch. f. Dermat. u. Syph. **136:** 428, 1921.

[21] Lamothe, P., and Bernadou, H.: Zona infectieux et zona traumatique, Progrès méd. **1:** 905, 1932.

[22] Pette, H.: Tierexperimentelle Studien zur Frage der "Viruswanderung" im Nervensystem, Deutsche Ztschr. f. Nervenh. **121:** 113, 1931.

[23] Taniguchi, T.; Hosokawa, M.; Kuga, S., and Masuda, Z.: The Virus of Herpes and Zoster, Jap. J. Exper. Med. **12:** 101, 1934.

[24] Teague, O., and Goodpasture, E. W.: Experimental Herpes Zoster, J. M. Research **44:** 185, 1923.

[25] Reference to these forms of zoster appearing after trauma could not be found.

[26] Schuback, A.: Herpes zoster und Landrysche Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiat. **123:** 424, 1930. Worster-Drought, C., and McMenemly, W. H.: Paresis of the Upper Motor Neurone Type Following Herpes Zoster, J. Neurol. & Psychopath. **14:** 52, 1933. Potts, C. S.: Paralysis of the Oculopupillary Sympathetic Fibers and the Ophthalmic Division of the Trigeminal Nerve, Preceded by Ophthalmic Herpes Zoster, Arch. Neurol. & Psychiat. **16:** 71 (July) 1926. Case I reported by Grindon, J., Jr.: Herpes Zoster with Generalized Eruption: Report of Three Cases, Arch. Dermat. & Syph. **39:** 867 (May) 1939.

Diabetes Insipidus.—The primary dysfunction in diabetes insipidus is a deficiency in the supply of the antidiuretic hormone of the posterior pituitary gland, resulting in deficient reabsorption of water by the distal renal tubules and thereby producing polyuria and polydipsia.—Beaser, Samuel B.: Renal Excretory Function and Diet in Diabetes Insipidus, *Am. J. M. Sc.,* April 1947.

THE PLACE OF HEALTH RESORT THERAPY IN DERMATOLOGIC DISORDERS

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Most American dermatologists, and I include myself, have had little personal experience with health resorts and their effect on diseases of the skin; there is a paucity of articles in American literature dealing with this subject. One may obtain many brochures and handbooks on health resorts distributed by chambers of commerce of foreign cities, but this type of literature is of little scientific value. Some of the more important works on the subject are listed in the bibliography.[1]

In order to evaluate the benefits which a patient with a cutaneous disorder might expect to derive from a sojourn at a health resort, I studied all the literature I could find and abstracted what I considered of value.[2] The amount was meager. There were lists of cutaneous diseases that were said to be benefited by treatment at spas, but the nature of these diseases and the reasons for referring those who had them to health resorts were not discussed.

I then wrote to a number of outstanding American dermatologists, asking their experiences and opinions regarding the place of health resorts in the treatment of dermatologic disorders. These included Drs. John Downing, Martin Engman Sr., Howard Fox, George M. Mackee, Louis Mount, Paul O'Leary, Oliver Ormsby, Richard L. Sutton Jr., Udo Wile and Fred Wise. All replied promptly and cooperated splendidly, for which I thank them.

It should be understood from the outset that ordinary cutaneous diseases are usually well managed at home by the experienced dermatologist. The cases that require further resources, and which can profitably be referred for resort therapy, are those that are chronic, recurrent, recalcitrant and generalized. Dermatoses of this type are extremely difficult to manage even in the best hospitals equipped with all necessary diagnostic and therapeutic aids. It is therefore essential that a health resort which undertakes the treatment of these resistant diseases of the skin should have a well trained and capable dermatologist in residence with a full armamentarium at his command, including an x-ray machine for therapy, ultraviolet apparatus, an electrosurgical unit and facilities for biopsies, bacteriologic and mycologic studies. Equipment for minor surgery and allergy studies (patch and scratch testing) is desirable. The details of the physical plants, the chemical constituents of the waters [3] and the surrounding terrain of American spas have been fully discussed elsewhere.

In general it may be said that the cases in which the patient will benefit most from a sojourn at a health resort are those in which change of locale, removal from physical or psychic irritants and the establishment of a scientifically regulated regimen, supplemented by treatment with therapeutic waters, can be expected to improve primarily the patient's general health and sense of well-being and secondarily his dermatosis.[4]

I shall therefore describe briefly a group of cutaneous diseases that should respond better to treatment under ideal resort conditions than to ordinary office treatment. These diseases are arranged in alphabetical order.

ACNE VULGARIS

A small percentage of cases of acne vulgaris fail to respond even to the best dermatologic treatment. An extensive variety of acne vulgaris which affects most of the back, neck and sometimes the chest is called acne cachecticorum (conglobata). It is characterized by deep pustular lesions with subcutaneous communications and the formation of cysts. The general health is usually poor, and the patients are often discouraged and depressed because of the disfigurement. Those with acne conglobata may do better at a health resort under a regulated regimen including graduated exercise, daily exposure to ultraviolet rays, midday rest in bed, properly controlled diet and internal medicaments. The quiet atmosphere, the medicated baths and an understanding personnel do much for the depressed and morose patient. Local surgical intervention, appropriate topical applications and even roentgen irradiation may be administered as indicated.

DERMATITIS EXFOLIATIVA

Exfoliative dermatitis is a serious, disabling, chronic and universal eruption. Patients with this disease are in constant discomfort from the intense pruritus, burning and fissuring. Because of the damage to the temperature-regulating function of the skin, they suffer from chills and shiver unless protected by warm clothing. Exfoliative dermatitis may be caused by the application of strong remedies for the treatment of psoriasis and other diseases or by the intake of drugs, especially arsenic; or it may be a forerunner of mycosis fungoides or leukemia cutis. Most cases, however, are of unknown cause. These idiopathic cases are generally treated by rest in bed, medicated baths, the application of soothing emollients and roentgen therapy.

It has been the practice of some dermatologists to advise patients with exfoliative dermatitis to move to a locality such as Arizona, Texas, Florida or southern California, as climatic and environmental changes have proved beneficial in a limited number of cases. Such patients might improve more satisfactorily in a place where continuous or at least frequent medicated baths could be employed.[5] Prolonged warm baths are soothing and conducive to sound sleep. Sulfur, carbon dioxide, potassium permanganate, starch, bran or tar baths give patients the greatest symptomatic relief. After the bath, the application of an emollient eases the discomfort caused by the fissures. Forced elimination with alkaline waters has a favorable effect both on the disease and on the general health of the patient. Natural or artificial heliotherapy and infra-red irradiation are useful adjuvants. Diets adjusted to individual needs, vitamins, quinine, autohemotherapy, intravenous sodium thiosulfate or calcium gluconate and roentgen

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1. British Health Resorts: Spa Seaside Island, Official Handbook of the British Health Resorts Association, London, J. & A. Churchill, Ltd., 1937. Spas and Mineral Waters, Queries and Minor Notes, J. A. M. A. **113**: 1509 (Oct. 14) 1939. Bureau of Clinical Information: Saratoga Springs, New York M. Week **10**: 12 (Dec. 12) 1931.

2. Vogt, H.; Teil, E., and Teil, Z.: Lehrbuch der Bäder- und Klimaheilkunde, Berlin, Julius Springer, 1940. Jadassohn, J.: Medikamentöse Bäder, in Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1930, vol. 5, pt. 1, p. 644. Fantus, B.: Our Insufficiently Appreciated American Spas and Health Resorts, J. A. M. A. **110**: 40-42 (Jan. 1) 1938.

3. Fitch, W. E.: Mineral Waters of the United States and American Spas, Philadelphia, Lea & Febiger, 1927.

4. Kovacs, R.: American Spas, Hygeia **17**: 207 (March) 1939. McClellan, W. S.: The Saratoga Spa: Its Place in the Treatment of Rheumatic Disorders, Arch. Phys. Therap. **18**: 408 (Aug.) 1937. Stearns, N.; Stearns, H. T., and Waring, G. A.: Thermal Springs in the United States, United States Department of the Interior, 1937. Wallace, A. W.: The Modern Health Resort: Appraisal of Its Possibilities, J. A. M. A. **107**: 419-421 (Aug. 8) 1936.

5. McClellan, W. S.: The Place of Carbon Dioxide Baths in the Treatment of Diseases of the Circulation, Internat. Clin. **1**: 199 (March) 1937.

therapy may be administered as indicated by the resident dermatologist. As improvement progresses the initiation of graduated exercises, occupational therapy and diversional activities will be found beneficial.

DERMATITIS MEDICAMENTOSA

Many eruptions result from the habitual ingestion of drugs, especially those taken for constipation, nervousness and insomnia. The drugs most commonly involved in dermatitis medicamentosa are phenolphthalein, phenobarbital and the bromides. Phenolphthalein produces erythematous plaques involving multiple areas. These gradually become purplish and persist as violaceous or dark brown round or oval patches. An acute erythematous reaction occurs each time the drug is ingested. Phenobarbital may produce a rash resembling that of measles or scarlet fever; in rare instances it has caused exfoliative dermatitis. The bromides produce many types of lesions, the commonest being acneform and erythema-nodosum-like lesions which may ulcerate. Many other drugs cause eruptions, especially penicillin and the sulfonamide compounds. It is believed that any drug, with the exception of the salines, is capable of producing a dermatitis in a sensitive person.

In most instances the diagnosis is promptly made, the drug is withdrawn and the lesions subside. Patients can in most instances be relieved of the condition for which they take these drugs by treatment at a spa or health resort. The alkaline waters can do much to restore normal bowel function; and baths in the hydrotherapy pavilion, coupled with message, mild active exercise, regulation of sleeping hours and diet and the elimination of stimulating foods and excitement can do much to overcome nervousness and insomnia.

ECZEMA

Two varieties of eczema which are especially amenable to spa treatment are generalized neurodermatitis and the generalized or recalcitrant localized types of eczema seborrheicum. Other diseases of the group to be considered are dermatitis venenata, generalized nummular eczema and chronic exudative discoid and lichenoid dermatitis.

The cause of neurodermatitis is not clear. There is a familial tendency and a history of allergic manifestations in members of the family or in the patient. Endocrine and emotional factors also play a part. The disease may begin in infancy and may last with periods of remission and exacerbation through middle life. The lesions are often localized to the flexures of the elbows and knees, the sides of the neck and the ears and hands, but they may be generalized. The skin is erythematous, lichenified and sometimes fissured and exudative. The pruritus is so intolerable that the patient often spends sleepless nights. Sedatives and hospitalization are required for amelioration of symptoms.

Many patients with neurodermatitis have improved by going to the seashore in summer, where salt water bathing, sunshine, rest, good food and moderate exercise were the only therapeutic agents employed. Others have benefited by the complete change of environment obtained in Arizona, Texas, southern California or Florida. I believe that sufferers from neurodermatitis would be helped by treatment at an appropriate health resort, especially if the services of a dermatologist were available. Improvement should be noted in the general health, the psychologic and emotional status and in the cutaneous condition of the patient. Treatment at a resort has the added advantage of removing the patient from such possible environmental irritants as pollens, epidermals and dust.

Generalized and recalcitrant localized cases of neurodermatitis are particularly suitable for treatment at a health resort at which it is possible for the patient to obtain roentgen therapy, generalized ultraviolet irradiation, hemotherapy and the proper topical applications, combined with a general regimen conducive to good physical and mental health. For generalized pruriginous and exudative eruptions, nothing is more beneficial than mildly antiseptic baths. Continuous medicated baths with mechanical regulation of the temperature and the concentration of the solution are especially desirable and are available at some health resorts. Regular and graduated exercise, occupational therapy, attention to bowel function, ingestion of large quantities of alkaline waters, menus adjusted to each particular patient, midday rest and diversional activities afford much help to the sufferer who has had no relief night or day from the torment of long-continued extensive pruritic eruptions.

Eczema seborrheicum is thought to be caused by the Pityrosporum ovale in sensitized subjects, but in most instances the cause is not known. The disease occurs as greasy, scaly patches of dermatitis affecting principally the scalp, face, interscapular region and sternum. The hairy parts all over the body, including the eyelashes, eyebrows and the hairs in the nose may be affected. Exceptionally, patients with this disorder may show lesions all over the body and the eruption may be exudative. These generalized infections are particularly recalcitrant and some temporary relief is obtained only when hospitalized. Some patients with recurrent generalized seborrheic dermatitis need a change of environment and climate. Continuous medicated baths, especially with sulfur or tar, are beneficial, and proper rest, diet and exercise are better regulated at a well organized health resort than at home. Natural heliotherapy combined with mental rest and relaxation often improve the patient's condition in stubborn cases of extensive seborrheic dermatitis.

Other eczematous eruptions such as dermatitis venenata and generalized nummular eczema are amenable to treatment at health resorts. Most cases of contact dermatitis are easily detected and easily cured, but there are some in which the most careful search for the cause of the infection is fruitless. When patients with intractable contact dermatitis are transferred to the controlled environment of a spa the lesions are apt to disappear, and hence the chances for discovering the cause of the disease are increased. Continued nervous tension or an emotional upset may precipitate an attack of nummular eczema, so that treatment at a health resort directed both to the nervous system and the skin is beneficial also from this point of view.

Many of the patients who occupy beds in dermatologic wards are suffering from chronic exudative discoid and lichenoid dermatitis. There is a strong psychoneurotic element in every patient with this form of recurrent chronic dermatitis, which principally affects men who are emotionally unstable and whose financial status is uncertain. These patients suffer a great deal and are unable to work. The lesions, which cover practically the entire body, consist of small, discrete papules, some of them grouped. In places the eruption is papulovesicular. There are intense pruritus, excoriations and exudation. Under hospital care the condition improves, but it recurs promptly under the stress and strain of ordinary activity. A change of environment, a carefully selected regimen of rest and diet, exercise in the open air, and the stimulating and tonic effects of hydrotherapy, heliotherapy and directed diversions are beneficial to patients with chronic exudative discoid and lichenoid dermatitis. Such treatment is of special value in improving the psychologic outlook of the patient and in fact is probably the only kind that may have lasting effects.

FURUNCULOSIS

The ordinary furuncle can be managed adequately by any physician. However, there are some cases in which lesions are scattered all over the body; as soon as one resolves another develops, and this goes on for many months with occasional remissions. Chronic recurrent multiple furunculosis should respond well to a controlled environment and a well regulated regimen. Prolonged and frequent medicated baths containing sulfur are beneficial and easily obtained at a spa. Autohemotherapy, vaccine, bacteriophage, penicillin and other antibiotics, roentgen rays, ultraviolet rays, vitamins and natural alkaline waters can all be administered expediently at a health resort. A careful medical check-up to rule out diabetes, anemia, foci of infection and other provocative causes is essential to the proper management of all cases of chronic recurrent multiple furunculosis.

HERPES ZOSTER

Neuralgia may persist for months after the cutaneous lesions of herpes zoster have resolved. This painful disease limits normal function, and treatment at a health resort should do much to shorten its duration. Ingestion of the natural waters, carbonic acid or sulfur baths, occupational and infrared therapy, rest, exercise, proper diet and a well regulated life should hasten recovery. Treatment with roentgen rays, sodium iodide, thiamine hydrochloride or posterior pituitary injection may be carried out if indicated in any resort properly equipped to treat all types of cutaneous disease.

LICHEN PLANUS

Lichen planus is a disease characterized by the development of papules affecting the flexor surfaces of the forearms, arms, legs and, occasionally, the glans penis and mucous membranes of the mouth. The disease is usually localized but may be generalized. The papules are pinhead to pea sized, flat topped, umbilicated and polygonal. They are violaceous, and the pruritus is at times intense. The cause is not definitely known, but the disease usually occurs in patients of a nervous temperament. Overwork, nervous shock, worry, anxiety and fatigue are significant factors. It is usually acute, runs its course of about six weeks and terminates forever. A few cases are chronic and recurrent.

Most of the chronic recurrent lesions are controlled by treatment with roentgen rays and injections of a bismuth preparation. Some patients do better when the environment is changed. Treatment at a health resort should be beneficial, especially for highly tense patients. Most of the cases would probably clear up spontaneously under regular spa regimen without the necessity of special dermatologic therapy.

NEUROSES OF THE SKIN

Hyperesthesia, dermatalgia, meralgia paresthetica and erythromelalgia are caused by some disorder of the nervous system. In most instances hysteria, neuroses and functional disturbances of the central nervous system are responsible. Occasionally these peculiar cutaneous reactions are due to central organic disease. If the cause is functional, improvement should follow treatment at a spa or health resort. Hydrotherapy, sulfur or carbon dioxide baths, generalized ultraviolet irradiation, occupational therapy, diversional activities, supervised and graduated exercise, regulated sleep, elimination of all stimulants and an individualized diet fortified with vitamin B tend to improve the general health and should clear up these cutaneous neuroses.

PRURITUS

Pruritus is a symptom. Most itchy dermatoses, and especially the parasitic diseases, do not need the special treatment afforded by health resorts. Patients suffering from idiopathic types of pruritus, such as senile and essential pruritus and even those with some types of pruritus caused by disturbances of the liver and gallbladder may be greatly relieved by such treatment. Elderly persons who suffer from senile pruritus, due no doubt to atrophic changes in the skin, are restless and irritable most of the time, and much sleep is lost because of the constant itching. The regulated life at a health resort with proper emphasis on graduated exercise, medicated baths, steaming, massage and attention to bowels and diet should do much to relieve the pruritus and induce normal sleep. In all cases of essential generalized pruritus every effort should be made to find the cause, and a careful general medical check-up of the patient is the first step to be taken.

PSORIASIS

Psoriasis is a chronic inflammatory disease which tends to recur. Remissions following treatment may occasionally last for years. The disease usually occurs in otherwise normal persons and is characterized by variously sized, rounded, marginated, erythematous patches with thick, micaceous scales, situated principally on the elbows and knees, scalp and nails. Most patients, however, have lesions all over the body, and in a few instances the eruption is universal, simulating exfoliative dermatitis. The cause is unknown, although it is sometimes associated with arthritis. The disease is influenced by diet, rest, climate and other environmental factors.

There is no specific treatment for psoriasis. Severe cases may clear up under the influence of ultraviolet rays in a mild climate such as that of Florida, southern California and the near tropic regions. It also seems to resolve in temperate zones when patients avail themselves of natural sunshine at the seashore or at high altitudes. It has been the observation of many dermatologists that when psoriasis clears up under natural influences, such as sunshine and climate, the remissions are apt to be prolonged. A health resort, especially one situated in a favorable climate, has much to offer the patient with psoriasis. The natural sulfur and carbon dioxide baths are especially efficacious in removing thick scales so that topical applications can more easily reach the inflammatory process. Hydrotherapy and massage are other useful adjuvants in the treatment of psoriasis. Alkaline waters increase kidney and bowel elimination, with beneficial effect on the general health. Diet can be carefully regulated. A low fat diet is most favored today. In the past protein-free diets were recommended, and there are still a few dermatologists who adhere to this practice. A health resort with a dermatologist in residence can carry out other methods of treatment if indicated, such as roentgen irradiation, administration of vitamins and arsenic preparations, hemotherapy and the Goeckerman treatment. There is no question in my mind that recalcitrant generalized cases of psoriasis can best be treated at a health resort situated in a favorable climate and equipped to treat dermatologic diseases.

TUBERCULOSIS

The manifestations of cutaneous tuberculosis are many and differ greatly. Forms of tuberculosis which are suitable for treatment at a health resort or spa are lupus vulgaris, tuberculosis verrucosa cutis, scrofuloderma, erythema induratum of Bazin, and papulonecrotic tuberculid. Active pulmonary tuberculosis is uncommon in persons with tuberculoderma. Erythema nodosum will be included in this group because some instances of this disease are caused by Mycobacterium tuberculosis, although other bacteria, especially the streptococci, are responsible.

In addition to local measures, all forms of cutaneous tuberculosis require systemic treatment aimed at improving the general health of the patient. Regular sleeping hours including midday rest, a diet rich in vitamins and high in proteins and calories, good hygiene, regulated exercise and the administration of liver extract are helpful in increasing resistance to Myco. tuberculosis. Intense daily local irradiation and mild generalized irradiation with natural or artificial ultraviolet rays are extremely beneficial. Treatment with tuberculin, gold salts, roentgen rays, carbon dioxide refrigeration and other methods can be carried out at the discretion of the resident dermatologist. Tuberculodermas run a chronic course, and treatment at a properly equipped spa or health resort should hasten resolution.

ULCERS

Specific ulcers caused by tuberculosis, syphilis, cancer, microaerophilic hemolytic streptococci, certain fungi, malingering and other causes will be excluded from consideration. I shall confine my remarks to chronic ulcers of the leg and ulcers from third degree burns that are extremely slow in healing. These lesions are substantially helped by hydrotherapy, massage, regulated exercise, proper rest and diet and other measures that would improve the general health and the peripheral circulation of the patient, such as carbon dioxide baths, heliotherapy, vitamins and alkaline waters for improved elimination. Such treatment as elevation of the affected parts, support of the circulation with gelatin or elastic bandages, acetyl-beta-methylcholine (Mecholyl) bromide iontophoresis and proper topical applications should be carried out along with general resort treatment.

URTICARIA

The acute type of urticaria that follows the ingestion of some food to which the patient is sensitized lasts only a few days and is entirely cured with a cathartic and the injection of a few minims of epinephrine.

Chronic urticaria is one of the most difficult diseases to treat, because its cause is obscure. In some instances, chronic urticaria is caused by food, in others by an infectious focus. Most cases of idiopathic chronic urticaria occur in highly emotional subjects, and excitement, worry, a catastrophe, fatigue and similar factors will precipitate an attack.

Since there is no specific treatment for chronic urticaria, change of environment and regular treatment at a spa should be of service. Its facilities for exercise, hydrotherapy, rest, diet, elimination of stimulating foods and drinks and the use of diversional activities and occupational therapy should be employed. The response to such treatment is often immediate, and the improvement in general health and the resultant mental relaxation should give the patient a long and perhaps permanent respite from symptoms.

VASCULAR DISEASES

Certain vascular diseases such as Raynaud's disease, pernio (chilblains), sclerodactylia and scleroderma are benefited by climatic conditions. Patients with these disorders do not tolerate cold weather well. At a health resort located in a warm climate and possessing adequate facilities for medical treatment, patients with vascular diseases can be made more comfortable and their life prolonged.

COMMENT

It is worth while to emphasize the fact that a hotel[6] at the seashore or at the mountains, equipped with hydrotherapy apparatus and a solarium, is not a health resort and is useless for the treatment of cutaneous diseases. The comprehensive, supervised regimen, supplemented by specialized treatments as described, can be undertaken only at an establishment designed and equipped solely for therapeutic purposes.

It is important to mention radium waters. Roentgen rays and radium rays—applied externally—are valuable in the treatment of many diseases of the skin and in fact constitute the most important modalities in the armamentarium of the dermatologist. But because they are highly potent agents they must be administered with great caution in accurate dosage and under expert supervision. The efficacy of radium waters has never been proved. Bathing in waters which contain therapeutically effective quantities of radioactive substances is dangerous, in my opinion, and drinking them is even more to be condemned. Radioactive substances absorbed through the skin or taken internally, even in minute doses, have a cumulative effect which can cause degenerative changes and even death. The use of radium waters should be discouraged for the treatment of cutaneous diseases.

The chemistry, physiology and metabolism of the skin have not been discussed in this paper, since material on these subjects is available in standard books on dermatology and in a book by Markovitz.[7]

SUMMARY

1. Patients suffering from diseases of the skin are as a rule ambulatory and can avail themselves fully of the natural advantages, general regimen and specialized treatments available at the well equipped spa.

2. Natural waters alone are not adequate for the treatment of cutaneous disorders. Spring waters coupled with a health resort regimen and adequate medical services are of inestimable value.

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6. Rules for the Listing of American Health Resorts, Committee on Health Resorts, J. A. M. A. **118**: 379 (Jan. 31) 1942.

7. Markovitz, M.: Chemistry and Metabolism of the Skin, Philadelphia, The Blakiston Company, 1942.

3. It is necessary to add to the health resort regimen the services of a qualified dermatologist and the facilities required for the treatment of cutaneous diseases.

4. There are a number of diseases of the skin which should prove amenable to treatment at an approved spa. It is my belief that most patients with these diseases will derive immense benefit from proper treatment at a health resort.

5. To bathe in or to drink radioactive or radium waters is of unknown efficacy and may be a dangerous practice. It is not recommended for the treatment of any cutaneous disease.

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Clinical Notes, Suggestions and New Instruments

PAROXYSMAL HYPERTENSION FROM PHEOCHROMOCYTOMAS

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In recent years the several published studies of paroxysmal hypertension due to pheochromocytoma of the adrenal gland have well established this clinicopathologic entity.[1] The generally accepted treatment of such neoplasms is excision, usually with the entire adrenal gland which is the site of the tumor.

Summaries of Blood Pressure Readings Before and After Excision of Pheochromocytomas

Case	Sex	Age	History	Blood Pressure During Typical Attack of Paroxysmal Hypertension	Operation	Subsequent Course
1	♀	41	Attacks of dyspnea and asthenia, increasing in frequency during previous 8 years; finally one attack a day; normal blood pressure 138/96	220/130	4/21/37, excision of left adrenal with pheochromocytoma, 6 × 4 cm.	Well during 10 year period following operation; no recurrent attacks; blood pressure 130/90
2	♀	35	Severe attacks of headache, nausea and vomiting, tremor, clonic movements, blurred vision and sometimes syncope with expectoration of red frothy fluid for 3 years; normal blood pressure 140/90	240/140 (frequent attacks each day)	2/21/42, excision of right adrenal with pheochromocytoma, 6 × 5 cm.	No recurrence of attacks during 5 year period following operation; blood pressure 98/64
3	♀	?	One severe near-fatal attack of syncope; during recovery had pronounced pulmonary edema; normal blood pressure 140/85	295/155 (only attack observed preoperatively)	5/9/39, excision of right adrenal with tumor measuring 3.5 × 3 cm.	For months after operation blood pressure was 140-150/75-84; however, patient died 2½ years after operation, of "multiple sclerosis," in another institution; prior to death there were no further attacks of hypertension
4*	♀	20	No typical "attacks" usually associated with paroxysmal hypertension, but her physician noted that blood pressure which was usually 120/75 would rise on frequent occasions to 190/110; diabetes mellitus developed, also excess growth of hair on breasts and abdomen	190/110	7/24/44, excision of right adrenal with tumor measuring 5 × 3 cm.	Generally satisfactory; diabetes has not improved; blood pressure 122/92 (now stable); no change in distribution of hair

* Patient of Drs. W. E. Adams and Martin Goldner.

The purpose of this report is to record the blood pressures and ultimate courses in a limited series of patients in whom excision of pheochromocytoma for paroxysmal hypertension was performed by me. These operations were performed via the anterior or abdominal route.[2] The pertinent facts are summarized in the accompanying table.

The fifth patient to be included in this report is a white woman aged 39, who had been under the care of Dr. Rudolph Hennemeyer (Chicago) for several years. Blood pressure readings were often observed to be approximately 90 systolic and 60 diastolic, but on the occasion of a routine visit the blood pressure was observed to be 300 systolic and 150 diastolic without accompanying symptoms. Because of this apparent and sudden elevation in blood pressure hospitalization was advised immediately (Sept. 7, 1940). The patient was bled with little reduction in pressure. Roentgenograms revealed a calcareous ring about 6 cm. in diameter in the region of the left adrenal gland. This was interpreted as partial calcification in an adrenal tumor (possibly pheochromocytoma). The day after admission a left hemiplegia developed suddenly, due undoubtedly to a cerebral hemorrhage. In view of the persistent high blood pressure I performed a laparotomy on Sept. 11, 1940, and a cystic tumor measuring 4.5 by 3.5 by 3 cm. and arising in the left adrenal gland was removed together with the gland. Subsequent to excision the blood pressure could not at first be obtained but a short time later returned to 150 systolic and 70 diastolic.

Study of the specimen showed the cyst to be composed of a fibrous wall in which a thin calcareous shell was present (fig. 1). The fluid content was yellow, turbid, mucoid in nature and measured 24 cc. in volume (fig. 2). Over the surface of the cyst were thinned out segments of adrenal parenchyma. Microscopic study showed that the cyst wall was fibrous and that there was no lining of epithelial cells.

Chemical analysis of the fluid from the cyst revealed: nonprotein nitrogen 46.2 mg., total nitrogen 0.93 Gm., and total protein 5.5 mg., per hundred cubic centimeters; chlorides 107 millimols per liter and glucose 134 mg. per hundred cubic centimeters.

In the months after the surgical operation there was some improvement in the hemiplegia, but the blood pressure gradually rose to a systolic range of 230 to 190 and a diastolic level of 120. In the winter of 1946 a Smithwick bilateral sympathectomy was performed without lowering the blood pressure, which varies now between 210 systolic and 140 diastolic and 180 systolic and 120 diastolic. Urinalysis is negative.

COMMENT

Removal of a pheochromocytoma which produces paroxysmal hypertension is apparently followed by permanent return of the blood pressure to normal levels, and there appear to be no permanent ill effects from the several attacks of hypertension engendered. Nor, from the limited series of patients observed, does there appear to be a danger of other untoward sequelae developing at a later period. The development of "multiple sclerosis" after the surgical operation in case 3 would seem to be coincidental. Case 4 presents three interesting features; namely, the absence of subjective symptoms related to the paroxysmal attacks of hypertension, the presence of diabetes mellitus both before and after excision of the tumor and the development of hirsutism, also not affected by removal of the tumor.

From the Department of Surgery, University of Chicago.

This study was aided by the Chas. H. and Mary F. S. Worcester Fund, University of Chicago.

[1] Brunschwig, A.; Humphreys, E., and Roome, N.: The Relief of Paroxysmal Hypertension by Excision of Pheochromocytoma, Surgery 4:361, 1938.

[2] Brunschwig, A., and Humphreys, E.: Excision of Pheochromocytoma Following Near Fatal Attack of Paroxysmal Hypertension, J. A. M. A. **115**:355 (Aug. 3) 1940. Brunschwig, Humphreys and Roome.[1]

Cysts of the adrenal are rare I have not been able to find records of a cyst similar to the one previously described (case 5). Its etiology remains obscure. There is no evidence to support the view that it represents an organized hemorrhage in the gland. Cystic tumors of the adrenal, but of different types, have been reported by H Winter [3] (cystic lymphangioma) and Menon [4] (hemangioblastoma). The relationship, if any, between the sudden onset of sustained hypertension and the presence of the adrenal cyst in the case described herein remains obscure

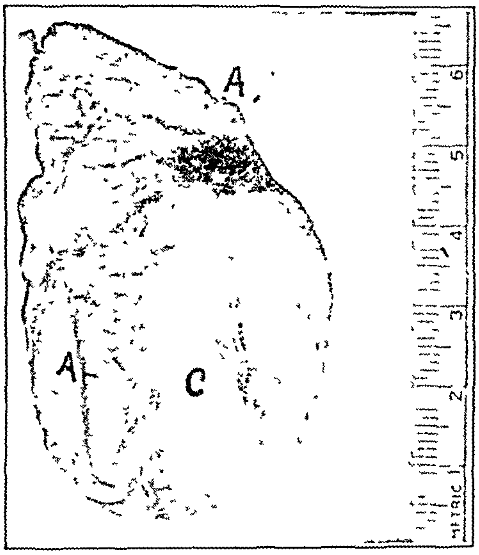

Fig 1.—Photograph of cyst (*C*) of right adrenal gland showing (*A*) portion of the adrenal gland about the cyst wall.

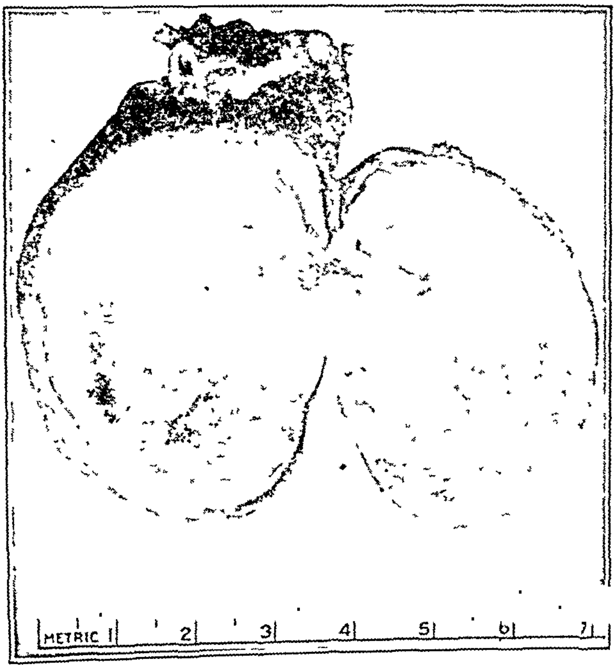

Fig 2.—The opened cyst with white mottling due to calcification throughout most of the wall Twenty four cubic centimeters of mucoid turbid yellowish fluid were evacuated and analyzed

SUMMARY

Four patients from whom pheochromocytomas of the adrenal gland were removed and in whom there were associated attacks of paroxysmal hypertension, were followed for ten, five, two and a half and two and a half years No recurrences of hypertension were observed, and other ill effects were not observed to develop subsequently which might be ascribed to the tumors or the paroxysmal hypertension.

One instance of calcified adrenal cyst associated with the sudden onset of sustained hypertension is also recorded The hypertension has persisted for six years and three months after removal of the cyst and involved adrenal gland, but there is no evidence that this tumor was the etiologic factor in the hypertension.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report HOWARD A CARTER, *Secretary.*

UNEX HEARING AID MODEL A ACCEPTABLE

Manufacturer. Nichols and Clark, Hathorne, Mass

This instrument is self contained, the batteries being inserted in the back of the case The case is of pressed metal in three pieces, assembled with Phillips screws The back cover snaps on The case tapers in thickness from the center to both ends and has rounded ends Wearing clips are on the sides of the case Two controls are placed at the top end of the case, one a volume control and the other a combination "on-off" and three-position tone switch One receiver, a crystal type, was supplied.

Unex Hearing Aid, Model A

Dimensions and Weight

Single unit with batteries weight 6 ounces (170 Gm), length 5½ inches (14.0 cm), thickness 1¼₁₆ inches (3.1 cm), width 2½ inches (6.4 cm).

Battery Data	Measured Voltage	Measured Current
A 1½ volts	1.4 volts	55 milliamperes
B 22½ volts	21 volts	0.65 milliampere

Acoustical Gain

Measurements of the gain in decibels in the sound pressure level referred to 0.0002 dyne/sq cm attached to a 2 cc coupler over the pressure levels at the microphone were made at nineteen frequencies between 200 and 4,096 cycles, with the input level set at 0.02 dyne/sq cm *The following figures are typical* of the gains in decibels when the volume control was set full on.

Frequency ..	256	512	1,024	1,200	2,250	3,100	4,096 cycles
Tone controls							
"1 dot"	42.5	40.5	43.0	46.5	33.5	37.0	35.0 db
"3 dots" .	24.0	37.0	45.0	50.0	39.0	40.0	41.0 db

Approximate values of maximum pressure levels, at four frequencies, observed on a 2 cc coupler with volume control set at full gain for the "two dot" tone setting:

Frequency	Input Level	Maximum Output Level
600 cycles	60 decibels	100 decibels
1,024 cycles	60 decibels	106 decibels
1,200 cycles	70 decibels	109 decibels
2,048 cycles	70 decibels	93 decibels

Intelligibility tests were made with a normal hearing person so placed that the speaker could barely be heard with the hearing aid turned off. These tests indicated satisfactory performance.

It will be noted that the maximum gain obtained is somewhat lower than indicated in data supplied by the manufacturer. This may be accounted for by a difference in measuring technics The manufacturer's data were computed from response curves of individual components of the hearing aid.

The Council on Physical Medicine voted to include the Unex Hearing Aid, Model A, in its list of accepted devices.

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[3] Winter, H: Cystic Lymphangioma of the Adrenal, Centralbl f. allg. Path u path Anat 63: 305, 1935.

[4] Menon, T B Hemangioblastoma of the Adrenal Gland, J Path. & Bact. 39: 591, 1934.

MEDICAL LICENSURE STATISTICS FOR 1946

FORTY-FIFTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Victor Johnson, M.D., Secretary, and Anne Tipner

Table of Contents

Page
STATE BOARDS OF MEDICAL EXAMINERS
Licenses Issued 255
Candidates Examined by Medical Examining Boards 259
Consolidated Examinations 261
Failures 262
Registration by Reciprocity and Endorsement 263
Licentiates Representing Additions to the Medical Profession 271
Licensure Under the Accelerated Program 272
Premedical Training 272
Required Internships 273
Licensure for Medical Officers 274
Temporary Permits 274
Annual Registration 275
Candidates Examined, 1942-1946 275
Registration, 1904-1946 276
Graduates of Approved Schools and Others Registered, 1922-1946 276
Graduates of Unapproved Schools, 1941-1946 277
Graduates of Schools of Osteopathy Registered by Medical Examining Boards, 1941-1946 277
Physicians Examined on the Basis of Credentials Obtained in Countries Other than the United States and Canada.. 279
Officers of State Boards of Medical Examiners 282
BOARDS OF EXAMINERS IN THE BASIC SCIENCES 282
NATIONAL BOARD OF MEDICAL EXAMINERS 284
EXAMINING BOARDS IN THE MEDICAL SPECIALTIES 288

Statistical compilations regarding medical licensure are presented annually in the State Board Number of THE JOURNAL. In the following pages will be found the report for the year 1946, which constitutes the forty-fifth annual presentation. Data are included pertaining to (*a*) medical examining and licensing boards of the United States, the District of Columbia, the territories and possessions of the United States, (*b*) boards of examiners in the basic sciences, (*c*) the National Board of Medical Examiners and (*d*) examining boards in the medical specialties.

The computations presented are based on official records received throughout the year from the medical examining and licensing agencies of all states, Alaska, Hawaii, Puerto Rico and the Virgin Islands; the nineteen boards of examiners in the basic sciences; the fifteen approved examining boards in the medical specialties; the National Board of Medical Examiners, and the homeopathic medical licensing boards of Connecticut, Delaware, Maryland and Louisiana.

The State Board Number of THE JOURNAL is made possible because of the wholehearted cooperation of all concerned with supplying this information. The Council and THE JOURNAL express their appreciation to those who have supplied these data and for other records furnished throughout the year.

The tables referring to medical licensing boards include figures for the number of candidates examined for medical licensure in 1946, the numbers licensed and the number who secured their first medical license and therefore represent additions to the medical profession. The state boards are discussed first, followed by the basic science boards, the National Board of Medical Examiners and the examining boards in the medical specialties.

STATE BOARDS OF MEDICAL EXAMINERS

LICENSES ISSUED

During the year 1946 there were 16,129 licenses to practice medicine issued by the medical examining boards of the forty-eight states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands. The number licensed in each state, by examination or by the endorsement of credentials, is shown in table 1. Of the 16,129 licenses issued, 6,559 were granted after examination and 9,570 by reciprocity and

TABLE 1.—*Licenses Issued, 1946.*

	Examination	On the Basis of Reciprocity and Endorsement	Total
Alabama	31	148	179
Arizona	12	88	100
Arkansas	63	49	112
California	439	1,606	2,045
Colorado	77	158	235
Connecticut	49	269	318
[illegible]	16	15	31
[illegible]	44	289	333
Florida	318	0	318
Georgia	167	124	291
Idaho	53	3	56
Illinois	711	320	1,031
Indiana	139	111	250
Iowa	146	128	274
Kansas	109	123	232
Kentucky	84	98	182
Louisiana	189	94	283
Maine	45	46	91
Maryland	181	162	343
Massachusetts	60	374	434
Michigan	280	318	598
Minnesota	259	121	380
Mississippi	45	89	134
Missouri	250	223	473
[illegible]	17	57	74
[illegible]	80	55	135
Nevada	15	38	53
New Hampshire	20	104	124
New Jersey	116	425	541
New Mexico	1	58	59
New York	432	1,081	1,513
North Carolina	95	191	286
North Dakota	13	17	30
Ohio	290	390	680
Oklahoma	79	109	188
Oregon	53	148	201
[illegible]	460	258	718
[illegible]	42	25	67
[illegible]	53	56	109
South Dakota	10	36	46
Tennessee	155	125	280
Texas	266	513	779
Utah	20	61	81
Vermont	14	64	78
Virginia	174	229	403
Washington	130	164	294
West Virginia	64	100	164
Wisconsin	123	241	364
Wyoming	0	38	38
Alaska, Hawaii, Puerto Rico and Virgin Islands	70	31	101
Totals	6,559	9,570	16,129

Table 2.—CANDIDATES EXAMINED BY

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ARKANSAS																																													
1	University of Arkansas School of Medicine					61	0	1	0			1	0					4	0			1	0	1	0																					1
	CALIFORNIA																																													
2	College of Medical Evangelists							54	1	3	0							3	0			2	0	1	0											1	0	2	0	1	0	3	0			2
3	Stanford University School of Medicine							61	0			1	0							1	0									1	0															3
4	University of California Medical School							139	1																																					4
5	University of So. California School of Medicine							67	0																																			1	0	5
	COLORADO																																													
6	University of Colorado School of Medicine	1	0					4	0	53	0											1	0							1	0											1	0	2	0	6
	CONNECTICUT																																													
7	Yale University School of Medicine											2	1	1	0	1	0	4	0																	4	0	1	0							7
	DISTRICT OF COLUMBIA																																													
8	George Washington University School of Med.							3	0							5	0	4	2	1	0			2	0													2	0	1	0					8
9	Georgetown University College of Medicine											2	0			5	0	4	1					1	0													11	0	1	0			1	0	9
10	Howard University College of Medicine	2	0					1	0							25	0	1	0	2	0			6	0					2	0			3	0			12	0	1	1	2	0	1	0	10
	GEORGIA																																													
11	Emory University School of Medicine																	23	10	66	0													1	0											11
12	University of Georgia School of Medicine																	25	5	68	0			1	0																					12
	ILLINOIS																																													
13	Loyola University School of Medicine							11	0	1	0	1	0					4	2					89	0	2	0			1	0	1	0									1	0	4	0	13
14	Northwestern University Medical School			3	0			16	0	2	0					1	0	7	2	1	0	3	0	142	1	2	0			1	0							1	0			5	0	10	0	14
15	*University of Chicago, The School of Medicine*							*5*	*0*			*2*	*0*					*2*	*0*	*1*	*0*	*3*	*0*	*62*	*1*									*1*	*0*					*2*	*0*	*2*	*0*	*3*	*0*	15
16	University of Illinois College of Medicine			1	0			16	0	1	0							11	2					280	1	3	0			2	0	1	0	2	0							3	0	9	0	16
	INDIANA																																													
17	Indiana University School of Medicine			1	1													3	1			2	0	1	0	81	2													1	0	1	0	4	0	17
	IOWA																																													
18	State University of Iowa College of Medicine			1	0			3	0									6	1	1	0			3	0			40	2															3	0	18
	KANSAS																																													
19	University of Kansas School of Medicine							1	0													1	0	2	0					76	0									1	0			9	0	19
	KENTUCKY																																													
20	University of Louisville School of Medicine			1	0			1	0									4	1	1	1	1	0	4	0							157	0									1	0	1	0	20
	LOUISIANA																																													
21	Louisiana State University School of Medicine											1	0					7	0					1	0									64	0									1	0	21
22	Tulane University of Louisiana School of Med.	6	0					4	0									28	0					2	0					1	0			110	1									1	0	22
	MARYLAND																																													
23	Johns Hopkins University School of Medicine							3	0			2	0					9	3					1	0											2	0	54	0	0	1			1	0	23
24	University of Maryland School of Medicine and College of Physicians and Surgeons							1	0			3	0	1	0			12	1																	1	0	83	0	0	1					24
	MASSACHUSETTS																																													
25	Boston University School of Medicine	1	0					1	0									4	0					1	0	1	0							1	0	2	0			2	0					25
26	Harvard Medical School	1	0					7	0			2	0			1	0	7	1	4	0	2	0	9	0	2	0			1	0	1	0	1	0	6	0	4	0	14	1	3	0	2	0	26
27	Tufts College Medical School	1	0					1	0			1	0					5	1																	5	0	1	0	9	0					27
	MICHIGAN																																													
28	*University of Michigan Medical School*							1	0									6	3			2	0	4	0					1	0											132	0	1	0	28
29	Wayne University College of Medicine																							1	0															1	0	47	0			29
	MINNESOTA																																													
30	University of Minnesota Medical School							3	0	1	0							3	0					11	0					4	0							1	0			1	0	189	0	30
	MISSOURI																																													
31	St. Louis University School of Medicine							8	1									1	0			2	0	4	0															0	2			4	0	31
32	Washington University School of Medicine							4	0	1	0							4	1			3	0	3	0					1	0									1	0			2	0	32
	NEBRASKA																																													
33	Creighton University School of Medicine							15	1	1	0											2	0	1	0			15	0	4	0											1	0	3	0	33
34	University of Nebraska College of Medicine							3	0	1	0							1	0			4	0	1	1	2	0			1	0			1	0									1	0	34
	NEW YORK																																													
35	Albany Medical College																	2	0	1	0																									35
36	Columbia University Coll. of Phys. and Surgs.							2	0	1	0	3	0	1	0			5	0	2	0			2	0											2	0	1	0	1	0	1	0			36
37	Cornell University Medical College							2	0			1	0					7	0	2	0			2	0															2	0			1	0	37
38	Long Island College of Medicine											2	0					12	1					1	0							1	0													38
39	New York Medical College, Flower and Fifth Avenue Hospitals																	5	1					1	0																					39
40	New York University	1	0					1	0			2	0					16	2	1	0			1	0					1	0									2	0					40
41	Syracuse University																	3	0					2	0											1	0							2	0	41
42	University of Buffalo																	1	1											1	0													1	0	42
43	University of Roches Dentistry							2	0			0	1					1	0	1	0			2	0					1	0	1	0			1	0	2	0	2	0			1	0	43
44	Bowman Gr Forest College																	1	0											1	0															44
45	Duke University School of Medicine	1	0					1	0					1	0			9	2															1	0											45
	OHIO																																													
46	Ohio State University College of Medicine			2	0			1	0									6	1					3	0																			2	0	46
47	University of Cincinnati College of Medicine							3	0			1	0					7	1																											47
48	Western Reserve University School of Medicine			1	0			1	0			1	0					2	1			2	0	2	0																			1	0	48
	OKLAHOMA																																													
49	University of Oklahoma School of Medicine											2	0					1	0					2	0																					49
	OREGON																																													
50	University of Oregon Medical School					1	0	10	0													9	0	1	0													1	0			1	0	2	0	50
	PENNSYLVANIA																																													
51	Hahnemann Med. Coll. and Hosp. of Phila							10	0			5	0	4	0			9	3	3	0			2	0	1	0											13	0	4	1	1	0			51
52	Jefferson Medical College of Philadelphia							1	0			3	0	4	0			11	0			1	0													2	0	2	0	0	1			1	0	52
53	Temple University School of Medicine			1	0			4	0					2	0			9	2			1	0	2	0													1	0	0	1	1	0	4	0	53
54	University of Pennsylvania School of Medicine	3	0					1	0			1	0	2	0			9	0	0	1	1	0	2	0	1	0									1	0	1	0	1	0	1	0	3	0	54
55	University of Pittsburgh School of Medicine							2	1			1	0					6	0																							1	0	1	0	55
56	Woman's Medical College of Pennsylvania							2	0							1	0	1	0	1	0			2	0																	1	0			56
	SOUTH CAROLINA																																													
57	Medical College of the State of South Carolina																	3	1																											57
	TENNESSEE																																													
58	Meharry Medical							1	0			1	0											10	1					1	0			1	0					1	1	1	0			58
59	University of Ten	1	0															11	3	1	0	1	0	1	0																					59
60	Vanderbilt University School	1	0															4	0	1	0			1	0															1	0					60
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P—Passed; F—Failed.

Marginal Number	23 Mississippi		24 Missouri		25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon		37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii and Puerto Rico		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
1																	4	0																					13	1															1	0	88	87	1	1.1	9	1
2																													1	0									3	0							3	0							1	0	79	78	1	1.3	13	2
3			1	0					1	0																													1	0															0	1	68	67	1	1.5	8	3
4					1	0			0	1																					2	0																							2	0	146	144	2	1.4	5	4
5									1	1																																															70	69	1	1.4	3	5
6			1	0	2	0																									1	0							3	0											1	0					71	71	0	0.0	12	6
7					1	0											2	0					1	0																					1	0											19	18	1	5.3	10	7
8	3	0															3	1											1	0	1	0									2	0					4	0	1	0							36	33	3	8.3	14	8
9			1	0							3	1	8	0			9	6											4	0	3	0							1	0					2	0	1	0	2	0					2	0	69	61	8	11.6	18	9
10	1	0	13	0									4	1			8	5	2	0			2	0					14	1	1	0	1	0																							112	104	8	7.1	21	10
11			1	0															1	0																																					102	92	10	9.8	5	11
12																													0	1																											100	94	6	6.0	4	12
13			1	0					1	0			1	0			6	3					7	0			1	0	3	0									1	0							1	0							1	0	143	138	5	3.5	20	13
14	1	0	1	0	2	0			1	0							2	1			1	0	4	0			1	0	3	0					3	0			3	0	1	0					24	0	3	0	9	1			4	0	262	257	5	1.9	29	14
15			1	0	1	0							3	0			2	1	1	0			4	0			0	1	1	0											1	0					8	0									108	105	3	2.8	20	15
16													1	0			3	0			1	0					2	0							1	0											6	0			1	0			1	0	348	345	3	0.9	19	16
17																																																	2	0							100	96	4	4.0	9	17
18																																																	1	0	1	0			1	0	64	60	4	6.2	10	18
19																	1	1																													3	0									95	94	1	1.1	8	19
20			1	0					1	0							0	1																													3	0	3	0					2	0	184	181	3	1.6	15	20
21	3	0															1	1																																							79	78	1	1.3	7	21
22	6	0							1	0							2	1																					3	0															1	0	167	165	2	1.2	12	22
23	2	0			1	0							1	0					2	0													1	0													1	0							2	0	86	82	4	4.7	15	23
24													1	0					4	0									2	0	1	0	1	0													1	0	3	0					5	0	121	119	2	1.7	14	24
25									1	0							2	0															1	0													4	0							1	0	22	22	0	0.0	13	25
26	1	0	3	0													4	2	6	0			2	0							3	0							2	0	1	0					2	0			2	0			2	0	99	95	4	4.0	28	26
27											3	0	1	0			1	1													5	0																			1	0			1	0	37	35	2	5.4	13	27
28													1	0			1	0			1	0																	2	0							2	0							5	0	162	159	3	1.9	13	28
29																	1	0											1	0									2	0																	53	53	0	0.0	6	29
30			1	0									1	0			0	1			2	0									1	0							1	0							3	0									223	222	1	0.4	15	30
31			104	0													6	3									1	0	4	0	1	0	1	0					1	0							1	0			2	0			5	0	151	145	6	4.0	16	31
32			89	0	1	0			1	0							1	0	2	0															1	0													2	0							117	116	1	0.9	15	32
33			0	1	1	0	9	1									3	1					2	0			1	1							1	0			1	0	1	0					2	0			1	0					70	65	5	7.1	20	33
34			2	0			70	2					1	0			0	1											1	0							1	0	1	0							1	0	1	0							96	92	4	4.2	17	34
35																	0	1																					1	0							1	0							1	0	5	4	1	20.0	4	35
36											1	0	2	0			8	0																													1	0									37	37	0	0.0	18	36
37													1	0			10	2	1	0			1	0							2	0															1	0									34	32	2	5.9	13	37
38													5	0			21	3											1	0			1	0																					1	0	49	45	4	8.2	9	38
39													1	0			3	5													1	0	1	0													1	0									19	13	6	31.6	7	39
40			1	0							1	0	7	0			22	7	1	0																											1	0	1	0							68	59	9	13.2	15	40
41																	12	6											1	0																									2	0	28	22	6	21.4	6	41
42																	2	0																			1	0	1	0	1	0															6	5	1	16.7	4	42
43											3	0	2	0			7	3					1	0					1	0																	2	0									37	33	4	10.8	20	43
44																			43	0																													2	0							45	45	0	0.0	3	44
45			1	0													1	1	6	0	1	0	1	0					3	0			2	0			1	0																			34	31	3	8.8	14	45
46																	0	2					74	0																									1	0							93	90	3	3.2	9	46
47																	5	1					72	1							1	0																	2	0	1	0					94	91	3	3.2	7	47
48																							80	2					2	0	1	0																									96	93	3	3.1	10	48
49																	2	0							68	0																									1	0					76	76	0	0.0	6	49
50					1	0			1	0																	42	0	1	0											1	0					22	0			1	0					94	94	0	0.0	14	50
51	1	0									1	0	17	0			10	7					17	0					60	1	3	0							1	0	2	0							1	0	1	0			3	0	181	169	12	6.6	22	51
52	3	0	4	0	1	0							15	0	1	0	3	3	4	0			3	0					80	0	5	0	2	0			1	0									3	0	7	0					5	0	166	162	4	2.4	24	52
53									1	0	1	0					3	2	1	0	4	0	1	0					94	0					3	0			2	0	1	0					2	0	4	0	2	0			2	0	159	154	5	3.1	25	53
54	2	0	3	0	2	0			1	0			8	0			5	2	8	0	1	0	1	0					83	0	1	0							2	0	3	0					2	0	1	0					1	0	154	151	3	1.9	30	54
55																							3	0					76	0																									0	1	92	90	2	2.2	8	55
56																	2	0					1	0					13	0																											24	24	0	0.0	9	56
57					1	0													3	0													39	0													1	0									48	47	1	2.1	5	57
58			5	0													1	2											1	0			1	0			27	0	1	0																	57	53	4	7.0	14	58
59	15	0	5	0					0	1							1	0	1	0									1	0							81	1	1	0									1	0							128	123	5	3.9	15	59
60	2	0															0	1																			44	0									2	0	1	0							55	54	1	1.8	8	60
	23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

Table 2.—CANDIDATES EXAMINED BY

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist. of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	TEXAS																																													
61	Baylor University College of Medicine							2	0																																			2	0	61
62	Southwestern Medical College of the Southwestern Medical Foundation																																													62
63	University of Texas School of Medicine					1	0											2	0																									7	0	63
	UTAH																																													
64	University of Utah School of Medicine							5	0													1	0																							64
	VERMONT																																													
65	University of Vermont College of Medicine											2	0					1	0			1	0																	1	0					65
	VIRGINIA																																													
66	Medical College of Virginia																	11	2					1	1									1	0									4	0	66
67	University of Virginia Department of Medicine									1	0							6	1													1	0					1	0							67
	WISCONSIN																																													
68	Marquette University School of Medicine							8	0									1	0			1	0	1	0															1	0	2	0	9	0	68
69	University of Wisconsin Medical School			1	0			5	0	1	0							1	0	1	0	1	0	4	0																			2	0	69
	CANADA •																																													
70	Dalhousie University Faculty of Medicine							1	0									1	0																	3	1			1	0			1	0	70
71	Laval University Faculty of Medicine																																			4	0			1	0					71
72	McGill University Faculty of Medicine							4	0			3	0					2	0			1	0	3	0							1	0	1	0	5	0			1	0	2	0			72
73	Queen's University Faculty of Medicine																																							2	0					73
74	University of Alberta Faculty of Medicine																																											2	0	74
75	University of Manitoba Faculty of Medicine							3	0									1	0													1	0							1	0			3	0	75
76	University of Montreal Faculty of Medicine											1	0																					1	0	1	1									76
77	University of Toronto Faculty of Medicine	1	0					2	0									1	0	1	0			1	0	1	0											3	0					2	0	77
78	University of Western Ontario Faculty of Med.							1	0									1	1					1	0																			1	0	78
	OTHERS																																													
79	Foreign Medical Faculties							16	6	5	0	3	7			1	0			3	0			19	23	0	1									3	2	6	4	6	11					79
80	Extinct Medical Schools							5	0							1	0	11	2	3	0	5	0	3	1							1	0			1	0	1	0	2	0			8	0	80
81	Unapproved Schools									5	0	5	1	0	1			1	0					45	3	43	13	1	0											24	142					81
82	Totals	20		13		63		541		77		65		17		41		435		169		54		784		155		59		102		166		190		49		208		252		215		313		82
83	Totals—Examined—Passed	20		12		63		530		77		55		16		41		373		167		54		751		139		56		102		166		189		45		204		89		215		313		83
84	Totals—Examined—Failed	0		1		0		11		0		10		1		0		62		2		0		33		16		3		0		0		1		4		4		163		0		0		84
85	Percentage Failed	0.0		7.7		0.0		2.0		0.0		15.4		5.9		0.0		14.3		1.2		0.0		5.0		10.3		5.1		0.0		0.0		0.5		8.2		1.9		64.7		0.0		0.0		85
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P—Passed; F—Failed.

endorsement of state licenses or the certificate of the National Board of Medical Examiners. These figures represent an unprecedented increase over all previous years in both groups.

The greatest number of licenses during the last calendar year were issued in California, 2,045. Both New York and Illinois licensed more than 1,000. Five other states registered over 500; Michigan, New Jersey, Ohio, Pennsylvania and Texas. No state licensed fewer than 30. Comparison of like data presented for the year 1945[1] indicates an increase in all but three states: Arkansas, Indiana and Tennessee. The increase was spectacular not only in certain states with large urban populations but also in some rural states. Twelve instances are cited indicating the state and the number licensed in 1945 as compared with the year 1946:

	1945	1946
Alabama	85	179
Arizona	32	100
Maine	21	91
Mississippi	70	134
Montana	13	74
New Hampshire	25	124
North Dakota	8	30
Oregon	61	201
Virginia	83	403
Washington	87	294
West Virginia	37	164
Wyoming	6	38

While the more pronounced increase was evident in the group licensed without examination, the group who were registered after written examination was more than 1,000 greater than in 1945. These figures apparently *reflect mainly* the migration of veteran medical officers who are not returning to their original state of practice and those medical officers representing recent graduates who were licensed prior to entry on active duty with the armed forces but returned to a new state. Previous compilations indicated that the accelerated program in medical schools (July 1, 1942 to July 1, 1945) produced 20,662 physicians in this three year cycle, while in the four years 1942 to 1945 inclusive 35,821 physicians received licenses. The graduation of one extra class under the accelerated program and the slight increase in enrolment in all medical schools, while intended primarily for the production of additional physicians to aid in the care of the armed forces, is now probably providing a greater physician-civilian population ratio in the country generally.

However, the figures presented in this table, particularly in the endorsement group, do not represent entirely individuals but include persons who may have been licensed in more than one state during a given year; nor does the total represent additions to the medical profession, since a physician previously licensed in one state may be licensed by examination in a nonreciprocating state. In tables 12, 13 and 14 (see pages 271 and 272) can be noted the number who secured licenses for the first time and represent additions to the medical profession in the United States and its territories and possessions.

Totals for eleven previous years and for 1946 by all methods of licensure are shown for comparison in table 3. *The high figures for the years from 1936 to 1941* in the annual number of licenses issued were

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[1] J. A. M. A. **131:** 109-139 (May 11) 1946.

Marginal Number	23 Mississippi		24 Missouri		25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon	
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
61													1	0														
62																												
63																												
64																												
65											1	0	1	0														
66			1	0															4	0								
67	1	0											1	0					2	0								
68									2	0							4	6					1	0				
69			1	0																			2	0			2	0
70											0	1					3	0										
71											1	0	2	0			3	6										
72					1	0			2	0	2	0					7	4	2	0			2	0				
73											1	0					2	0	1	0			1	0				
74					1	0																						
75																												
76											2	1					0	1										
77																	4	1										
78													1	0														
79			8	0			1	0			0	1	12	3			106	209					3	0				
80			1	0													7	2			2	0	1	0				
81	4	0					0	2					9	1			116	78					53	7			0	1
82	45		251		17		85		18		24		121		1		817		95		13		350		69		53	
83	45		250		17		80		15		20		116		1		432		95		13		340		68		50	
84	0		1		0		5		3		4		5		0		385		0		0		10		0		3	
85	0.0		0.4		0.0		5.9		16.7		16.7		4.1		0.0		47.1		0.0		0.0		2.9		0.0		5.7	
	23		24		25		26		27		28		29		30		31		32		33		34		35		36	

Marginal Number	37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii and Puerto Rico		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
61							1	0			47	1																	54	53	1	1.9	5	61
62											33	0																	33	33	0	0.0	1	62
63											83	0																	93	93	0	0.0	4	63
64													64	0															70	70	0	0.0	3	64
65	1	0													5	0			1	0									14	14	0	0.0	9	65
66	2	0			1	0											92	0			20	0					3	0	143	140	3	2.1	11	66
67																	66	0			3	0							83	82	1	1.2	9	67
68			1	0							1	0							7	0			31	0			7	0	83	77	6	7.2	15	68
69											1	0											66	0			1	0	89	89	0	0.0	14	69
70																													12	10	2	16.7	7	70
71																	1	0											18	12	6	33.3	6	71
72	2	0																	3	0									48	44	4	8.3	17	72
73																													7	7	0	0.0	5	73
74																													3	3	0	0.0	2	74
75																			1	0									10	10	0	0.0	6	75
76																													8	5	3	37.5	5	76
77	2	0																	1	0	1	0							21	20	1	4.8	12	77
78	1	0									1	0																	8	7	1	12.5	7	78
79	3	0	5	0							10	4					1	1	1	0							8	2	494	220	274	55.5	22	79
80	1	0	1	0							1	0							5	0	1	0	1	0			1	0	68	63	5	7.3	24	80
81											42	8					11	1	2	0			1	0					620	362	258	41.6	17	81
82	466		40		53		10		157		280		78		5		176		130		64		124		0		76		7,605					82
83	463		40		53		10		156		266		78		5		174		130		64		123		0		72			6,853				83
84	3		0		0		0		1		14		0		0		2		0		0		1		0		4				752			84
85	0.6		0.0		0.0		0.0		0.6		5.0		0.0		0.0		1.1		0.0		0.0		0.8		0.0		5.3					9.9		85
	37		38		39		40		41		42		43		44		45		46		47		48		49		50							

due to the licensure of foreign graduates. In succeeding years the accelerated program in medical schools increased the numbers annually licensed, the high for this period as for previous years being 1944, when 9,652 were licensed. This figure was surpassed in 1946 by 6,477. In 1946 there were 1,015 more licenses issued after examination than in 1945 and 5,955 more by endorsement of credentials.

TABLE 3.—*Licenses Issued, 1935-1946*

	Examination	Reciprocity and Endorsement	Total
1935	5,725	2,194	7,919
1936	6,275	2,772	9,047
1937	6,629	3,204	9,833
1938	6,557	2,956	9,513
1939	6,400	2,872	9,272
1940	6,289	2,866	9,155
1941	6,055	2,759	8,814
1942	6,142	2,469	8,611
1943	6,060	2,339	8,399
1944	7,058	2,594	9,652
1945	5,544	3,615	9,159
1946	6,559	9,570	16,129
Totals	75,293	40,210	115,503

It does not follow that all physicians certified in a given year after examination were tested in that year. In twenty-three states, the District of Columbia, Alaska, the Canal Zone, Hawaii and Puerto Rico the internship is a requisite for practice, but in some of them a physician is permitted to take an examination before completion of the internship; if the examination is successful, the license is withheld until completion of the internship. Licenses are also withheld in some states for proof of citizenship and other technicalities. In other instances the licenses of those examined in December are dated and issued in the following year. The statistics in table 1, therefore, include some persons who were examined late in 1945, and even a few in previous years. Consequently, figures in this table will not entirely correspond with those of later tables which deal with physicians examined for medical licensure in 1946.

CANDIDATES EXAMINED BY MEDICAL EXAMINING BOARDS

In table 2 are recorded figures referring to those examined for medical licensure in 1946 by individual states, the District of Columbia, Alaska, Hawaii and Puerto Rico, indicating the numbers who passed and failed in each state, the medical school of graduation, the percentage of failures by schools and the number of states in which graduates of a given school were examined. Medical schools in the United States which are no longer in existence, foreign faculties of medicine and unapproved schools are not listed by name, but the numbers examined in each state in these three categories are indicated at the bottom of the table.

Throughout the year 7,605 were examined, of whom 6,853 passed and 752 failed. Candidates represented sixty-nine approved medical schools in the United States, nine approved medical schools of Canada, eighty-six faculties of medicine and four licensing corporations of other countries, eight medical schools now extinct, six unapproved institutions and seven schools of osteopathy. Osteopaths who were granted the privilege to practice medicine, surgery or both by the medical examining boards are included in these statistics. Osteopaths in other states who obtained the legal right to special practice by the osteopathic board are excluded from these compilations.

Examination dates and reciprocity meetings were scheduled at more frequent times by many states in order to facilitate the physicians to commence the practice of medicine at an earlier date. Executive officers and members of examining boards are to be commended for thus assisting medical officers and others. This cooperation, in view of the increase in volume of applications, is noteworthy.

TABLE 4.—*Graduates of Medical Schools in Canada Examined for Licensure in the United States, 1946*

	Examined	Passed	Failed
Alabama	1	1	0
California	11	11	0
Connecticut	4	4	0
Florida	7	6	1
Georgia	1	1	0
Idaho	1	1	0
Illinois	5	5	0
Indiana	1	1	0
Kentucky	2	2	0
Louisiana	2	2	0
Maine	15	13	2
Maryland	3	3	0
Massachusetts	6	6	0
Michigan	2	2	0
Minnesota	9	9	0
Montana	2	2	0
Nevada	2	2	0
New Hampshire	8	6	2
New Jersey	3	3	0
New York	31	19	12
North Carolina	3	3	0
Ohio	3	3	0
Pennsylvania	5	5	0
Texas	1	1	0
Virginia	1	1	0
Washington	5	5	0
West Virginia	1	1	0
Totals	135	118	17

TABLE 5.—*Source of Candidates Examined for Licensure in the United States, 1946*

Medical Schools	Number of Schools	Number Examined	Number Passed	Number Failed	Percentage Failed
Approved in United States	69	6,288	6,090	198	3.1
Approved in Canada	9	135	118	17	12.6
Extinct	8	68	63	5	7.3
Foreign	90	494	220	274	55.5
Unapproved schools	13	620	362	258	41.6
Totals	188	7,605	6,853	752	9.9

The 7,605 examinees represented 6,288 graduates of approved medical schools in the United States, of whom 3.1 per cent failed; 135 graduates of approved Canadian schools, 12.6 per cent failures; 68 who graduated from medical schools no longer operating, with 7.3 per cent failures; 494 graduates of faculties of medicine located in countries other than the United States and Canada, 55.5 per cent of whom failed, and 620 graduates of unapproved institutions, with 41.6 per cent failures. The numbers examined in each of these categories were in excess of those examined in 1945. The majority of physicians in the classification of extinct medical schools were graduates of Rush Medical College. Massachusetts, which in former years was compelled by law to license any person applying for licensure and as a result tested the great majority of graduates of unapproved schools in previous years, examined fewer in 1946. The state approving authority in Massachusetts, created some years ago, has ruled that only those graduates who matriculated in medical schools not acceptable to that body prior to Jan. 1, 1941 will be eligible for licensure examinations in the future. Legislation passed in New York, Ohio and Virginia accounts for the increase in the total number of graduates of unapproved schools tested for licensure.

As in table 1, the 7,605 physicians and others examined for medical licensure do not represent an equal number of individuals, since a candidate might take an examination in more than one state and is counted in each state. However, if a candidate fails more than once in a given state within the year he is counted in that state as only one failure.

The greatest number of graduates of any one school examined was 348, representing the University of Illinois College of Medicine, 281 of whom were examined in Illinois and 67 in eighteen other states. More than 175 graduates of four other schools applied for licenses by examination last year, namely Northwestern University (262) in twenty-nine states, University of Minnesota (223) in fifteen states, University of Louisville (184) also in fifteen states, and Hahnemann Medical College (181) in twenty-two states. One hundred or more graduates of seventeen other schools also were tested during the year.

Thirteen approved schools in the United States had no failures before medical licensing boards, thirty-five less than 5 per cent and fourteen between 5 and 10 per cent. There were seven schools with 10 per cent or more failures in state examinations. The highest percentage of failures for any one school (with relatively few examined) was 31.6. These failure figures and percentages are modified by data on those who were examined by the National Board of Medical Examiners in its final examinations as well as those passing state tests (table 6, page 261).

The Medical College of Alabama, which has developed an approved four year program and graduated its first class in October 1946, had none of its graduates appear before licensing boards in 1946.

Three of the five homeopathic boards in existence examined 10 candidates: Connecticut 5, Delaware 4 and Maryland 1. The homeopathic and eclectic boards in Arkansas did not examine any one in 1946, while the homeopathic board in Louisiana registered only by reciprocity.

Graduates of the University of Pennsylvania were examined in the greatest number of states, thirty. Northwestern alumni were tested in twenty-nine states and Harvard Medical School in twenty-eight states. All other schools had their graduates examined in fewer than twenty-six states. Eight schools had graduates examined *in fewer than five states.* All the graduates of Southwestern Medical College examined (33) were tested in Texas.

A total of 135 graduates of the nine approved medical schools in Canada appeared for licensure in the United States in 1946 in twenty-seven states. The figures for individual states are given by schools in table 1 and by totals in table 4. Of the 135 examinees, 17 (12.6 per cent) failed. New York examined 31, Maine 15, California 11 and all other states fewer than 10. The highest percentage of failures was 37.5, in New York. Three Canadian schools had no failures before United States licensing boards. The lowest failure percentage was 4.8. The remaining schools had percentages higher than 8.

Graduates of osteopathic schools were examined by the medical boards of Colorado, Connecticut, Delaware, Indiana, Massachusetts, Nebraska, New Jersey, New York, Ohio, Oregon, Texas, Virginia and Wisconsin, while graduates of unapproved schools were examined in Florida, Illinois, Iowa, Massachusetts, Mississippi, New York, Ohio, Virginia and Washington. There were 620 graduates of unapproved and osteopathic schools, of whom 362 passed and 258, or 41.6 per cent, failed. The numbers of successful candidates in each of these two categories can be ascertained by reference to tables 24 and 25, page 277.

Graduates of faculties of medicine of other countries were examined in twenty-two states. There were 494 such graduates, with 274 (55.5 per cent) failures.

Sixty-eight graduates of medical schools no longer in operation were tested in twenty-four states, of whom 63 passed and 5 (7.3 per cent) failed.

In all five categories mentioned, 7,605 appeared before medical examining boards in 1946, of whom 6,853 passed and 752, or 9.9 per cent, failed. The number tested exceeded the 1945 figure by 1,015.

Totals for the five categories are given in table 5. As already mentioned, from the United States approved schools there were 3.1 per cent who failed, as did 12.6 per cent of the Canadian graduates and 7.3 per cent representing extinct schools. The greatest percentage of failures represented two groups, foreign schools and unapproved schools. In these two groups 55.5 and 41.6 per cent respectively failed.

Elsewhere (see table 12, page 271) are given figures referring to actual licentiates and additions to the medical profession.

CONSOLIDATED EXAMINATIONS

A combination of the individual school results for the two groups appearing for the state medical board examinations and for part III of the examinations of the National Board of Medical Examiners is given in table 6. This table presents a more accurate picture of the performance of physicians in licensure examinations than is given in the preceding tables. It can be noted that in some instances schools having a high percentage of failures before state licensing boards had few, if any, failures before the National Board. In 1946 there were 6,288 graduates of approved medical schools in the United States examined by state boards, of whom 198, or 3.1 per cent, failed. In the same period 1,588 graduates of these institutions appeared for part III of the examination of the National Board, of whom 21, or 1.3 per cent, failed. In the consolidated figures the failures from approved medical schools in the United States were 2.8 per cent.

Of the Canadian graduates 12.6 per cent failed state board tests and 10.1 per cent failed the combined tests. Only 3 graduates of extinct approved medical schools and 7 graduates of foreign medical schools were tested by the National Board; no comparison can be made of these two groups with similar groups examined by state licensing boards. The National Board does not admit to its examinations the graduates of unapproved medical schools in the United States, and from foreign schools it admits only the graduates of the university medical schools of Great Britain and Ireland, provided these graduates have been licensed to practice in the country in which the school attended is located.

The total of all examined before medical licensing boards in the United States in 1946 was 7,605, of whom 6,853 passed and 752, or 9.9 per cent, failed. For both groups—state boards and the National Board—9,237 were examined; 8,464 passed and 773 (8.4 per cent) failed. The total percentage of failures was not greatly

Table 6.—*Consolidated Examinations, State Medical Examining Boards and the National Board of Medical Examiners, 1946*

School	Results by Medical Examining Board Tests		Part III Examination of National Board of Medical Examiners		Total Examined	Totals		%F
	P	F	P	F		P	F	
University of Arkansas....	87	1	3	0	91	90	1	1.1
Coll. of Med. Evan. (Calif.)	78	1	42	2	123	120	3	2.4
Stanford University........	67	1	3	0	71	70	1	1.4
Univ. of California........	144	2	1	0	147	145	2	1.4
Univ. of Southern California	69	1	0	0	70	69	1	1.4
Univ. of Colorado..........	71	0	8	0	79	79	0	0.0
Yale Univ. (Connecticut)..	18	1	72	1	92	90	2	2.2
Geo. Washington Univ. (D.C.)	33	3	74	2	112	107	5	4.5
	61	8	45	1	115	106	9	7.8
	104	8	8	0	120	112	8	6.7
	92	10	1	0	103	93	10	9.7
University of Georgia.....	94	6	0	0	100	94	6	6.0
Loyola Univ. (Illinois)....	138	5	6	0	149	144	5	3.4
Northwestern University...	257	5	24	0	286	281	5	1.7
University of Chicago.....	105	3	4	0	112	109	3	2.7
University of Illinois......	345	3	10	0	358	355	3	0.8
Indiana University.........	96	4	7	0	107	103	4	3.7
State University of Iowa...	60	4	28	0	92	88	4	4.3
University of Kansas......	94	1	0	0	95	94	1	1.1
Univ. of Louisville (Ky.)..	181	3	11	0	195	192	3	1.5
Louisiana State University.	78	1	1	0	80	79	1	1.2
Tulane University.........	165	2	7	1	175	172	3	1.7
Johns Hopkins Univ. (Md.)	82	4	14	1	101	96	5	5.0
University of Maryland....	119	2	8	0	129	127	2	1.6
Boston Univ. (Mass.)......	22	0	68	0	90	90	0	0.0
Harvard Medical School...	95	4	145	0	244	240	4	1.6
Tufts College Med. School..	35	2	128	1	166	163	3	1.8
University of Michigan....	159	3	6	1	169	165	4	2.4
Wayne University..........	53	0	6	0	59	59	0	0.0
University of Minnesota...	222	1	10	1	234	232	2	0.9
St. Louis Univ. (Missouri)	145	6	18	0	169	163	6	3.6
Washington University.....	116	1	5	0	122	121	1	0.8
Creighton Univ. (Nebraska)	65	5	9	0	79	74	5	6.3
University of Nebraska....	92	4	3	0	99	95	4	4.0
Albany Med. Coll. (N. Y.)	4	1	34	1	40	38	2	5.0
Columbia University.......	37	0	113	1	151	150	1	0.7
Cornell University.........	32	2	38	0	72	70	2	2.8
Long Island Coll. of Med	45	4	63	2	114	108	6	5.3
New York Medical College	13	6	93	2	114	106	8	7.0
New York University......	59	9	97	0	165	156	9	5.5
Syracuse University.......	22	6	28	0	56	50	6	10.7
University of Buffalo......	5	1	77	0	83	82	1	1.2
University of Rochester....	33	4	42	0	79	75	4	5.1
Duke University (North Carolina)	31	3	78	0	112	109	3	2.7
Bowman Gray School of Med.	45	0	4	0	49	49	0	0.0
Ohio State University......	90	3	0	0	93	90	3	3.2
University of Cincinnati...	91	3	3	0	97	94	3	3.1
Western Reserve University	93	3	1	0	97	94	3	3.1
University of Oklahoma...	76	0	0	0	76	76	0	0.0
University of Oregon......	94	0	4	0	98	98	0	0.0
Hahnemann, Phila. (Pa.)..	169	12	9	0	190	178	12	6.3
Jefferson Medical College..	162	4	14	1	181	176	5	2.8
Temple University.........	154	5	4	0	163	158	5	3.0
University of Pennsylvania.	151	3	20	1	175	171	4	2.3
University of Pittsburgh...	90	2	3	0	95	93	2	2.1
Woman's Med. College.....	24	0	1	0	25	25	0	0.0
Med. Coll. of South Carolina	47	1	0	0	48	47	1	2.1
Meharry Med. Coll. (Tenn.)	53	4	12	2	71	65	6	8.5
University of Tennessee...	123	5	1	0	129	124	5	3.9
Vanderbilt University......	54	1	7	0	62	61	1	1.6
Baylor University (Texas).	53	1	0	0	54	53	1	1.9
Southwestern Medical Coll.	33	0	0	0	33	33	0	0.0
University of Texas.......	93	0	0	0	93	93	0	0.0
University of Utah........	70	0	2	0	72	72	0	0.0
University of Vermont.....	14	0	25	0	39	39	0	0.0
Med. Coll. of Virginia.....	140	3	2	0	145	142	3	2.1
University of Virginia.....	82	1	2	0	85	84	1	1.2
Marquette Univ. (Wisconsin)	77	6	14	0	97	91	6	6.2
University of Wisconsin...	89	0	1	0	90	90	0	0.0
Subtotals: U. S. Schools	6,090	198	1,567	21	7,876	7,657	219	2.8
Dalhousie Univ. (N. S.)...	10	2	1	0	13	11	2	15.4
Laval Univ. (Quebec).....	12	6	0	0	18	12	6	33.3
McGill University.........	44	4	29	0	77	73	4	5.2
Queen's Univ. (Ontario)...	7	0	0	0	7	7	0	0.0
University of Alberta.....	3	0	1	0	4	4	0	0.0
University of Manitoba....	10	0	1	0	11	11	0	0.0
Univ. of Montreal (Quebec)	5	3	1	0	9	6	3	33.3
Univ. of Toronto (Ontario)	20	1	1	0	22	21	1	4.5
Univ. of Western Ontario..	7	1	0	0	8	7	1	12.5
Subtotals: Canadian Schools	115	17	34	0	169	152	17	10.1
Extinct Medical Schools...	63	5	3	0	71	66	5	7.0
Unapproved Schools.......	362.	258	0	0	620	362	258	41.6
Foreign Medical Faculties..	220	274	7	0	501	227	274	54.7
Totals	6,853	752	1,611	21	9,237	8,464	773	8.4

reduced because of the high percentage of failures before state boards by unapproved and foreign graduates. Sixty approved schools in the United States and 6 in Canada were represented in the National Board examinations.

FAILURES

Data recorded in table 7 refer to failures before medical licensing boards by licentiates of 1946. The United States is divided into two groups—the thirty states and the District of Columbia in which approved four year medical schools are located and those states and territories and possessions which have no medical school within their boundaries. Included is the number who failed state board examinations and were graduates of a medical school located in the state in which they were examined and, for comparison, the number of graduates licensed in a given state who obtained their professional training in schools in other states.

TABLE 7.—*Licensure Failures by Graduates of Approved Schools Located in the State Where Examined and Elsewhere*

States with Medical Schools	Total No. Examined	No. Failures of Schools in State	No. Schools in State Represented at Examinations	Per Cent Failed	No. Failures of Schools Out of State	No. Schools Out of State Represented at Examinations	Per Cent Failed	Per Cent Failed in All U. S. Schools
Arkansas	63	0	1	0.0	0	12	0.0	0.0
California	503	2	4	0.4	3	43	0.6	1.0
Colorado	67	0	1	0.0	0	11	0.0	0.0
Connecticut	45	1	1	2.2	1	24	2.2	4.4
Dist. of Columbia	39	0	3	0.0	0	4	0.0	0.0
Georgia	162	0	2	0.0	2	19	1.2	1.2
Illinois	685	3	4	0.4	3	43	0.4	0.9
Indiana	97	2	1	2.1	0	8	0.0	2.1
Iowa	58	3	1	5.2	0	1	0.0	5.2
Kansas	102	0	1	0.0	0	18	0.0	0.0
Kentucky	163	0	1	0.0	0	6	0.0	0.0
Louisiana	188	1	2	0.5	0	10	0.0	0.5
Maryland	194	0	2	0.0	0	17	0.0	0.0
Massachusetts	61	1	3	1.6	9	24	14.8	16.4
Michigan	213	0	2	0.0	0	21	0.0	0.0
Minnesota	296	0	1	0.0	0	37	0.0	0.0
Missouri	242	0	2	0.0	1	21	0.4	0.4
Nebraska	82	3	2	3.7	0	0	0.0	3.7
New York	268	27	9	10.1	57	36	21.3	31.3
North Carolina	92	0	2	0.0	0	16	0.0	0.0
Ohio	283	3	3	1.1	0	18	0.0	1.1
Oklahoma	65	0	1	0.0	0	0	0.0	0.0
Oregon	52	0	1	0.0	2	7	3.8	3.8
Pennsylvania	457	1	6	0.2	2	21	0.4	0.7
South Carolina	53	0	1	0.0	0	12	0.0	0.0
Tennessee	157	1	3	0.6	0	4	0.0	0.6
Texas	214	1	3	0.5	1	24	0.5	0.9
Utah	78	0	1	0.0	0	10	0.0	0.0
Vermont	5	0	1	0.0	0	0	0.0	0.0
Virginia	161	0	2	0.0	0	2	0.0	0.0
Wisconsin	122	0	2	0.0	1	13	0.8	0.8
Subtotals	5,270	49	69	0.9	82	472	1.6	2.5
States Without Medical Schools								
Alabama	19				0	11	0.0	0.0
Arizona	13				1	9	7.7	7.7
Delaware	16				0	8	0.0	0.0
Florida	414				59	57	14.3	14.3
Idaho	48				0	24	0.0	0.0
Maine	28				0	12	0.0	0.0
Mississippi	41				0	13	0.0	0.0
Montana	15				0	12	0.0	0.0
Nevada	16				3	14	18.7	18.7
New Hampshire	15				1	8	6.7	6.7
New Jersey	93				1	24	1.1	1.1
New Mexico	1				0	1	0.0	0.0
North Dakota	11				0	7	0.0	0.0
Rhode Island	34				0	18	0.0	0.0
South Dakota	10				0	6	0.0	0.0
Washington	117				0	32	0.0	0.0
West Virginia	62				0	21	0.0	0.0
Wyoming	0				0	0	0.0	0.0
Alaska, Hawaii and Puerto Rico	65				2	29	3.1	3.1
Subtotals	1,018				67	306	6.2	6.2

Practically all states require the applicant to receive a general average of 75 per cent and at least 50 per cent in any one subject. In case of failure in not more than two subjects the applicant is entitled to another examination in those subjects within twelve months. A few states consider such individuals as conditioned in the subjects in which they fail and do not report them to the office of the Council on Medical Education and Hospitals as failures. In these instances they are not considered in the calculations in this study. When their grades are raised after a successful test in the subjects in which they failed they are recorded among those who passed.

Forty-nine physicians failed examinations in the state in which they obtained their professional training. This occurred in eleven states. Twenty-seven failed in New York State. Eleven states also reported 82 failures among students who graduated from approved medical schools located in states other than the one in which they were examined. Again, New York reported the greatest number, 57. Massachusetts reported 1 failure from its own schools and nine from twenty-four other schools, 14.8 per cent. Eighteen states reported no failures during the year from graduates of schools located in these states, and twenty states had no failures among graduates of schools in other states. Fourteen states had no failures in either group.

In eighteen states having no medical schools, only five reported failures. A total of 67 failed, of which 59 were in Florida. In this state a written examination is required of every one for licensure, and no reciprocal or endorsement provisions have been established.

The total examined in the first group, states in which approved medical schools are located, was 5,270, while in the second group, states which have no approved school within their boundary, 1,018 were examined.

In table 8 the data are further subdivided by the number of candidates who were licensed after previous failures. The figures are presented for three categories—approved medical schools in the United States and Canada, foreign faculties of medicine and unapproved institutions. These groups are classified according to the number licensed after failing a state board examination once and after two or more failures and indicates whether the single and multiple failures have been in the state where licensed or elsewhere. The total number of candidates in 1946 examined and licensed or granted licenses by reciprocity or endorsement of credentials is shown and the total number of failures in all groups is indicated.

In 1946 there were 16,129 licenses to practice medicine issued. Of these 656 had previously been unsuccessful before a licensing board. From the approved schools 417 had previously failed a state board examination. One hundred and sixty had one failure in their state of licensure and 169 were licensed after one failure in another state. Eighty-eight received licenses after more than one failure, 31 of whom had previously failed in the state where licensed, 47 failed elsewhere and 10 failed in the state where licensed and elsewhere.

One hundred and sixty-four graduates of foreign faculties of medicine and 75 graduates of unapproved institutions were licensed after previous failure.

In the computation of these statistics multiple failures by graduates of unapproved schools and of foreign faculties of medicine reveal the difficulty these individuals experience in passing licensure tests. Eleven failed five times and 33 more than five times before obtaining a license. Of the foreign graduates, 11 had five failures before obtaining a license, 8 failed six times, 5 seven, 3 eight, 3 nine and 1 each failed twelve, fifteen and sixteen tests. The 11 graduates of unapproved institutions failed as follows: five tests, 3; six tests, 4; seven tests, 2, and eight tests, 2. The majority of these physicians with multiple failures were Massachusetts and New York examinees.

In six states all physicians licensed last year had no failure in a state medical examination before being registered. With fourteen exceptions, the number of physicians licensed throughout the country in each state after previously having failed was less than 10.

Table 8.—*Failures Before Medical Licensing Boards by Licentiates, 1946*

	Licenses Issued by Examination, Reciprocity or Endorsement	Approved Schools					Foreign Schools					Unapproved Schools					Total Failures by Licentiates, 1946
		Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			
		Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	
Alabama	179	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	3
Arizona	100	..	2	..	1	1	..	..	..	..	..	..	1	..	..	..	4
	112	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
	2,045	40	22	7	6	1	4	7	..	4	3	..	..	..	..	..	94
	235	..	5	..	..	..	..	1	..	..	..	..	..	..	..	..	6
	318	..	1	..	3	..	..	4	..	2	..	..	..	..	..	..	10
Delaware	31	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	2
District of Columbia	333	1	9	..	1	..	..	..	..	5	..	..	..	..	..	..	16
Florida	318	32	6	2	..	2	..	..	..	..	..	..	..	..	..	..	42
Georgia	291	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	2
Idaho	50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Illinois	1,031	10	7	1	2	1	2	1	3	..	2	1	..	..	..	..	30
Indiana	250	..	4	..	1	..	..	..	..	..	..	..	..	..	..	..	5
Iowa	274	..	3	..	1	..	..	1	..	1	..	..	..	..	..	..	6
Kansas	232	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Kentucky	182	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Louisiana	283	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Maine	91	1	3	..	..	..	..	..	..	1	..	..	..	..	..	..	5
Maryland	343	1	8	..	1	..	1	..	..	..	..	..	..	..	..	..	11
Massachusetts	434	4	..	2	..	..	1	1	..	1	..	5	..	6	..	..	20
Michigan	598	..	7	..	5	..	..	..	..	..	..	..	..	..	..	..	12
Minnesota	380	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Mississippi	134	..	3	..	..	..	..	..	..	..	..	..	..	..	2	..	5
Missouri	473	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	4
Montana	74	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Nebraska	135	5	1	1	..	..	1	1	..	..	..	..	..	..	..	..	9
Nevada	53	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2
New Hampshire	124	..	4	..	1	..	..	..	..	1	..	..	..	..	..	..	6
New Jersey	541	..	10	..	2	..	..	13	1	14	3	..	..	..	..	..	43
New Mexico	59	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
New York	1,513	40	7	18	1	1	24	3	31	..	2	12	6	..	8	8	161
North Carolina	286	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	3
North Dakota	30	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Ohio	680	4	9	..	2	..	..	4	..	6	1	5	1	4	2	..	38
Oklahoma	188	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
Oregon	201	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2
	718	16	6	..	2	2	2	..	..	..	..	..	..	..	..	..	28
	67	..	2	..	1	..	1	1	..	..	..	..	..	..	..	..	5
	109	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	4
	46	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	280	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	4
Texas	779	3	14	..	5	..	..	4	..	..	1	2	..	3	..	..	32
Utah	81	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	3
Vermont	78	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Virginia	403	1	4	..	2	..	..	..	..	..	..	1	..	..	7	..	15
Washington	294	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	4
West Virginia	164	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Wisconsin	364	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Wyoming	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
U. S. Territories and Possessions	101	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2
Totals	16,129	160	169	31	47	10	36	43	36	37	12	26	9	13	19	8	656

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

A summary of the reciprocity and endorsement policies of the medical licensing boards of the various states, the District of Columbia, Alaska, Hawaii and Puerto Rico will be found in table 9. Florida, Idaho and Hawaii have not established reciprocal agreements with regard to medical licensure. Nevada has temporarily suspended reciprocity with all boards, including the National Board of Medical Examiners, by action of the Board of Medical Examiners Aug. 5, 1946, but the state reports that such agreements will probably be restored in the near future. In Massachusetts the medical practice act was amended in 1946 to permit the granting of certificates without examination by endorsement of a license from another state. Massachusetts prior to 1946 had no such reciprocal relations but did license without examination diplomates of the National Board of Medical Examiners. In 1946 also Rhode Island established reciprocal relations with four states. Idaho will endorse diplomates of the National Board of Medical Examiners. There remains only one state which requires a written examination of all applicants for licensure—Florida. Those desiring licenses by reciprocity or endorsement in sixteen states, the District of Columbia and Alaska are required to obtain a certificate from the state board of examiners in the basic sciences before being eligible for licensure.

Twenty-six states and Alaska reciprocate with specifically indicated states.

Twenty-eight states and Puerto Rico, including eight which have specific reciprocity agreements, are given discretionary powers under the medical practice act. These states will register physicians who present credentials which correspond with those required by their respective states at the time such licenses are issued. The states in which diplomates of the National Board of Medical Examiners are accepted for licensure on the basis of these credentials are also indicated.

Specific requirements, such as professional practice, oral examination and internship, are recorded, as is also the fee for a license without written examination. Citizenship prerequisites are mentioned. In some states physicians of Canadian birth are exempt from the citizenship requirement. This is indicated in footnotes. Few states will accept graduates of foreign faculties of medicine on a reciprocal basis. Additional requisites or exemptions are included in footnotes.

This chart is available in reprint form. It has proved to be of material assistance to physicians contemplating locating in another state. The facts recorded in this table are intended to be merely a summary of licensure policies. A physician using this chart for reciprocity purposes should supplement the information contained therein by direct communication with the secretary of the licensing board of the state in which he is interested.

Table 10 records the numbers from individual schools represented by the 9,570 reciprocity licentiates. Every approved medical school in the United States and Canada, with the exception of the Medical College of Alabama, whose first graduating class in 1946 did not

TABLE 9.—*Reciprocity and Endorsement*

		Reciprocates with, or Endorses Certificates Granted by																														
Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama	..	..	+	+	+	..	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	1
2	Arizona	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board)	+	+	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	..	+	+	3
4	California	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (reg. & homeo. bds.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida	No reciprocity or endorsement policies											..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	Georgia	+	..	+	+	+	..	..	+	..	..	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	10
11	Idaho	No reciprocal relations..							..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois	+	..	+	+	+	..	..	..	..	..	..	..	+	+	+	+	+	+	+	..	+	..	+	+	..	+	+	..	+	..	12
13	Indiana	+	..	+	+	+	..	..	+	..	+	..	+[22]	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	+	+	+	13
14	Iowa	+	..	+	+	+	..	+	+	..	+	..	+	+	..	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	14
15	Kansas	+	+	+[19]	+	..	+	+	+	..	+	..	+	+	+	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	15
16	Kentucky	+	..	+	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	..	+	+	+	+	+	+	+	+	+	+	16
17	Louisiana (reg. & homeo. bds.)	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	+	+	17
18	Maine	..	..	+	+	+	..	+	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	+	+	..	+	+	18
19	Maryland (reg. & homeo. bds.)	+	..	+	+	..	..	..	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	+	+	+	+	19
20	Massachusetts	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
21	Michigan	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	+	+	+	+	+	+	..	..	+	..	..	..	+	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	22
23	Mississippi	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	23
24	Missouri	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	..	+	+	+	24
25	Montana	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
26	Nebraska	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	26
27	Nevada [25]	..	..	+[21]	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	..	+	+	..	+	..	..	27
28	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey	+	..	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	..	..	..	+	..	+	..	..	29
30	New Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
31	New York	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
32	North Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	North Dakota	+	..	+	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	..	..	+	..	..	+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	34
35	Oklahoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	+[14]	..	..	38
39	South Carolina	+	..	..	..	..	..	..	+	..	+	..	..	..	..	+	+	+	+	+	..	+	..	..	..	..	+	..	+	+	..	39
40	South Dakota	+	+	+	+	+	..	..	..	..	+	..	..	+	+	+	+	+	..	..	..	+	+	+	..	+	+	+	..	..	+	40
41	Tennessee	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	41
42	Texas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia	+	..	+	+	..	..	+	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	..	+	..	..	+	+	+	45
46	Washington	+	..	..	+	+	..	..	..	..	+	..	..	..	+	..	+	+	..	+	..	+	+	+	+	+	+	..	..	..	..	46
47	West Virginia	+	..	+	..	..	..	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	+	..	47
48	Wisconsin	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	48
49	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Alaska	+	..	+	+	+	+	..	+	..	..	..	..	+	..	+	+	..	..	+	..	+	+	..	+	..	..	+	+	+	..	50
51	Hawaii	No reciprocal relations..							..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52

This summary should be supplemented by direct communication with the

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Some states have additional requirements for graduates of schools outside the United States and Canada.

+, *indicates* reciprocal or endors been estab-
lished; .. indicates no reciprocal or have been
established. (See column—"At the)
dicates full

1. 1st P, first papers required; Œ. citizenship required.
2. In most cases there is a small additional recording or registration fee.
3. I* state of original license grants similar privileges.
4. Internship accepted in lieu of one year's practice.
5. Professional practice required.
6. All applicants must be graduates of a medical school approved by the American Medical Association.
7. Just prec must be within the state.
8. No basic y reciprocity or examina-
9. Basic scie tion in addition to basic science subjects of National Board.
10. Canadian citizens are required to file first papers.
11. *Leading medical schools of Great Britain recognized.*
12. Oral examination required when original license is ten or more years old.
13. Applicant must have resided in the state used as basis of application for one year after date on said certificate.
14. Oral examination required.
15. Unless in practice in another state for five years.
16. Actual practice for a period of three years immediately preceding date of application.
17. Practical, clinical examination required.
18. Foreign graduates only.
19. Regular and Homeopathic boards.
20. Licentiates of Florida, Idaho, Massachusetts, Rhode Island and Hawaii not eligible for license by reciprocity.
21. Regular board.
22. Fee same as applicant's state charges if more than $50.

appear for licensure in any state, had graduates licensed without examination in 1946. More than 300 graduates of two schools were so registered from the University of Illinois and Harvard Medical School. There were more than 200 graduates of nine schools who sought such licensure. The distribution of these figures on the table reflects the movement of physicians to states other than the one in which they obtained their professional training.

One hundred and eighty-three graduates of foreign medical schools obtained endorsement of state licenses in twenty-one states and Puerto Rico, and 252 graduates of thirty schools no longer in operation were registered in forty-one states. The majority of the 252 graduates represented Rush Medical College. This school withdrew from the field of undergraduate medical education a few years ago.

Fifty graduates of schools not included on the Council's list of approved schools were licensed in thirteen states. This number included 43 osteopaths and 7 others.

The credentials presented by physicians granted licenses in 1946 to practice medicine without written examinations are given in table 11. There were 9,570 so registered on the basis of licenses issued by other states, the District of Columbia, the territories or pos-

Policies of Medical Licensing Boards

	Reciprocates with, or Endorses Certificates Granted by																							Requirements						
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	Internship	Professional Practice	Citizenship[1]	Fees, Dollars[2]	Miscellaneous	Marginal Number
1	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	+	+	..	+[3]	+	..	⊕	1[4]	⊕[44]	50	..	1
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕[8]	..	3[4, 7]	⊕	100	42	2
3	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	..	+	+	+	+	..	..	+[9]	⊕	..	1[4]	⊕	50[22]	42	3
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[12]	+[12,43]	..	[41]	1[13]	⊕[45]	100	43	4
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9]	⊕	..	1[4]	1st P	50	42	5
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[30]	+[27]	⊕[15]	..	3[16]	1st P	50	..	6
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[5]	..	⊕	2	⊕	100	..	7
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[27]	⊕	⊕	1	..	50	..	8
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	0	⊕	50	..	10
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	⊕	..	⊕	50	..	11
12	..	+	+	+	+	+	+	..	..	..	+	+	+	+	+	..	+	+	+	+	..	..	+[17]	..	⊕	1	1st P	25	17,42	12
13	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+	..	+	+	+	+	..	..	+	..	..	1[4]	..	50	..	13
14	..	+	+	+	+	..	+	..	..	+	+	..	+	..	+	+	+	+	+	..	..	..	+	⊕	⊕	1[4]	⊕[44]	50	..	14
15	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	+	+	..	..	+	..	..	1[4,7]	⊕	25	42	15
16	..	..	..	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	1[4]	⊕	50	42	16
17	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	..	..	..	..	[33]	1[4]	1st P[40,10]	50[22]	42	17
18	..	..	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	..	..	..	+[14]	..	⊕[18]	1[4]	⊕[44]	52	..	18
19	+	+	..	+	+	+	+	..	+	..	+	+	..	+	+	..	+	+	..	+	..	+	+	..	..	1[4]	1st P	50	42	19
20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	0	1st P	50[28]	..	20
21	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	+[35]	⊕[37]	⊕	1[4]	⊕	55	34	21
22	+	+	..	+	+	+	+	..	..	+	+	..	+	+	+	+	+	+	+	+	..	+	+	⊕	..	0	⊕[44]	75	17,42	22
23	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	+	..	..	..	⊕[44]	50	42,44	23
24	+	+	+	+	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	..	..	+	+[39]	..	⊕[33]	1[4]	⊕[44]	50	..	24
25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	⊕	1[4]	⊕	75	44	25
26	+	+	+	..	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	..	..	+[36]	⊕	..	1[4]	⊕	50	..	26
27	+	..	..	+	+	+	+	..	..	+	+	..	+	+	..	..	+	+	..	+	..	..	+	..	⊕	1[4]	1st P	100	14,42	27
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	0	⊕[44]	20	..	28
29	+	..	+	+	+	..	+	..	..	..	..	+	+	+	+	..	+	+	..	..	..	+	+	..	⊕	0	⊕	100	..	29
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	..	1[4]	1st P	50	42	30
31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	2	1st P	25	..	31
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	0	..	50	42,6	32
33	..	+	..	+	+	+	+	..	..	+	..	+	+	+	+	+	+	+	+	+	..	..	+	..	⊕	1	⊕	50[22]	14,42	33
34	..	+	+	..	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	+	..	..	1[4]	⊕	50	23	34
35	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	⊕	1[4]	⊕	100	42,44,6	35
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[20]	+[9,27]	⊕	⊕	1[4]	⊕	100	42,4	36
37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	2[24]	1st P	100	42	37
38	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	..	..	..	+[14]	+[14]	⊕	⊕	0	1st P	20	..	38
39	..	+	..	+	+	+	+	..	..	..	+	+	..	..	+	..	+	..	+	..	..	..	+	..	..	1[4]	⊕	50	42	39
40	..	+	+	+	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	..	..	..	+	⊕	⊕	1	1st P	50	42	40
41	+	+	..	+	+	..	+	..	+	+	..	+	+	..	+	+	+	+	+	..	..	..	+[30]	⊕	..	0	⊕	100	42	41
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	0	⊕	60	..	42
43	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	[31]	⊕	50	42	43
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[38]	..	⊕	0	⊕	50	..	44
45	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	+	+	+	..	..	+	+	..	⊕[18]	2[26]	⊕[44]	50	..	45
46	..	..	..	+	+	+	+	..	..	+	+	..	+	+	+	..	..	+	..	+	..	..	+[8]	⊕[8]	⊕	0	1st P	25	42	46
47	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	..	..	+	..	⊕	0	⊕	100	42	47
48	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	..	+	..	..	+[14]	..	⊕	⊕	1[29]	⊕	50[22]	42	48
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14]	..	⊕	0	⊕	50	..	49
50	..	+	+	+	+	+	..	..	..	..	+	+	+	+	+	+	+	+	..	..	..	..	+	⊕	⊕	0	⊕	100	6	50
51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	⊕	..	⊕	25	42,6	51
52	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+	..	⊕	1[3]	⊕	25	..	52

secretary of the licensing board of the state in which the physician is interested.

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[23] Oral examination required if applicant's state requires it.

[24] If the applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.

[25] Reciprocity with all states, including National Board of Medical Examiners, temporarily suspended.

[26] Internship accepted—considered equivalent to two years' practice.

[27] Fee $25

[28] Fee for license on basis of National Board certificate, $25.

[29] A two year internship is accepted.

[30] Diplomates of National Board not required to have been in practice for three years.

[31] Same as required of Utah candidates applying for licensure.

[32] Clinical examination required.

[33] Reciprocity applicants only.

[34] Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.

[35] May be licensed after a special (written) supplemental examination.

[36] Fee for license on basis of National Board certificate, $50.

[37] For matriculants after Oct. 15, 1937.

[38] Fee, $20.

[39] Fee, $15.

[40] Permanent license withheld until completion of citizenship.

[41] Graduates of foreign medical schools effective Sept. 15, 1935. Canadian schools exempted effective Sept. 19, 1939.

[42] Graduates of foreign medical schools are not accepted.

[43] Graduates of foreign medical schools must have fulfilled all requirements of California prior to admittance to examination for any certificate used as basis of application to California.

[44] Not applicable to citizens of Canada.

[45] Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or upon proof of requirements similar to those required by California of graduates of foreign medical schools.

TABLE 10.—*Candidates Licensed by*

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist. Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	Marginal Number
	ARKANSAS																					
1	University of Arkansas School of Medicine	4	2	..	7	2	2	..	..	..	3	..	1	2	..	2	..	4	..	1	..	1
	CALIFORNIA																					
2	College of Medical Evangelists	..	1	..	44	6	2	..	8	..	..	..	..	..	1	2	1	1	..	10	5	2
3	Stanford University School of Medicine	1	1	..	16	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	1	3
4	University of California Medical School	..	1	..	3	1	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	4
5	University of Southern California School of Med.	..	..	..	11	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	5
	COLORADO																					
6	University of Colorado School of Medicine	..	..	..	24	5	2	..	..	..	..	..	2	..	3	4	..	..	..	..	..	6
	CONNECTICUT																					
7	Yale University School of Medicine	..	2	..	13	..	38	..	2	..	2	..	5	..	..	4	2	..	4	..	21	7
	DISTRICT OF COLUMBIA																					
8	George Washington University School of Medicine	1	2	..	10	..	1	..	54	..	..	1	6	..	..	3	1	..	2	21	4	8
9	Georgetown University College of Medicine	1	1	1	8	1	6	..	30	..	1	..	1	..	2	1	1	..	3	11	7	9
10	Howard University College of Medicine	..	1	1	11	..	2	..	19	..	..	..	..	2	..	1	..	2	..	2	..	10
	GEORGIA																					
11	Emory University School of Medicine	14	1	1	8	..	..	..	1	..	2	..	..	..	..	..	1	2	1	..	..	11
12	University of Georgia School of Medicine	3	..	..	7	..	..	..	3	..	..	..	..	..	..	..	..	3	1	..	1	12
	ILLINOIS																					
13	ol of Medicine	..	1	..	34	1	..	..	4	..	..	..	11	5	3	6	2	1	..	..	..	13
14	Medical School	2	9	..	72	16	..	1	2	..	..	..	29	5	9	5	2	1	..	4	2	14
15	he School of Medicine	..	..	..	19	..	..	..	4	..	2	..	14	1	1	3	..	..	..	1	..	15
16	llege of Medicine	2	5	1	119	6	1	..	2	..	1	..	25	11	4	4	4	4	..	1	1	16
	INDIANA																					
17	Indiana University School of Medicine	..	..	1	29	2	1	1	3	..	5	..	8	1	4	1	5	..	..	3	..	17
	IOWA																					
18	State University of Iowa College of Medicine	..	1	1	30	8	..	..	2	..	..	..	11	1	17	4	1	..	..	..	..	18
	KANSAS																					
19	University of Kansas School of Medicine	..	1	1	36	3	..	..	1	..	..	..	7	1	6	..	2	..	..	3	..	19
	KENTUCKY																					
20	University of Louisville School of Medicine	6	1	1	22	..	1	..	1	..	4	1	3	11	2	1	5	..	..	1	..	20
	LOUISIANA																					
21	Louisiana State University School of Medicine	6	..	2	9	..	1	..	1	..	1	..	1	..	..	1	..	2	..	2	..	21
22	Tulane University of Louisiana School of Medicine	27	1	3	20	2	3	..	2	..	10	..	4	..	1	2	2	12	..	..	1	22
	MARYLAND																					
23	Johns Hopkins University School of Medicine	2	..	2	27	1	9	..	12	..	6	..	5	1	..	..	1	2	2	4	3	23
24	University of Maryland School of Medicine and College of Physicians and Surgeons	..	..	1	18	1	4	1	13	..	4	..	5	..	..	1	1	2	1	6	2	24
	MASSACHUSETTS																					
25	Boston University School of Medicine	..	1	..	11	..	10	..	..	..	..	..	..	2	1	..	..	..	9	2	66	25
26	Harvard Medical School	1	2	1	42	8	11	..	10	..	3	..	15	1	1	1	1	1	2	3	65	26
27	Tufts College Medical School	2	2	..	18	..	25	..	2	..	..	..	1	1	..	..	1	..	10	..	137	27
	MICHIGAN																					
28	University of Michigan Medical School	3	4	..	53	9	..	..	2	..	1	..	13	3	4	2	4	3	..	4	..	28
29	Wayne University College of Medicine	..	1	..	38	..	2	..	..	..	1	..	3	1	1	..	..	1	..	1	..	29
	MINNESOTA																					
30	University of Minnesota Medical School	..	3	2	56	4	3	..	5	..	..	..	4	..	1	1	1	1	..	2	..	30
	MISSOURI																					
31	St. Louis University School of Medicine	1	3	2	33	4	2	..	3	..	3	..	27	7	6	6	1	3	..	1	..	31
32	Washington University School of Medicine	11	..	..	35	6	2	..	5	..	3	..	23	5	4	14	..	2	..	1	1	32
	NEBRASKA																					
33	Creighton University School of Medicine	..	1	..	21	9	1	..	1	..	..	..	4	..	7	2	..	1	..	2	1	33
34	University of Nebraska College of Medicine	1	4	2	52	13	1	..	1	..	1	..	5	3	14	7	2	4	..	..	..	34
	NEW YORK																					
35	Albany Medical College	..	..	..	5	..	4	..	1	..	..	..	1	1	..	..	1	..	..	2	5	35
36	Columbia University College of Phys. and Surgeons	2	1	2	23	3	9	1	3	..	..	..	1	..	..	..	..	..	..	8	8	36
37	Cornell University Medical College	1	2	1	19	1	10	..	3	..	2	..	..	..	..	..	1	1	..	3	3	37
38	Long Island College of Medicine	2	3	..	23	1	14	..	3	..	1	..	..	..	..	..	..	..	..	5	2	38
39	New York Med. Coll., Flower and Fifth Ave. Hosps.	1	1	1	19	..	11	..	2	..	1	..	1	..	..	2	..	1	..	2	4	39
40	New York University College of Medicine	3	1	1	44	1	10	..	2	..	1	..	2	..	1	3	..	1	..	3	5	40
41	Syracuse University College of Medicine	..	..	..	5	..	5	..	2	..	..	..	1	..	1	..	..	1	..	..	3	41
42	University of Buffalo School of Medicine	..	..	..	14	..	1	..	2	..	3	..	..	..	1	..	..	..	..	2	2	42
43	Univ. of Rochester School of Med. and Dentistry	..	1	..	9	3	2	1	1	..	..	..	3	..	..	..	..	..	1	4	1	43
	NORTH CAROLINA																					
44	Bowman Gray School of Med. of Wake Forest Coll.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Duke University School of Medicine	4	1	..	10	..	1	..	1	..	5	..	2	..	1	..	1	..	..	1	3	45
	OHIO																					
46	Ohio State University College of Medicine	1	..	..	23	..	2	..	..	..	..	..	8	2	1	2	2	2	1	2	..	46
47	University of Cincinnati College of Medicine	3	1	..	38	3	6	..	..	..	2	..	5	2	2	..	10	2	..	2	..	47
48	Western Reserve University School of Medicine	..	1	1	19	2	1	..	2	..	3	..	2	3	1	..	..	..	..	1	..	48
	OKLAHOMA																					
49	University of Oklahoma School of Medicine	1	1	..	16	7	..	..	1	..	1	..	6	..	2	7	1	..	..	2	..	49
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

Reciprocity and Endorsement; 1946

Marginal Number	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 Alaska, Hawaii, Puerto Rico and Virgin Islands	Totals	Marginal Number
1	3	1	2	9	..	1	..	..	6	2	1	1	..	2	7	1	..	..	..	..	2	1	..	..	2	..	1	1	1	..	74	1
2	6	2	1	2	3	3	..	..	..	..	5	1	..	3	5	6	..	1	..	..	9	8	1	..	4	12	..	2	..	4	159	2
3	2	1	..	..	..	..	1	..	..	..	3	..	..	1	..	..	..	..	..	..	1	..	2	..	..	..	..	..	1	..	34	3
4	1	..	..	..	..	1	1	..	1	..	5	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	2	1	..	23	4
5	..	1	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	20	5
6	2	1	..	4	..	1	1	..	1	4	4	..	..	4	3	3	..	..	..	..	1	5	2	..	1	..	..	..	3	..	80	6
7	1	4	..	2	..	1	1	4	6	..	18	2	..	4	..	3	4	5	..	..	..	4	1	1	1	2	1	..	..	1	159	7
8	2	2	..	2	..	..	1	1	8	..	10	3	..	6	..	..	4	..	..	..	..	3	4	..	26	1	1	3	1	..	184	8
9	5	3	1	1	1	..	1	..	9	..	27	1	..	4	2	..	1	1	1	..	1	3	..	..	14	1	..	1	..	..	153	9
10	3	..	..	2	..	..	..	..	10	..	6	..	..	12	..	..	4	..	..	..	..	1	..	..	13	..	1	..	..	..	95	10
11	3	..	1	1	..	..	..	..	..	..	..	5	..	1	..	..	1	..	2	..	6	3	..	..	5	..	2	2	..	..	63	11
12	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	7	..	1	2	..	..	2	..	..	..	..	..	84	12
13	6	..	..	1	1	2	..	1	3	..	2	1	..	7	1	1	1	..	1	..	1	12	2	..	..	..	1	9	1	1	123	13
14	12	10	1	4	8	3	1	1	4	..	4	4	2	4	5	8	4	..	1	4	3	18	8	..	1	4	1	9	..	..	283	14
15	2	..	..	1	1	..	..	..	1	..	3	..	1	2	..	..	..	..	..	2	..	4	4	..	2	4	..	7	..	..	79	15
16	13	1	1	6	2	4	2	..	..	5	4	2	1	6	3	5	1	..	..	..	2	29	..	..	2	3	1	20	1	..	305	16
17	15	..	2	1	..	..	..	..	2	..	8	2	2	7	4	1	5	..	..	..	1	13	1	1	..	1	4	6	..	..	140	17
18	15	4	..	5	..	1	..	..	2	2	7	1	3	2	3	4	2	..	..	2	1	15	1	..	2	7	..	7	2	..	164	18
19	4	..	..	45	..	2	..	1	3	..	1	3	..	8	6	6	..	..	..	..	1	13	..	..	..	4	1	4	..	..	163	19
20	8	1	1	7	..	2	2	..	2	..	11	2	1	26	5	1	3	..	2	..	4	21	8	..	6	6	5	6	1	..	191	20
21	1	1	7	4	..	..	..	1	..	..	12	3	..	..	..	..	..	..	2	..	..	17	..	..	2	1	..	1	1	..	79	21
22	1	6	11	5	1	..	..	1	11	1	9	7	..	..	4	..	2	..	2	..	8	45	..	..	2	2	..	3	1	1	213	22
23	5	1	2	3	1	..	1	2	9	2	25	6	..	5	..	..	10	..	3	..	8	9	3	..	6	3	1	..	..	..	185	23
24	6	3	1	..	1	..	2	3	9	1	26	6	..	2	1	..	8	..	1	..	..	2	..	1	13	..	8	1	..	1	155	24
25	1	1	..	..	..	..	..	10	1	..	17	1	..	1	..	1	2	5	..	..	..	2	2	..	..	2	..	..	..	5	153	25
26	7	4	3	2	1	2	1	14	7	3	31	3	..	15	2	3	13	4	1	1	4	8	1	6	1	4	..	4	..	..	313	26
27	2	2	..	4	..	..	..	16	4	1	24	1	1	9	..	..	8	4	..	..	2	4	..	4	1	..	..	..	..	..	284	27
28	3	3	..	5	1	2	1	..	5	2	15	2	1	20	2	3	4	..	1	..	4	8	..	..	3	4	..	10	..	..	204	28
29	1	1	..	..	1	..	..	..	1	1	3	..	..	3	1	1	..	..	..	..	1	1	..	..	1	1	1	..	..	..	67	29
30	12	8	1	3	5	1	..	1	1	..	8	..	..	8	..	7	1	..	..	5	..	7	1	..	..	5	1	17	3	..	178	30
31	10	2	..	7	6	..	..	..	7	3	16	..	..	34	6	3	7	..	..	1	2	9	2	..	..	11	3	5	..	1	237	31
32	7	2	..	1	1	..	..	..	1	2	8	3	1	7	8	3	3	..	..	1	3	13	3	..	2	9	6	5	3	1	200	32
33	4	2	..	12	4	10	1	2	2	..	8	1	..	6	8	6	..	..	..	11	..	7	..	..	..	4	..	1	5	..	139	33
34	11	11	1	7	1	3	1	..	1	..	6	2	..	5	3	5	3	..	..	3	2	13	1	..	3	5	1	6	5	1	210	34
35	..	..	..	..	..	..	..	2	6	..	38	..	..	2	..	1	1	..	..	..	1	1	..	2	..	..	..	..	1	..	75	35
36	4	1	1	2	2	..	3	9	19	1	59	1	..	5	1	..	7	..	..	..	..	6	..	2	3	2	2	3	1	1	106	36
37	..	..	..	..	1	..	..	3	15	..	31	..	..	4	..	1	8	..	..	..	4	1	..	2	3	2	..	2	..	..	124	37
38	5	2	..	..	..	..	1	1	24	..	58	1	..	6	..	1	8	1	..	..	2	..	..	2	5	..	..	..	..	..	171	38
39	1	..	..	..	..	1	2	..	22	..	127	4	..	2	..	1	6	..	1	..	..	3	..	1	2	1	1	..	..	..	221	39
40	6	1	..	2	..	1	2	4	48	2	77	2	..	8	..	..	6	..	..	..	3	12	..	1	3	1	..	1	1	1	259	40
41	2	2	..	1	..	..	1	..	2	..	21	..	..	2	..	..	2	..	..	..	2	1	1	..	..	1	..	1	..	..	57	41
42	7	2	..	..	..	..	..	2	1	..	100	..	..	8	..	..	1	1	..	..	..	..	..	..	..	..	..	3	..	1	151	42
43	1	..	1	3	..	..	..	2	2	..	27	..	..	3	..	4	3	..	..	..	1	3	1	1	..	2	..	1	..	..	81	43
44	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	..	..	5	44
45	6	3	..	..	..	..	..	2	8	..	11	31	..	5	1	2	4	1	7	..	1	4	..	1	8	..	6	..	..	..	131	45
46	8	1	..	1	1	..	2	..	1	..	2	2	..	..	..	2	2	..	1	..	2	13	..	..	4	..	..	3	..	..	91	46
47	9	..	..	..	..	..	..	..	3	1	1	..	..	3	..	1	3	..	1	..	..	10	..	..	3	..	3	3	..	..	117	47
48	11	2	1	3	1	1	..	1	2	1	2	3	1	..	2	1	2	..	..	..	1	3	1	..	4	4	2	2	..	..	87	48
49	4	3	2	2	..	1	..	..	2	3	..	1	..	1	3	4	..	..	..	..	2	14	..	..	..	2	..	2	..	..	91	49
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

TABLE 10.—*Candidates Licensed by Reciprocity*

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist. Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	Marginal Number
	OREGON																					
50	University of Oregon Medical School	..	..	..	17	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	50
	PENNSYLVANIA																					
51	Hahnemann Med. Coll. and Hosp. of Philadelphia	4	..	..	15	1	2	1	2	..	1	..	..	3	..	1	..	1	..	1	..	51
52	Jefferson Medical College of Philadelphia	3	1	1	28	1	4	..	4	..	3	1	5	4	4	1	1	2	..	6	2	52
53	Temple University School of Medicine	1	1	..	16	2	1	1	3	..	1	..	..	..	3	..	..	2	1	4	..	53
54	University of Pennsylvania School of Medicine	1	1	..	16	2	3	1	3	..	5	..	10	..	3	7	2	1	1	7	5	54
55	University of Pittsburgh School of Medicine	2	..	..	20	1	..	..	4	..	..	..	3	1	..	..	2	..	1	..	..	55
56	Woman's Medical College of Pennsylvania	..	..	..	4	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	56
	SOUTH CAROLINA																					
57	Medical College of the State of South Carolina	..	..	..	2	..	1	..	..	..	5	..	1	..	..	..	..	1	..	..	..	57
	TENNESSEE																					
58	Meharry Medical College	2	..	1	26	1	2	..	3	..	11	..	3	5	..	1	..	5	..	..	..	58
59	University of Tennessee College of Medicine	13	..	11	21	2	2	1	1	..	4	..	4	..	1	3	14	7	..	2	..	59
60	Vanderbilt University School of Medicine	5	2	1	5	1	1	..	1	..	5	..	2	..	..	3	13	3	..	1	..	60
	TEXAS																					
61	Baylor University College of Medicine	1	3	1	9	3	2	..	1	..	3	..	1	..	1	1	..	3	..	..	..	61
62	Southwestern Medical College of the Southwestern Medical Foundation	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	62
63	University of Texas School of Medicine	2	1	2	8	4	..	..	1	..	..	..	1	..	..	4	2	6	..	..	..	63
	UTAH																					
64	University of Utah School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
	VERMONT																					
65	University of Vermont College of Medicine	..	..	..	6	..	9	..	1	..	1	..	..	..	..	..	..	..	1	2	7	65
	VIRGINIA																					
66	Medical College of Virginia	2	1	..	4	..	1	..	5	..	3	..	..	..	..	1	2	2	..	1	..	66
67	University of Virginia Department of Medicine	2	..	1	8	1	1	1	10	..	7	..	..	2	..	..	1	1	1	7	..	67
	WISCONSIN																					
68	Marquette University School of Medicine	..	..	..	26	4	..	..	2	..	..	..	5	..	2	..	..	..	..	2	..	68
69	University of Wisconsin Medical School	..	3	1	18	3	1	..	4	..	..	..	5	2	3	..	..	..	..	..	..	69
	CANADA																					
70	Dalhousie University Faculty of Medicine	..	..	..	2	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	70
71	Laval University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	71
72	McGill University Faculty of Medicine	..	..	1	13	1	7	..	4	..	..	..	1	..	..	3	..	..	..	1	5	72
73	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	73
74	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	74
75	University of Manitoba Faculty of Medicine	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75
76	University of Montreal Faculty of Medicine	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	76
77	University of Toronto Faculty of Medicine	..	1	..	10	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	77
78	University of Western Ontario Faculty of Medicine	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	78
	OTHERS																					
79	Foreign Medical Faculties	..	..	..	30	..	18	1	14	..	..	..	..	1	6	..	..	..	1	2	..	79
80	Extinct Medical Schools	4	6	..	73	..	3	..	5	..	3	..	11	13	..	5	1	..	2	1	..	80
81	Unapproved Schools	..	2	..	..	..	..	4	1	..	..	..	1	7	1	..	..	..	..	..	..	81
82	Totals	148	88	49	1,606	158	269	15	289	0	124	3	320	111	128	123	98	94	46	162	374	82
	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

session or foreign countries, the certificate of the National Board of Medical Examiners or one of the government services.

The 9,570 licensed by this method exceeded those so licensed in any previous year. The year which nearest approximates the 1946 figure was 1945, when 3,615 physicians were licensed in this way. The number securing licenses by reciprocity or endorsement has been steadily increasing but not to the extent which was evident in 1946. The return of medical officers to private practice in states other than those in which they were located before entering military service would appear to account for the 1946 increase. The almost universal recognition of former state licenses on the part of the medical licensing boards of the United States, permitting physician veterans to resume practice soon after separation from service, is highly commendable.

California issued 1,606 licenses by this method, and New York issued 1,081. Six other states endorsed 300 or more candidates, namely Illinois 320, Massachusetts 374, Michigan 318, New Jersey 425, Ohio 390 and Texas 513. In every state there was an increase over the number licensed in 1945. In many instances the increase was more than tripled, indicating an improved distribution of physicians. The largest number of candidates presenting the same type of credentials were the 2,654 diplomates of the National Board of Medical Examiners. On the basis of the National Board certificate *754* were certified in New York, *374* in Massachusetts and *247* in California.

More than 600 presented licenses issued in Illinois and New York. The greatest number licensed in any one state presenting a like state license were 225 Illinois licentiates who secured licenses in California. Other states registered 166 holding California licenses, while that state licensed on credentials 1,606 physicians from *and Endorsement, 1946—Continued*

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		
Marginal Number	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii, Puerto Rico and Virgin Islands	Totals	Marginal Number
50	1	1	..	1	1	1	..	..	..	..	2	1	..	1	..	25	2	..	..	..	..	1	1	..	..	17	..	3	..	..	79	50
51	8	..	..	1	..	..	1	1	21	..	11	1	..	9	2	..	28	..	1	..	2	6	..	..	7	2	2	1	..	2	132	51
52	3	1	..	1	..	..	..	1	11	3	17	5	..	10	2	1	23	..	3	..	3	4	..	2	5	1	4	2	..	2	175	52
53	1	1	1	4	1	..	1	..	9	..	13	5	..	6	..	..	13	..	1	2	2	7	..	1	2	..	1	2	..	3	112	53
54	1	3	3	4	1	1	1	3	13	1	21	4	1	13	3	3	23	..	2	..	3	8	4	3	10	8	2	3	..	..	210	54
55	3	..	1	..	..	1	..	1	5	..	8	..	..	6	..	..	2	..	..	..	2	4	..	1	5	4	1	..	..	..	78	55
56	2	..	2	..	..	..	..	..	2	..	5	..	..	3	..	..	2	1	..	..	..	..	..	..	1	..	..	2	..	..	27	56
57	..	..	1	1	..	..	..	..	..	..	2	11	..	4	..	..	2	..	1	..	1	1	..	..	5	..	1	1	..	..	41	57
58	15	..	6	19	..	..	..	..	7	..	7	11	..	8	2	..	4	..	5	..	2	13	..	..	8	..	2	..	..	..	169	58
59	2	..	15	12	..	1	1	..	1	1	2	6	..	2	7	..	..	..	..	1	5	29	1	..	2	1	3	..	..	..	178	59
60	3	..	7	4	2	..	..	..	1	..	1	6	..	7	2	..	..	..	3	..	3	19	..	..	7	1	1	..	..	..	110	60
61	2	..	1	2	..	..	..	..	..	4	3	1	..	2	3	2	2	..	..	..	1	3	1	..	3	..	..	2	1	..	62	61
62	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	62
63	6	1	2	3	..	..	..	..	..	2	2	..	..	2	2	1	..	..	1	..	..	..	1	..	..	1	..	2	..	..	57	63
64	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	64
65	..	1	..	..	..	..	..	5	4	..	20	1	..	..	..	..	2	..	..	..	..	1	..	26	..	..	2	..	..	..	59	65
66	2	3	1	1	1	..	..	..	2	1	13	12	..	5	1	..	3	..	2	..	4	5	..	..	5	..	16	1	..	1	101	66
67	3	1	..	1	..	..	1	1	4	..	12	6	1	2	..	..	3	..	1	..	7	3	..	1	1	2	7	1	..	..	101	67
68	7	4	..	..	2	1	..	..	3	..	8	..	..	2	1	1	2	..	1	..	..	..	..	..	3	4	..	15	1	..	96	68
69	3	6	..	1	1	..	..	..	..	1	4	..	..	3	1	3	1	..	..	..	..	6	..	..	3	2	..	28	..	..	103	69
70	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	13	70
71	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	71
72	1	1	1	..	..	..	..	3	4	1	9	5	..	..	..	1	..	..	..	..	..	2	..	1	1	4	1	2	..	..	78	72
73	..	..	..	..	..	..	..	..	1	..	3	..	..	1	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	8	73
74	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	74
75	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	6	75
76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	76
77	4	..	1	1	..	..	..	..	..	..	8	2	..	4	1	2	..	..	..	..	..	2	..	..	..	1	..	1	..	..	40	77
78	1	..	..	1	..	..	..	..	..	..	4	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	13	78
79	2	..	1	1	..	1	..	3	53	2	18	..	..	18	..	..	..	..	..	..	..	5	..	1	3	..	..	1	..	1	183	79
80	14	3	5	4	3	5	4	1	4	4	4	4	1	11	3	4	2	1	..	3	3	16	1	1	5	3	1	10	2	3	252	80
81	..	..	..	..	..	1	..	..	..	..	..	..	..	7	..	12	..	..	..	..	..	1	..	..	1	..	..	11	1	..	50	81
82	318	121	89	223	57	55	38	104	425	58	1,081	191	17	390	169	148	258	25	56	36	125	513	61	64	229	164	100	241	38	31	9,570	82
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

other states. California held reciprocity meetings in almost every month in 1946 to speed the issuance of licenses. In contrast with California, 614 licentiates of Illinois were licensed in other states while it endorsed 320 physicians. No physician holding a New Mexico license applied for registration in another state during the year; only one physician from Idaho did so. Florida, with no reciprocity or endorsement policies, was the only state which required every one of its 1946 licentiates to pass a written examination.

One physician was admitted to private practice in the Virgin Islands on presentation of satisfactory credentials. One hundred and eighty-eight medical officers of one of the government services received licenses without written examination or by endorsement in nine states: California 71, Illinois 15, New Mexico 3, Pennsylvania 4, Texas 12, Utah 5, Virginia 3, Wisconsin 74 and Wyoming 1.

Forty physicians who were legal residents of Pennsylvania and were qualified to take the state board examination but were prevented from doing so by their service in the armed forces were licensed without examination in Pennsylvania under the provisions of Act No. 132, approved April 25, 1945.

Fourteen physicians were licensed in seven states on credentials from one of the possessions of the United States, and twenty-two on the basis of Canadian or foreign licenses.

Included in table 10 are 43 osteopaths licensed without examination. These occurred in Delaware, District of Columbia, Indiana, Ohio, Oregon, Wisconsin and Wyoming.

Diplomates of the National Board were registered on the basis of this credential by forty-four licensing boards in the United States and by the boards of Hawaii and Puerto Rico last year. There were 2,654 individuals who presented National Board credentials.

TABLE 11.—*Candidates Licensed by Reciprocity and Endorsement*

		Source of Former License or Credentials																																																					
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
State Issuing *License by* Reciprocity or Endorsement	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Govt. Services	National Board of Medical Examiners	U. S. Terr. and Possessions	Canadian & Foreign	Miscellaneous
Alabama	148	..	..	4	1	..	..	..	1	..	17	..	6	1	..	..	5	28	..	3	..	5	1	6	11	..	1	..	..	..	..	3	2	..	5	1	1	4	..	..	..	19	3	..	..	5	..	..	..	..	..	15	..	..	..
Arizona	88	..	..	2	3	1	2	..	..	..	1	..	16	..	2	..	1	1	..	1	2	3	4	..	4	1	4	..	..	1	..	7	..	..	2	2	..	2	..	..	2	2	4	..	1	2	..	1	3	..	..	11	..	..	..
Arkansas	49	..	..	..	..	..	..	..	..	..	1	..	1	1	1	2	1	4	..	1	..	..	4	2	2	..	2	..	..	1	..	4	1	..	1	..	..	..	..	..	..	11	3	..	..	1	..	..	1	..	..	4	..	..	..
California	1,606	1	5	4	..	18	4	..	1	5	16	1	225	32	24	43	19	30	3	35	6	97	71	1	54	1	50	2	..	14	..	132	6	5	99	14	13	84	3	1	5	43	16	3	2	16	25	7	51	..	71	247	1	..	..
Colorado	158	..	..	2	2	..	..	..	2	..	..	..	17	1	7	3	..	2	1	1	..	11	6	..	9	..	20	..	..	..	..	9	..	..	5	8	2	4	..	..	..	5	9	..	..	1	1	..	6	..	..	24	..	..	..
Connecticut	269	..	..	2	3	1	..	..	..	..	..	..	4	1	1	..	..	3	3	11	5	3	4	1	2	..	..	..	1	2	..	50	2	..	10	..	..	9	1	..	..	4	1	..	4	3	..	1	2	..	..	129	..	..	..
Delaware	15	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Dist. Columbia	289	..	..	..	7	1	2	..	..	..	5	..	9	4	2	3	1	2	1	37	..	4	..	..	7	1	2	..	1	8	..	22	3	..	8	1	..	14	..	..	1	6	2	..	..	23	..	1	2	..	..	106	2	1	..
Florida	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	..	..	..
Georgia	124	5	..	3	..	..	..	..	..	..	..	..	..	5	..	1	3	8	..	10	..	2	2	3	5	..	..	..	..	2	..	..	2	..	7	1	..	3	..	5	..	19	3	..	1	10	1	1	1	..	..	20	1	..	..
Idaho	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Illinois	320	..	..	1	10	4	..	..	1	..	..	..	..	9	12	8	4	7	..	9	..	20	3	1	55	..	4	..	..	5	..	..	1	..	21	4	1	15	..	..	..	9	5	1	..	1	..	1	20	1	15	72	..	..	..
Indiana	111	..	..	2	3	..	1	..	..	..	1	..	30	..	1	2	11	..	..	1	..	9	..	..	18	..	4	..	..	1	..	2	2	..	8	..	1	5	..	..	..	5	..	..	..	1	..	..	3	..	..	...	..	..	..
Iowa	128	..	..	1	1	4	..	..	..	..	..	..	12	4	..	7	1	..	..	..	..	7	4	1	11	..	19	..	..	1	..	4	..	..	5	2	..	10	..	..	..	1	2	..	..	..	1	..	5	..	..	25	..	..	..
Kansas	123	..	..	2	3	..	..	..	2	..	..	..	11	1	5	..	1	7	..	..	..	4	..	..	24	..	8	..	1	1	..	..	..	..	5	7	..	4	..	..	..	8	5	..	..	2	..	..	1	1	..	20	..	..	..
Kentucky	98	1	..	1	..	..	..	..	..	..	..	..	9	5	1	2	..	3	..	1	..	4	1	3	1	..	2	..	..	..	..	1	..	..	14	1	..	6	..	..	..	26	2	..	..	3	..	1	..	..	..	10	..	..	..
Louisiana	94	4	..	4	..	..	..	..	..	..	6	..	5	..	..	..	..	..	..	6	..	4	1	12	6	..	4	..	..	1	..	2	4	..	4	..	..	1	..	3	1	13	10	..	..	3	..	..	..	..	..	...	..	..	..
Maine	46	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	3	..	..	..	..	1	..	..	3	..	..	..	..	..	..	1	1	..	1	..	..	..	28	..	..	..
Maryland	162	2	..	1	5	1	1	2	19	..	..	..	4	4	1	3	1	1	2	..	..	4	1	..	1	..	1	..	..	2	..	26	3	..	5	2	..	13	..	1	..	2	..	..	..	8	..	4	..	..	..	42	..	..	..
Massachusetts	374	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	374	..	..	..
Michigan	318	..	..	3	9	2	1	..	1	..	3	..	34	17	16	7	6	1	1	15	1	14	..	1	15	..	12	..	..	1	..	16	1	..	35	4	..	18	..	1	..	17	9	1	1	6	5	2	9	..	..	33	..	..	..
Minnesota	121	..	..	1	5	2	..	..	..	..	2	..	..	..	6	..	1	5	..	2	..	6	..	1	4	..	12	..	..	..	..	2	..	..	3	3	..	3	..	..	1	1	..	..	1	5	2	..	9	..	..	44	..	..	..
Mississippi	89	2	..	2	..	..	..	..	2	..	1	..	2	2	..	..	1	19	..	3	..	..	1	..	..	..	1	..	..	1	..	1	..	..	4	1	..	4	..	1	..	23	3	..	..	1	..	2	..	..	..	11	..	1	..
Missouri	223	..	..	9	1	3	2	..	..	..	2	..	9	2	7	54	6	9	..	4	..	5	3	1	..	..	10	..	..	..	..	7	2	..	3	1	..	6	..	..	1	36	5	..	..	2	1	..	2	..	..	30	..	..	..
Montana	57	..	..	..	6	..	..	..	..	..	..	..	4	..	1	..	..	..	..	2	1	4	9	..	8	..	4	..	..	..	..	1	..	..	2	..	1	2	..	..	1	2	..	1	..	2	2	..	4	..	..	...	..	..	..
Nebraska	55	..	..	1	4	..	..	..	..	..	..	..	9	..	6	4	2	1	..	..	..	2	5	..	..	..	..	..	..	2	..	2	..	..	1	1	1	1	..	..	..	2	..	..	..	..	..	..	4	..	..	7	..	..	..
Nevada	38	..	..	..	5	1	..	..	..	..	..	..	4	..	..	..	2	..	1	3	..	1	..	..	..	..	1	..	..	..	..	7	..	..	2	..	..	1	..	..	..	1	..	2	..	..	..	..	..	..	..	7	..	..	..
New Hampshire	104	..	..	..	..	..	1	..	..	..	..	..	2	..	..	1	..	2	8	4	11	..	..	..	..	..	1	..	..	3	..	5	..	..	1	..	..	4	..	..	..	..	..	..	6	1	..	..	..	..	..	51	1	2	..
New Jersey	425	1	..	4	1	1	..	2	1	..	..	..	2	2	1	4	..	10	3	26	3	4	1	..	7	..	1	..	..	..	..	147	3	..	7	1	..	47	1	..	..	9	1	..	2	7	..	..	1	..	..	125	..	..	..
New Mexico	58	..	1	2	..	3	..	..	..	..	1	..	6	..	3	..	..	1	1	..	..	5	..	..	4	..	..	..	..	1	..	3	..	..	4	3	..	2	..	..	..	1	7	..	..	1	..	..	1	..	3	5	..	..	..
New York	1,081	1	..	..	19	3	..	2	3	..	..	..	1	10	11	..	..	22	..	49	2	24	8	..	15	..	8	..	..	4	..	..	4	..	3	..	1	65	..	..	..	..	7	..	6	27	2	..	7	..	..	754	7	16	..
North Carolina	191	1	..	1	1	..	..	1	1	..	6	..	7	3	1	3	2	8	..	10	1	2	..	2	4	..	1	..	..	2	..	7	..	..	8	1	2	11	..	12	1	20	1	..	1	19	..	3	..	..	..	48	..	..	..
North Dakota	17	..	..	..	..	..	..	..	..	..	..	..	5	2	2	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	..	..	..
Ohio	390	..	..	2	5	3	4	1	2	1	..	..	18	8	3	9	27	..	4	8	6	20	8	..	52	1	7	..	..	4	..	37	1	1	..	1	1	49	2	2	..	15	4	..	..	10	1	4	3	..	..	66	..	..	..
Oklahoma	109	..	..	7	6	3	..	..	1	..	1	..	8	4	6	7	5	3	..	..	1	5	1	..	9	..	2	..	..	..	..	..	..	..	3	..	..	8	..	..	..	10	9	..	..	1	..	..	1	..	..	8	..	..	..
Oregon	148	..	..	1	13	3	..	..	..	..	1	..	14	1	11	4	1	2	..	..	..	6	14	..	11	1	6	..	..	1	..	3	1	1	6	5	..	2	..	..	1	..	4	..	1	..	11	..	3	..	..	20	..	..	..
Pennsylvania	258	..	..	..	..	..	2	2	..	4	..	..	4	6	2	..	2	1	1	21	1	6	1	..	6	..	2	..	1	14	..	28	10	..	13	..	1	..	..	1	..	4	2	1	..	9	1	3	1	..	4	63	1	..	40
Rhode Island	25	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	..	..	..
South Carolina	56	1	..	..	..	..	..	..	..	..	10	..	..	..	..	..	2	3	..	4	..	2	..	..	..	..	..	..	..	1	..	..	7	..	2	..	..	4	..	..	..	6	1	..	..	3	..	1	1	..	..	8	..	..	..
South Dakota	36	..	..	..	..	1	..	..	..	..	..	..	..	..	5	1	..	1	..	..	..	2	11	..	..	..	7	..	..	..	..	..	..	2	1	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	..	..	..
Tennessee	125	3	..	3	5	..	..	..	..	..	6	..	8	2	1	1	4	6	..	7	2	3	2	6	8	..	1	..	..	3	..	11	4	..	7	1	..	12	..	..	..	..	1	..	..	9	..	1	..	..	..	8	..	..	..
Texas	518	4	..	..	13	..	..	1	..	..	5	..	60	12	15	16	21	49	1	14	..	8	..	13	25	..	15	..	..	1	..	40	5	1	34	18	..	17	..	2	1	56	..	..	..	4	..	1	10	..	12	39	..	..	..
Utah	61	..	..	..	7	1	..	..	..	..	..	..	4	1	1	1	8	1	..	2	..	..	5	1	5	..	..	1	..	..	..	..	..	..	1	..	..	2	..	..	..	..	2	..	..	..	..	..	2	..	5	11	..	..	..
Vermont	64	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	8	..	..	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	46	..	1	..
Virginia	229	2	..	2	2	1	..	..	26	..	5	..	3	..	2	..	5	3	..	21	..	6	..	1	6	..	3	..	..	2	..	18	7	..	10	..	..	24	1	6	..	15	2	..	..	..	..	5	6	..	3	41	..	1	..
Washington	164	..	..	..	16	1	..	..	..	..	..	..	..	1	8	..	6	1	..	4	..	6	16	2	21	..	7	..	..	..	..	..	..	..	5	1	14	11	..	..	..	2	..	2	..	2	..	..	5	..	..	32	1	..	..
West Virginia	100	1	..	..	..	..	..	..	..	..	2	..	2	5	..	1	5	..	..	10	..	2	2	..	11	..	1	..	..	1	..	..	1	..	5	..	..	5	..	1	..	6	..	..	2	21	..	..	..	..	..	16	..	..	..
Wisconsin	241	1	..	1	2	..	..	..	..	..	..	..	56	6	5	5	5	3	..	..	..	8	12	1	23	..	4	..	..	..	..	8	1	2	6	1	2	1	..	1	1	1	5	1	..	2	3	..	..	..	74	...	..	..	..
Wyoming	38	..	..	1	6	6	..	..	..	..	..	..	2	..	3	1	1	1	..	..	..	..	3	..	2	..	5	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	1	2	..	..	..
Alaska, Hawaii, Puerto Rico & Virgin Islands	31	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	1	5	..	..	..	..	..	..	..	1	..	..	..	..	..	18	..	..	1
Totals	9,570	30	6	69	166	64	20	11	64	10	94	1	614	154	173	193	161	249	30	330	44	319	204	59	448	5	232	3	4	86	0	624	73	12	367	86	42	492	8	37	16	401	128	15	29	215	56	40	165	2	188	2,654	14	22	41
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55

LICENTIATES REPRESENTING ADDITIONS TO THE MEDICAL PROFESSION

Licentiates of 1946 who received their first license to practice medicine and surgery during the year and therefore represent additions to the medical profession in the United States and its territories and possessions are recorded in table 12. The figures in this compilation represent candidates examined in 1946 and licensed, some who were examined in the previous year but whose licenses were withheld pending completion of a required internship, citizenship and other technicalities, and those without a state license who were during the year certified on the basis of the examinations of the National Board of Medical Examiners, government services or Canadian and foreign credentials.

TABLE 12.—*Licentiates Representing Additions to the Medical Profession, 1946*

	Examination	Reciprocity and Endorsement	Total
Alabama	24	9	33
Arizona	3	0	3
Arkansas	63	1	64
California	395	75	470
Colorado	72	8	80
Connecticut	34	80	114
Delaware	13	0	13
District of Columbia	24	42	66
Florida	57	0	57
Georgia	151	11	162
Idaho	14	3	17
Illinois	579	56	635
Indiana	135	0	135
Iowa	89	14	103
Kansas	96	12	108
Kentucky	81	4	85
Louisiana	182	0	182
Maine	33	12	45
Maryland	179	12	191
Massachusetts	40	304	344
Michigan	271	16	287
Minnesota	182	29	211
Mississippi	43	3	46
Missouri	242	13	255
Montana	10	0	10
Nebraska	77	4	81
Nevada	5	3	8
New Hampshire	19	27	46
New Jersey	107	75	182
New Mexico	1	5	6
New York	273	495	768
North Carolina	95	28	123
North Dakota	6	1	7
Ohio	287	42	329
Oklahoma	79	0	79
Oregon	45	5	50
Pennsylvania	435	75	510
Rhode Island	21	8	29
South Carolina	51	7	58
South Dakota	4	1	5
Tennessee	154	0	154
Texas	233	22	255
Utah	12	6	18
Vermont	13	29	42
Virginia	167	9	176
Washington	77	9	86
West Virginia	36	6	42
Wisconsin	100	35	135
Wyoming	0	2	2
Alaska, Canal Zone, Hawaii, Puerto Rico, Virgin Islands	46	6	52
Totals	5,355	1,604	6,959

There were 6,959 additions to the medical profession in 1946. By reference to table 1 it can be noted that 16,129 licenses were issued during the year, indicating that 9,170 had previously been licensed. The number of physicians removed by death in the United States, possessions and territories, and those physicians temporarily located in a foreign country in the same period was 3,358.[2] Thus the physician population in the United States was increased by 3,601. Actually the physician population figure is considerably higher at the present time by the return of medical officers to private practice in view of the 16,129 licenses issued, which exceeded the 1945 figure by 6,477. While these physicians cannot be considered additions to the medical profession since they were licensed prior to entry into military service, many of them may be considered to be graduates who received their training under the A. S. T. or Navy V-12 programs and entered military service on completion of a nine month internship but who obtained state licensure before doing so but were not engaged in the,

TABLE 13.—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1946*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	33	12	45
New Hampshire	19	27	46
Vermont	13	29	42
Massachusetts	40	304	344
Rhode Island	21	8	29
Connecticut	34	80	114
	160	460	620
Middle Atlantic			
New York	273	495	768
New Jersey	107	75	182
Pennsylvania	435	75	510
	815	645	1,460
East North Central			
Ohio	287	42	329
Indiana	135	0	135
Illinois	579	56	635
Michigan	271	16	287
Wisconsin	100	35	135
	1,372	149	1,521
West North Central			
Minnesota	182	29	211
Iowa	89	14	103
Missouri	242	13	255
North Dakota	6	1	7
South Dakota	4	1	5
Nebraska	77	4	81
Kansas	96	12	108
	696	74	770
South Atlantic			
Delaware	13	0	13
Maryland	179	12	191
District of Columbia	24	42	66
Virginia	167	9	176
West Virginia	36	6	42
North Carolina	95	28	123
South Carolina	51	7	58
Georgia	151	11	162
Florida	57	0	57
	773	115	888
East South Central			
Kentucky	81	4	85
Tennessee	154	0	154
Alabama	24	9	33
Mississippi	43	3	46
	302	16	318
West South Central			
Arkansas	63	1	64
Louisiana	182	0	182
Oklahoma	79	0	79
Texas	233	22	255
	557	23	580
Mountain			
Montana	10	0	10
Idaho	14	3	17
Wyoming	0	2	2
Colorado	72	8	80
New Mexico	1	5	6
Arizona	3	0	3
Utah	12	6	18
Nevada	5	3	8
	117	27	144
Pacific			
Washington	77	9	86
Oregon	45	5	50
California	395	75	470
	517	89	606
Territories and Possessions			
Alaska	0	0	0
Hawaii	6	1	7
Puerto Rico	40	4	44
Virgin Islands	0	1	1
	46	6	52
Totals	5,355	1,604	6,959

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[2] J. A. M. A. **133**: 108 (Jan. 11) 1947.

private practice of medicine. The number in this group is not known, but it is probable that the effective addition to the profession is in excess of the figures shown in table 12.

Analyzing table 12, it can be noted that New York had the greatest number of first licentiates, 768. Illinois was second, with 635. Two states, California and Pennsylvania, had more than 400. There were additions to the profession in every state last year. Comparison with 1945 figures shows increases in some states and decreases in others. Of the smaller states in terms of population increases over 1945 figures were noted in Idaho, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oregon and Wyoming, which suggests a measure of improvement in the distribution of physicians and likewise of medical care.

Table 14.—*Licentiates Representing Additions to the Medical Profession, 1935-1946*

Year	Examination	Reciprocity and Endorsement	Total
1935	5,099	411	5,510
1936	5,548	629	6,177
1937	5,812	612	6,424
1938	5,759	501	6,260
1939	5,584	460	6,044
1940	5,432	455	5,887
1941	5,240	473	5,713
1942	5,558	454	6,012
1943	5,585	372	5,957
1944	6,490	470	6,960
1945	4,941	768	5,709
1946	5,355	1,604	6,959
Totals	66,403	7,209	73,612

The 6,959 licentiates constituting additions to the medical profession last year represented 5,355 who secured their licenses by examination and 1,604 by endorsement of credentials. The latter were mainly diplomates of the National Board of Medical Examiners.

Increases in the physician population arranged in nine geographic divisions of the United States are shown in table 13. The East North Central and Middle Atlantic group of states added the greatest number, 1,521 and 1,460 respectively. More than 500 were added in five other groups—New England 620, West North Central 770, South Atlantic 888, West South Central 580 and Pacific 606. The East South Central states added 318, the Mountain states 144 and the territories and possessions 52. Alaska did not add a single physician to the medical profession last year in this compilation of first licenses.

In the last twelve years there were 73,612 physicians added to the profession in the United States (table 14); 66,403 were licensed after a successful written examination and 7,209 by reciprocity or endorsement. In the same period 115,503 licenses were issued, 75,293 by examination and 40,210 by endorsement of credentials. Thus 41,891 licenses were obtained in this twelve year period by physicians who had previously been licensed to practice medicine.

Estimated figures indicate that on March 15, 1947 the number of physicians in continental United States including those licensed in 1946 and those still in military service was 197,605. This figure does not represent the practicing physician manpower of the country, because many licensed physicians are engaged in such activities as research, teaching and administration. Others are retired.

LICENSURE UNDER THE ACCELERATED PROGRAM

The majority of physicians who obtained their professional training under the wartime accelerated program have thus far experienced no difficulty in obtaining licensure on that account. All states as well as the District of Columbia, Alaska, Hawaii and Puerto Rico made adjustments in their licensure legislation or practices, where these were required, to facilitate the licensure of graduates under the accelerated program. Legislation in four instances (District of Columbia, Georgia, Illinois and Minnesota) is such as might not always fully provide for students who have completed all their medical school work under the accelerated program and spend a week or two less than thirty-six months in a medical school.

PREMEDICAL TRAINING

The minimum requirement of the Council on Medical Education and Hospitals for admission to approved medical schools since 1918 has been two years of college training, and in 1938 three years was recommended. With the exception of California and Nebraska (table 15) the state licensing boards, by statute in the majority of instances, require that an applicant for licensure must present evidence of having completed two years of college. The two year requirement will become effective in Connecticut on July 1, 1947. In November 1942 the Council on Medical Education and Hospitals recommended that, for the duration of the war, premedical education, including satisfactory courses in physics, biology and inorganic and organic chemistry, be included within two calendar years. Such a program was adopted by practically all medical schools in the United States and Canada. There is a distinct trend toward the establishment of the prewar requirements. There are now sixty-seven of the eighty-seven schools requiring three or more years of premedical work.

An important problem regarding premedical requirements is posed by the many excellent educational opportunities at the high school and college level afforded men in the armed forces. The American Council on Education recommends the awarding of certain high school and college credits for courses taken by members of the armed forces (*a*) by correspondence through the "Armed Forces Institute," which operates in collaboration with colleges and universities, and (*b*) in

Table 15.—*Requirements of Premedical Training by Medical Licensing Boards*

Two Years or More of College

Alabama
Alaska
Arizona
Arkansas
Canal Zone
Colorado
Connecticut *
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virgin Islands
Virginia
Washington
West Virginia
Wisconsin
Wyoming

One Year of College

California

High School Graduation or its Equivalent

Nebraska

* Effective July 1, 1947

classroom work in various schools operated for men and women in the armed services.

The American Council on Education, representing higher education in this country, has carefully evaluated the content and quality of the many courses given in both these categories. It has issued the "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist colleges desiring to do so to award proper high school and college credit for specific courses taken in this program.

In addition to awarding credit for courses actually taken, as already described, there is a program for evaluating a veteran's learning experiences while in the armed forces by administering "general educational development tests" and awarding appropriate credit at the high school and college levels on the basis of the examination results, even though formal course work in the subject matter of the examination was not taken by the candidate. These are comprehensive examinations developed by the Armed Forces Institute and sponsored by the American Council on Education.

The Council on Medical Education and Hospitals has agreed to these recommendations in principle in the following statement:

> *High School and College Credit for Veterans*
>
> A. Courses at the high school and college level have been offered to members of the armed forces,
>
> 1. by correspondence through the "Armed Forces Institute," which operates in collaboration with colleges and universities, and
>
> 2. in classroom work in various schools operated for men and women in the armed services.
>
> The American Council on Education, representing higher education in this country, has carefully evaluated the content and quality of the many courses given in both these categories. It has issued the "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist colleges desiring to do so to award proper high school and college credit for specific courses taken in this program.
>
> B. In addition to awarding credit for courses actually taken, as described in A, there is a program for evaluating a veteran's knowledge in a given field by administering "General Educational Development Tests" and awarding appropriate credit at the high school and college levels on the basis of the examination results, even though formal course work in the subject matter of the examination was not taken by the candidate. These are comprehensive examinations developed by the Armed Forces Institute and sponsored by the American Council on Education.
>
> C. The Council on Medical Education and Hospitals of the American Medical Association (*a*) has confidence in the American Council on Education and its "Guide to the Evaluation of Educational Experiences in the Armed Forces," in the Armed Forces Institute and in the General Educational Development tests and (*b*) wishes to support sound procedures permitting veterans to commence their education in civilian institutions at a level commensurate with their ability and knowledge. Therefore the Council has decided that approved medical schools desiring to accept students at the freshman level partially on the basis of high school or college awarded credit as described in A and B will not be in conflict with the Council's regulations and policies, except that college credit for science courses requiring laboratory work should not be allowed on this basis, nor should blanket credit be allowed for military service not based on courses or examinations. Specifically, a medical college may accept, in partial fulfilment of premedical requirements:
>
> 1. High school credits, based on
>
> (*a*) Courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces."
>
> (*b*) Performance in the General Educational Development Tests; such credit may include the equivalent of a complete high school course.
>
> 2. College credits (except in science courses requiring laboratory work, or except blanket credits for military services not based on courses or examinations), based on
>
> (*a*) Courses taken from the Armed Forces Institute or in service courses of the armed forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces."
>
> (*b*) Performance in the General Education Development Tests.

The licensing boards of all but four states have indicated that the awarding of premedical credits under this plan by approved medical schools as the equivalent of the required premedical training will satisfy the requirement for licensure.

The Army Specialized Training and Navy V-12 premedical programs called for less than two years of college training, but in both these programs the studies were continuous and provided for the student carrying more than the normal peacetime studies per semester. Both the Army and Navy programs provided for work well in excess of the sixty semester hours constituting the normal two academic years of medical study. The information received from those states whose licensure laws include specific premedical requirements seems to indicate that there should be no licensure difficulties encountered by students whose premedical work was taken under the Army Specialized Training or Navy V-12 or comparably accelerated civilian programs.

TABLE 16.—*Medical Schools Requiring an Internship*

College of [illegible]
University [illegible] ool of Medicine
Stanford [illegible]
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine
University of Alberta Faculty of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

TABLE 17.—*Medical Licensing Boards Requiring a One Year Internship* †

Alabama
Alaska
Canal Zone
Delaware*
District of Columbia
Hawaii*
Idaho
Illinois*
Iowa*
Michigan*
Montana
Nevada
New Hampshire
New Jersey*
New Mexico
North Dakota*
Oklahoma
Oregon
Pennsylvania*
Puerto Rico
Rhode Island*
South Dakota
Utah*
Vermont
Virgin Islands
Washington*
West Virginia
Wisconsin*
Wyoming

† Some states require the internship from graduates of medical faculties abroad and from reciprocity or endorsement applicants.

* Internship must be rotating service.

REQUIRED INTERNSHIPS

The medical schools requiring an internship for the M.D. degree are shown in table 16. There are six schools in the United States and four in Canada with this requirement. There has been no change in this list in the past three years. In the academic year 1945-1946 there were 488 students of schools in the United States and 156 from Canadian schools, a total of 644, engaged in the required year of internship training or research.

Although relatively few schools require the internship for the M.D. degree, this is a requirement for licensure by twenty-three state medical licensing boards, the District of Columbia, Alaska, the Canal Zone, Hawaii Puerto Rico and the Virgin Islands (table 17). These states have returned to the prewar requirement of a one year internship but will continue to accept the nine month wartime internship. Table 18 lists these states and indicates the relationship of their requirement to the former nine month internship. Eight states, the Connecticut homeopathic examining board, Alaska, the Canal Zone, Hawaii and Puerto Rico will accept the nine month internship as fulfilling the internship requirement. Eleven states and the District of Columbia require an additional three months in a civilian hospital or military service but will permit applicants for licensure to write the examination but withhold the license until this is completed. In four states and the Virgin Islands medical officers will be required to show completion of a year's internship, three months of which may be in military service.

The licensing boards of Delaware, Hawaii, Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island, Utah, Washington and Wisconsin require the internship to be a rotating service.

A few of the medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals of the American Medical Association is generally used.

TABLE 18.—*Relationship of the Former Nine Month Internship to Licensure*

	Additional Three Months in Civilian Hospital or Military Service Required	
Accepted as Fulfilling Internship Requirement	Will Give Examination at End of Nine Months	Will Not Give Examination Until Completion of Year's Service
Alaska	Alabama [1]	Illinois [2]
Canal Zone	Delaware	New Mexico
Connecticut (homeo. board)	Dist of Columbia [1]	Utah
Hawaii [3]	Iowa [1]	*Virgin Islands*
Idaho	North Dakota	West Virginia
Michigan [1]	Oregon [1]	
Montana [1]	Rhode Island [1]	
Nevada	South Dakota [1,2]	
New Hampshire	Vermont	
New Jersey	Washington [1]	
Oklahoma [1]	Wisconsin	
Pennsylvania	Wyoming	
Puerto Rico [2]		

1. Will also give examination on completion of the medical course but withhold license until internship is completed.
2. Military medical service must be in a military hospital.
3. License issued after year's residence.

LICENSURE FOR MEDICAL OFFICERS

In February 1946[3] the Federation of State Medical Boards published a statement based on a canvass of respective licensing boards of the country on several points pertaining to the licensure of returning medical officers. The text of this report indicates that medical officers will be required to satisfy peacetime licensure regulations except in a few instances where special consideration is given to such applications. However, in several ways the medical licensing boards have attempted to be of assistance to medical officers in returning to the private practice of medicine, i. e. the issuance of temporary permits, relaxation of the one year internship requirement and the licensure of physicians by reciprocity and endorsement of credentials. At present there is only one state—Florida—which requires a written examination of all applicants for medical licensure. Reciprocity meetings have been held at more frequent intervals than previously. The advantage of this procedure is evidenced by the fact that in 1946 there were 9,570 so licensed as compared with 3,615 licensed in 1945.

The medical practice acts of most states, by opinion of the attorney general in several instances, do not provide for the acceptance of government credentials as a basis for licensure without examination. The boards of four states may issue a license without examination to a physician who has passed an examination for admission to the medical corps of the U. S. Army, Navy or Public Health Service. These states are California, Illinois, Utah and Virginia. Act No. 132, approved April 25, 1945, provides for the licensure of legal residents of Pennsylvania who were qualified in every respect to take the state board examinations in Pennsylvania but were prevented from doing so by reason of enlistment or induction into the military or naval forces of the United States in World War II. In South Dakota former medical officers of World War II are exempted by law from the basic science board examination. In Wisconsin honorably discharged officers of the government services may be licensed without examination. New York and Ohio will admit graduates of unapproved medical schools to its examinations under certain conditions.

The Bureau of Information of the American Medical Association is continuing to help veteran medical officers with their medical practice and relocation problems. This is done through close association with state and county medical societies as an entirely voluntary effort without any attempt to direct the location of a physician.

An officer can obtain a brief but comprehensive picture of the economic status of any particular area he is interested in from the data contained on county summary sheets. This includes data on population, principal cities, physicians' hospital and medical facilities and pertinent economic, social and financial information. A copy of this summary sheet is forwarded to the inquirer, and a copy of the letter to him is sent to the state and county medical society concerned.

In addition to the information contained on the summary sheets, other data are available for interested officers. Requests for full or part time salaried medical positions from industries, institutions and other organizations, requests from practicing physicians for associates, needs for specialists and requests of individuals for practices are cross filed and kept current by a return post card system which keeps the Bureau of Information informed of final locations, filling of vacancies and the securing of physicians.

At its December 1945 meeting the Council on Medical Education and Hospitals of the American Medical Association passed the following resolution:

> The Council on Medical Education and Hospitals of the American Medical Association does not intend to remove any hospital from the lists of hospitals approved for internships or residencies which furnishes teaching facilities to any veteran medical officer who is eligible for educational benefits under the Servicemen's Readjustment Act, provided the veteran is legally eligible for medical licensure in the state in which the hospital is located.

This action of the Council was approved by the Federation of State Medical Boards at its meeting on Feb. 12, 1946. The American College of Surgeons is also in accord with this policy of the Council on Medical Education and Hospitals.

TEMPORARY PERMITS

The licensing boards of thirteen states, Alaska and Puerto Rico provide for the issuance of temporary permits. These states, the length of validity of the permit and the number of permits granted during the last calendar year are shown in table 19. Nevada, North Dakota and Pennsylvania discontinued this emergency regulation in 1946, while Nebraska was added to the list. There were 809 temporary permits granted during the year as compared with 323 in 1945.

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[3] J. A. M. A. **131**: 124 (May 11) 1946.

TABLE 19.—*Temporary Permits, 1945*

State	Permit Valid for:	Permits Granted
Alaska	6 months	13
Arizona	3 months	106
Florida	Next board meeting	..
Georgia	Next board meeting	90
Indiana [1]	6 months	92
Kentucky	1-5 years (limited license)	1
Louisiana	Next board meeting	94
Maine [2]	Duration of war	2
Mississippi	Next board meeting	82
New Hampshire	Varies	..
New Mexico	Next board meeting	..
Puerto Rico	Until 1950	43
Virginia	Next board meeting	86
Washington [3]	Next board meeting	182
West Virginia	Next board meeting	18
Total		809

1. Reciprocity applicants.
2. Discontinued Jan. 1, 1947.
3. Medical officers of World War II.

ANNUAL REGISTRATION

Thirty states, the District of Columbia, Alaska and Hawaii require physicians to register their licenses annually. In table 20 are listed the licensing boards which have such a requirement and the fee charged. Some of these boards require such registration whether or not physicians reside in the states.

CANDIDATES EXAMINED, 1942-1946

In table 21 are tabulated the numbers of candidates examined in the various states, territories and possessions in the five year period from 1942 to 1946 inclusive. For each year there is recorded the number who passed and failed licensing examinations. Totals for the five year period and the percentage of candidates who failed are also given.

During this five year period 35,976 examinations were given: 31,811 were successful tests and 4,165 (11.6 per cent) failures. New York leads in the number of examinations given. In this state in the last five years 2,878 passed the licensure examination. More than 2,000 also were successful in California, Illinois and Pennsylvania. More than 1,000 were examined in seven other states and passed, namely Louisiana, Maryland, Michigan, Minnesota, Missouri, Ohio and Texas.

TABLE 20.—*States Requiring Annual Registration*

	Fee		Fee		Fee
Alaska	$10	Idaho	$2	New York *	$4
Arizona	3	Indiana	5[c]	North Dakota	[e]
Arkansas	[a]	Iowa	1	Oklahoma	3
California	2	Kansas	1	Oregon	10
Colorado	[b]	Louisiana	2	Pennsylvania	1
Connecticut	2	Minnesota	2	South Dakota	5[c]
Delaware	10	Missouri *	1	Texas	2
Dist. of Columbia	2	Montana	[d]	Utah	3
Florida	1	Nebraska	1	Washington	5
Georgia	None	Nevada	2	Wisconsin	3
Hawaii	2	New Mexico	..	Wyoming	2.50

a. Residents $2, nonresidents $4.
b. Residents $2, nonresidents $10.
c. Effective July 1, 1947.
d. Residents $5, nonresidents $1.
e. Residents $5, nonresidents $2.
* Biennial registration

The highest percentage of failures (57.9) occurred in Massachusetts. This high percentage is due to the fact that, by law, the licensing board admitted to its examinations the graduates of unapproved medical schools and graduates of osteopathic schools, many of whom repeatedly fail. A recent amendment to the medical practice act established a State Approving Authority. This body has ruled that students matriculated in institutions not meeting the standards of the Authority after Jan. 1, 1941 will not be eligible to take the licensing examination.

TABLE 21.—*Candidates Examined, 1942-1946*

	1942		1943		1944		1945		1946		Totals for Five Years		
	P	F	P	F	P	F	P	F	P	F	P	F	%F
Alabama	34	0	20	0	20	0	23	0	20	0	117	0	0.0
Arizona	9	0	6	0	11	0	11	0	12	1	49	1	2.0
Arkansas	62	0	65	0	115	0	65	0	63	0	370	0	0.0
California	459	15	507	12	458	14	467	11	530	11	2,421	63	2.5
Colorado	68	3	113	3	79	3	66	0	77	0	403	9	2.9
Connecticut	59	31	62	12	34	18	31	12	55	10	241	83	25.6
Delaware	7	0	9	0	27	0	5	0	16	1	64	1	1.5
District of Columbia	27	0	42	2	26	2	20	1	41	0	156	5	3.1
Florida	110	8	129	8	130	9	198	37	373	62	940	124	11.7
Georgia	96	0	195	0	125	1	124	0	167	2	707	3	0.4
Idaho	12	1	9	1	15	0	18	0	54	0	108	2	1.8
Illinois	421	48	391	29	218	25	415	31	751	33	2,196	166	7.0
Indiana	129	0	233	0	126	0	231	0	139	16	858	16	1.8
Iowa	44	1	106	8	83	8	68	1	56	3	357	21	5.6
Kansas	99	0	86	0	179	0	101	0	102	0	567	0	0.0
Kentucky	86	0	161	1	78	0	76	0	166	0	567	1	0.2
Louisiana	175	0	228	2	255	4	208	1	189	1	1,055	8	0.8
Maine	42	6	29	3	13	3	9	3	45	4	138	19	12.1
Maryland	165	11	296	14	151	4	193	8	204	4	1,009	41	3.9
Massachusetts	201	251	257	294	162	261	124	175	89	163	833	1,144	57.9
Michigan	196	0	299	2	189	0	194	0	215	0	1,093	2	0.2
Minnesota	199	1	290	0	197	0	217	0	313	0	1,216	1	0.1
Mississippi	43	2	113	1	71	0	50	0	45	0	322	3	0.9
Missouri	182	1	421	1	207	0	258	1	250	1	1,318	4	0.3
Montana	7	1	4	0	3	0	2	0	17	0	33	1	2.9
Nebraska	77	2	155	15	81	11	74	7	80	5	467	40	7.9
Nevada	1	0	0	1	1	0	1	1	15	3	18	5	21.8
New Hampshire	3	3	5	4	9	4	6	1	20	4	43	16	27.1
New Jersey	110	10	150	11	104	11	95	9	116	5	575	46	7.4
New Mexico	0	0	1	0	0	0	0	0	1	0	2	0	0.0
New York	1,071	660	634	443	454	362	287	247	432	385	2,878	2,097	42.2
North Carolina	77	0	115	0	105	0	132	1	95	0	524	1	0.2
North Dakota	6	1	1	0	3	0	4	0	13	0	27	1	3.6
Ohio	274	6	622	22	329	25	325	13	340	10	1,890	76	3.9
Oklahoma	54	0	114	0	72	0	69	0	68	0	377	0	0.0
Oregon	45	0	52	5	11	5	19	1	50	3	177	14	7.3
Pennsylvania	456	21	475	12	853	20	426	13	463	3	2,673	69	2.5
Rhode Island	35	0	20	0	13	3	6	0	40	0	114	3	2.6
South Carolina	46	0	91	0	51	1	58	0	53	0	299	1	0.3
South Dakota	5	0	6	0	3	0	6	0	10	0	30	0	0.0
Tennessee	190	0	201	0	237	0	193	2	156	1	977	3	0.3
Texas	289	15	195	4	303	3	228	7	266	14	1,281	43	3.2
Utah	14	0	27	0	30	0	13	0	78	0	162	0	0.0
Vermont	24	1	19	0	7	0	2	0	5	0	57	1	1.7
Virginia	145	1	264	1	158	9	39	2	174	2	780	15	1.9
Washington	60	0	54	1	76	0	34	0	130	0	354	1	0.3
West Virginia	27	0	23	0	24	0	20	0	64	0	158	0	0.0
Wisconsin	124	1	179	0	74	0	96	0	123	1	596	2	0.3
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0.0
U. S. Territories and Possessions	54	5	14	2	39	0	35	2	72	4	214	13	5.7
Total Examined	7,225		8,402		6,815		5,929		7,605		35,976		
Passed	6,119		7,488		6,009		5,342		6,853		31,811		
Failed	1,106		914		806		587		752		4,165		
Percentage Failed	15.3		10.9		11.9		9.9		9.9		11.6		

New York had a failure percentage of 42.2, occasioned in large part by the admittance to examination of a considerable number of graduates of foreign medical schools, who likewise repeatedly fail in large numbers. The number of such graduates admitted to licensure has been decreasing in the last few years. However, the recent regulation admitting certain graduates of unapproved medical schools to its licensure examination resulted in a high percentage of failures in 1946. Other high failure percentages occurred in Connecticut, Nevada and New Hampshire. On the other hand, thirty-seven states failed less than 5 per cent in the five year period. These included nine states which had no failures: Alabama, Arkansas, Kansas, New Mexico, Oklahoma, South Dakota, Utah, West Virginia and Wyoming. The percentage of failures in all states has decreased from 15.3 in 1942 to 9.9 in 1946. The lowest percentage of failures in this five year period occurred in 1945 and 1946, when 9.9 per cent failed.

These figures represent examinations given and not individuals examined. A candidate who fails more than once in a state in a given year is counted only once, but should he also fail in a succeeding year he is counted in that year also. The same is true of successful candidates who migrate to other states. This group represents a recapitulation of the statistics computed annually and assembled for comparative purposes. It gives only a fair approximation of the number of physicians added to the profession in five years by the written examination method. Table 12, page 271, gives the corrected compilation of the number of physicians representing additions to the medical profession.

TABLE 22.—*Registration of Physicians, 1904-1946*

Year	Examined	Passed	Percentage Failed	Reciprocity or Endorsement	Total Registered
1904	7,056	5,693	19.3	1,005	6,698
1905	7,178	5,688	20.8	394	6,082
1906	8,040	6,373	20.7	1,502	7,875
1907	7,279	5,731	21.3	1,427	7,158
1908	7,775	6,089	21.7	1,284	7,373
1909	7,295	5,865	19.6	1,381	7,246
1910	7,011	5,719	18.4	1,640	7,359
1911	6,964	5,582	19.8	1,243	6,825
1912	6,880	5,467	20.5	1,273	6,740
1913	6,453	5,253	18.6	1,292	6,545
1914	5,579	4,379	21.5	1,439	5,818
1915	5,334	4,507	15.5	1,399	5,906
1916	4,878	4,151	14.9	1,353	5,504
1917	4,753	4,084	14.1	1,360	5,444
1918	3,667	3,184	13.2	1,047	4,231
1919	4,750	4,074	14.2	2,546	6,620
1920	4,796	4,062	15.3	2,558	6,620
1921	4,825	4,228	12.4	2,186	6,414
1922	4,031	3,539	12.2	2,073	5,612
1923	4,727	4,028	14.8	2,405	6,433
1924	5,392	4,756	11.8	1,923	6,679
1925	6,002	5,450	9.2	1,861	7,311
1926	5,770	5,314	7.9	1,955	7,269
1927	5,389	5,002	7.2	2,176	7,178
1928	5,458	5,090	6.7	2,228	7,318
1929	5,629	5,282	6.2	2,420	7,702
1930	5,571	5,255	5.7	2,366	7,621
1931	5,611	5,263	6.2	2,211	7,476
1932	5,675	5,247	7.6	1,885	7,132
1933	5,673	5,244	7.6	1,989	7,233
1934	6,145	5,628	8.4	2,161	7,789
1935	6,443	5,859	9.1	2,196	8,055
1936	6,917	6,223	10.0	2,775	8,998
1937	7,334	6,604	10.0	3,203	9,807
1938	7,461	6,589	11.7	2,956	9,545
1939	7,754	6,493	16.3	2,872	9,365
1940	7,926	6,291	20.7	2,865	9,156
1941	7,539	6,057	19.7	2,759	8,816
1942	7,222	6,119	15.4	2,469	8,588
1943	8,402	7,488	10.9	2,339	9,827
1944	6,814	6,008	11.9	2,594	8,602
1945	5,929	5,342	9.9	3,615	8,957
1946	7,605	6,853	9.9	9,570	16,423

REGISTRATION, 1904-1946

A tabulation of totals and percentages for forty-three years (1904-1946) is included in table 22. This compilation covers physicians registered by written examination and by reciprocity or endorsement of credentials. There is no definite trend in the numbers annually registered from 1904 to 1933, although in 1918 the number registered dropped to the all time low record of 4,231. After 1933 there was an upward trend for a time, followed by a decline during the years 1941 and 1942. The decline of more than 1,200 in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life during World War I. By contrast in 1943 the number registered increased 1,239 over the preceding year. The increase is a result of the accelerated curriculum and the universal effort on the part of the medical leaders of the country to maintain a steady flow of physicians for both civilian and military practice. In 1943 more physicians were examined than in any previous year. A large majority of these were recent graduates who secured licenses before assuming military duties.

The number registered in 1946 was almost twice as many as were registered in 1945. Separation from service of a large number of medical officers and their return to private practice in states other than those in which they were licensed accounts in large part for this increase.

The percentage of failures gradually dropped from 19.3 in 1904, when a great many proprietary medical schools were functioning, to 5.7 in 1930. Improvements in the standards of medical education are reflected in this decrease of failures in licensing examinations. With the migration of European physicians to this country beginning in 1936 and the resultant licensure difficulties, the proportion of failures began to rise, reaching another peak of 20.7 per cent in 1940. In the last two years the number of foreign graduates and graduates of unapproved schools applying for licensure has considerably decreased.

In analyzing this table it should be remembered that the figures refer to examinations given rather than to individuals examined.

GRADUATES OF APPROVED SCHOOLS AND OTHERS REGISTERED, 1922-1946

The educational fitness of physicians registered for the practice of medicine in twenty-five years is recorded in table 23. In the computation of these figures, schools rated as class A and B by the Council on Medical Education and Hospitals of the American Medical Association since 1907 are classified as approved. In the column "Others" are included individuals who graduated prior to 1907, when the first classification of schools was made, graduates of foreign faculties of medicine, class C graduates, osteopaths given recognition by medical licensing boards and graduates of schools not approved by the Council. In 1928 the classification A, B and C by the Council was discontinued and a list of approved medical schools has since been maintained.

TABLE 23.—*Graduates of Approved Schools and Others Registered, 1922-1945*

	Graduates of Approved Schools		Others		
	Number	Per Cent of Total	Number	Per Cent of Total	Totals
1922	4,519	80.5	1,093	19.5	5,612
1923	5,196	80.8	1,237	19.2	6,433
1924	5,687	85.1	992	14.9	6,679
1925	6,314	86.4	997	13.6	7.311
1926	6,441	88.7	828	11.3	7,269
1927	6,410	89.4	768	10.6	7,178
1928	6,585	90.1	733	9.9	7.318
1929	7,003	91.0	699	9.0	7,702
1930	7,011	92.1	610	7.9	7,621
1931	6,932	92.8	544	7.2	7,476
1932	6,675	93.7	457	6.3	7,132
1933	6,774	93.7	459	6.3	7,233
1934	7,172	92.1	617	7.9	7,789
1935	7,362	91.5	693	8.5	8,055
1936	7,932	88.2	1,066	11.8	8,998
1937	8,389	85.6	1,418	14.4	9,807
1938	8,315	87.1	1,230	12.9	9,545
1939	8,067	86.2	1,298	13.8	9,365
1940	7,781	85.0	1,375	15.0	9,156
1941	7,767	88.1	1,049	11.9	8,816
1942	7,290	84.9	1,298	15.1	8,588
1943	8,639	87.8	1,188	12.2	9,827
1944	7,733	89.9	870	10.1	8,603
1945	8,227	91.9	730	8.1	8,957
1946	15,588	94.9	835	5.1	16,423
Total	185,809	89.0	23,084	11.0	208,893

There were 16,423 candidates registered in 1946, of whom 15,588 (94.9 per cent) represented graduates of approved schools and 835 (5.1 per cent) were in the second group.

In the twenty-five year period 208,893 were registered, including 185,809 approved graduates (89 per cent) and 23,084 others (11 per cent). Since 1922 the annual number of graduates of approved schools has increased well beyond 4,500, representing 80 to 90 per cent of those annually registered. Until the influx of foreign graduates in 1936, those in the second group subsequent to 1924 were fewer than 1,000. The number in this group was considerably decreased in 1945, but in 1946 there were 105 more registered than in the preceding year.

TABLE 24.—*Graduates of Unapproved Medical Schools Registered, 1941-1946*

	Examination						Reciprocity & Endorsement						Total
	1941	1942	1943	1944	1945	1946	1941	1942	1943	1944	1945	1946	
Arizona	0	0	0	0	0	0	0	0	0	0	0	2	2
California	1	0	0	0	0	0	0	0	0	0	4	0	5
Florida	0	0	0	0	0	1	0	0	0	0	0	0	1
Illinois	51	51	57	45	115	45	0	0	0	0	0	1	365
Indiana	0	0	0	0	0	0	0	1	0	0	0	0	1
Iowa	0	0	0	0	0	1	1	0	0	0	0	1	3
Kentucky	0	0	2	0	0	0	0	0	0	0	0	0	2
Massachusetts	90	105	177	102	38	24	0	0	0	0	0	0	536
Mississippi	0	1	0	1	0	4	0	0	0	0	0	0	6
Missouri	1	0	1	0	0	0	0	0	0	1	1	0	4
Nebraska	0	0	0	0	0	0	0	0	0	0	0	1	1
Nevada	0	0	0	0	0	0	0	0	0	1	2	0	3
New Hampshire	0	0	0	0	0	0	0	0	0	0	1	0	1
New Jersey	0	0	0	0	0	0	8	0	0	0	0	0	8
New Mexico	0	0	1	0	0	0	0	0	0	0	1	0	2
New York	0	0	0	0	0	111	0	0	0	0	0	0	111
Ohio	0	0	0	0	0	6	0	0	0	0	0	0	6
Texas	0	0	0	0	0	0	0	0	0	0	0	1	1
Virginia	0	0	1	5	3	10	0	0	0	0	0	1	20
Washington	0	0	0	0	0	2	0	0	0	0	0	0	2
Wisconsin	0	0	0	0	0	0	0	0	1	0	1	0	2
Hawaii	1	0	1	0	0	0	0	0	0	0	0	0	2
Totals	144	157	240	153	156	204	9	1	1	2	10	7	1,084

GRADUATES OF UNAPPROVED SCHOOLS REGISTERED, 1941-1946

Recorded in table 24 are data regarding graduates of institutions which do not meet the minimum essentials of an acceptable medical school as outlined by the House of Delegates of the American Medical Association and administered by the Council on Medical Education and Hospitals. This table shows the numbers registered as medical licentiates in the United States and Hawaii by written examination or endorsement of credentials in the past six years, 1941 to 1946 inclusive. Figures are given separately for those licensed by written examination and by endorsement of credentials. In the six years shown, twenty-one states and Hawaii registered 1,054 by examination and 30 by endorsement of credentials. In 1946 there were 211 registered, 204 by examination and 7 without written examination in Arizona, Florida, Illinois, Iowa, Massachusetts, Mississippi, Nebraska, New York, Ohio, Texas, Virginia and Washington.

Illinois, which accepts for licensure the graduates of an unapproved school located in that state, and Massachusetts licensed the largest number of graduates of unapproved schools. In the latter state the institutions referred to in the table were not granted approval by the State Approving Authority of that state. Matriculants after Jan. 1, 1941 are not eligible for licensure in Massachusetts. Regulations have become effective in New York, Ohio and Virginia providing for licensure of unapproved graduates under certain conditions. In the latter two states they apply to physician veterans only. In some states (Mississippi, for example) licensure is sometimes obtained by special act of the legislature.

GRADUATES OF SCHOOLS OF OSTEOPATHY REGISTERED BY MEDICAL EXAMINING BOARDS, 1941-1946

The numbers of graduates of schools of osteopathy granted the privilege of practicing medicine or surgery or both by the examining boards of fourteen states and the District of Columbia for six years (1941-1946) are given in table 25. There have been 954 such individuals registered since 1941, 802 by examination and 152 without examination. In 1946 there were 201 so registered, 158 by examination and 43 by reciprocity in thirteen states—Colorado, Connecticut, Delaware, District of Columbia, Indiana, New Jersey, New York, Ohio, Oregon, Texas, Virginia, Wisconsin and Wyoming.

Following is a summary of the situation in the fifteen states and the District of Columbia providing for the licensure of osteopaths by the medical examining board:

In Colorado an osteopath receives a license to practice medicine. In Connecticut any registered osteopath may practice either medicine or surgery or both, as the case may be, if he passes a satisfactory examination before the medical examining board. In Delaware osteopaths are licensed as "osteopathic physicians." In the District of Columbia, osteopaths are granted the right to practice surgery. In Indiana the licenses issued to osteopaths, under a 1945 amendment to the medical practice act authorize the holders to practice medicine and surgery. Licentiates in osteopathy prior to 1945 have now been authorized to practice osteopathy, surgery and obstetrics. In Massachusetts the medical practice act, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. According to a law passed in Nebraska in 1943 "any person now licensed to practice osteopathy may, if application is made prior to July 1, 1948 and upon payment of the prescribed fee, take the first regular examination given after the application is made before the Board of Examiners in Medicine. . . . If successful he or she shall receive a license to practice medicine and surgery in the state." In New Hampshire, osteopaths are granted the right to practice medicine and surgery.

In New York a law approved April 10, 1946 provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biological products or any applicant who has met

TABLE 25.—*Graduates of Schools of Osteopathy Registered by Medical Boards, 1941-1946*

	Examination						Reciprocity & Endorsement						Total
	1941	1942	1943	1944	1945	1946	1941	1942	1943	1944	1945	1946	
Colorado	2	9	9	7	7	5	0	0	0	0	0	0	39
Connecticut	0	0	5	5	2	5	0	0	0	0	0	0	17
Delaware	0	0	0	3	0	0	0	0	0	0	0	4	7
Dist. Columbia	0	2	0	0	0	0	2	1	0	0	1	1	7
Indiana	3	4	2	3	0	43	3	2	3	3	4	7	77
Massachusetts	26	13	5	4	5	0	0	0	0	0	0	0	53
Nebraska	0	0	6	0	2	0	0	0	1	0	0	0	9
New Hampshire	0	0	0	3	0	0	0	1	1	2	0	0	7
New Jersey	32	9	18	30	15	9	0	0	0	0	0	0	113
New York	0	0	0	0	0	5	0	0	0	0	0	0	5
Ohio	0	0	158	72	48	47	0	0	0	3	1	7	336
Oregon	2	1	0	0	0	0	2	5	3	8	14	12	47
Texas	13	17	18	38	29	42	1	1	2	1	1	0	163
Virginia	3	0	0	0	0	1	1	0	0	0	0	0	5
Wisconsin	2	5	6	0	1	1	0	1	16	5	15	11	63
Wyoming	0	0	0	0	0	0	0	2	1	2	0	1	6
Totals	83	60	227	165	109	158	9	13	27	24	36	43	954

or shall meet all the preliminary and professional requirements as required as of September first, nineteen hundred thirty-six and has satisfactorily passed or shall satisfactorily pass the regular medical licensing examination shall be granted the right to practice medicine without limitation as defined by the statutes of the State of New York.

New Jersey provides that osteopaths licensed prior to Nov. 1, 1941 who furnish proof prior to that date of having served for a period of two years as an intern or resident surgeon in an osteopathic or medical hospital approved by the board of medical examiners, of having completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board or of having had at least three years of practice in a hospital approved by the board can be admitted to an examination in pharmacology, therapeutics and surgery and, if successful, can obtain a license to practice medicine and surgery. Since 1941 all osteopathic applicants who have met the requirements of the medical practice act have been licensed to practice medicine and surgery.

A law passed in Ohio in 1943 gives osteopaths who obtain their licenses under that act the right to practice osteopathic medicine and surgery. In Oregon they are granted the right to practice "in the subjects" covered by the examination, which includes surgery. The medical practice act of Texas provides for the issuing of a license to practice medicine only and osteopaths are issued licenses unrestricted in scope. In Virginia osteopaths may obtain the right to use drugs and perform surgery with the use of instruments if they satisfy the

TABLE 26.—*Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada*

	Admitted to Examination	Admitted by Endorsement of State License*	Citizenship	Basic Science Certificate	Internship in Hospital in United States	Further Medical Training	Examination Fee, Dollars	Other Requirements
Alabama	+	..	+	..	+	..	10	1
Arizona	Not accepted							
Arkansas (reg. and homeo. boards)	Not accepted							
California	+	+[21]	+[8]	..	+[18]	+[18]	25	11
Colorado	+	..	1st P	+	..	..	25[4]	3
Connecticut (regular board)	+	+	1st P	+	..	..	25	..
Delaware (regular board)	+	..	+	..	+	..	25	5,22
District of Columbia	+	+[6]	..	+	+	..	25	19
Florida	+	..	+	+	..	+[7]	25	..
Georgia	+	..	+	..	..	+[7]	20	..
Idaho	+	..	+	..	+	..	25	..
Illinois	+	..	1st P	..	+	..	15	..
Indiana	+	+	..	..	..	+[7]	25	..
Iowa	+[10]	..	+	+	+[2]	+[2]	25	..
Kansas	+	..	+	..	+[24]	..	25	12
Kentucky	Not accepted							
Louisiana (reg. and homeo. boards)	Not accepted							
Maine	+	+	+	..	+	..	27	11,28
Maryland (reg. and homeo. boards)	+	..	1st P	..	+[26]	..	25	19
Massachusetts	+	..	1st P	..	..	..	25	..
Michigan	+	+	+	+	+	+[7]	25	..
Minnesota	Not accepted							
Mississippi	+	..	+	..	+	..	10[5]	..
Missouri	+	..	+	..	+	..	15	..
Montana	Not accepted[25]							
Nebraska	+	+	+	+	..	..	25	..
Nevada	Not accepted							
New Hampshire	+	+[12]	+	..	+	..	20	..
New Jersey	+	+	+	..	+[17]	..	25	..
New Mexico	Not accepted							
New York	+	+	1st P	..	..	..	25	14
North Carolina	Not accepted							
North Dakota	+	..	+	..	+	..	25	11
Ohio	+	+	+	..	..	..	25	13
Oklahoma	Not accepted							
Oregon	Not accepted							
Pennsylvania	+	..	1st P	..	+	..	25	..
Rhode Island	+	..	1st P	+	+[16]	+[16]	20	13
South Carolina	Not accepted							
South Dakota	+	..	1st P	+	+[17]	..	25	..
Tennessee	+	..	+	+	..	..	25	..
Texas	+	+	+	..	..	..	25	..
Utah	Not accepted							
Vermont	Not accepted[23]							
Virginia	+	..	+	15	15	+	25	..
Washington	+	..	1st P	+	+	+[7]	25	9
West Virginia	Not accepted							
Wisconsin	Not accepted							
Wyoming	Not accepted							
Alaska	+	+	+	+	+	..	25	..
Hawaii	+	..	+	..	+	..	25	12
Puerto Rico	+	+	+	..	+	..	25	..

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* Refer to chart of "Reciprocity and Endorsement Policies" for further data.

1. Certificate of National Board of Medical Examiners or licensure in country in which school of graduation is located or in the country of his nativity.
2. Internship or one year in medical school in United States.
3. Certificate of National Board of Medical Examiners.
4. For graduates of last five years; if more than five years $50.
5. Residence of one year in Delaware.
6. If similar privileges are accorded licentiates of District of Columbia by licensing agency of jurisdiction from which applicant comes.
7. Senior year in class A medical school in United States or one year assistant residency in approved hospital in United States.
8. Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or upon proof of requirements similar to those required by California of graduates of foreign medical schools.
9. Enemy aliens not accepted.
10. Application must be filed six months prior to date of examination.
11. Licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States.
12. Diplomates of National Board of Medical Examiners eligible.
13. License to practice medicine and surgery in the country in which the school of graduation is located.
14. Matriculants after Jan. 1, 1940 not accepted.
15. At the discretion of the board.
16. Internship and graduate work.
17. Internship completed in foreign countries after July 1, 1934 not acceptable.
18. Rotating internship in approved hospital in the United States or completion of senior year in class A medical school in the United States.
19. These requirements apply also to graduates of Canadian schools.
20. Graduates from foreign medical colleges accepted if they present also a diploma from an approved medical school in the United States.
21. Provided standard was the same as California on the same date.
22. Degree from an American medical college acceptable to the Medical Council of Delaware required.
23. Diplomates of the National Board of Medical Examiners accepted. Citizenship required.
24. In lieu of internship, certificate from three graduates of applicant's medical school licensed to practice medicine in United States accepted.
25. Effective July 1, 1943.
26. Homeopathic board requires one year internship in homeopathic hospital in the United States.
27. Will consider limited license for applicant with acceptable credits from National Board of Medical Examiners and states maintaining reciprocity.
28. No applications accepted from countries other than England (certain schools), Ireland, Scotland and Australia.

board of medical examiners that they are qualified to do so. Wisconsin grants osteopaths the privilege to practice surgery, and in Wyoming the statutes contain no specific provision for the licensing of osteopaths. The medical practice act of the latter state provides that the certificate issued to all applicants "shall be deemed licenses to practice medicine in all branches in which the applicant has taken examination in the state."

PHYSICIANS EXAMINED ON BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN THE UNITED STATES AND CANADA

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. It does not attempt to evaluate institutions which it is not in a position to visit to determine whether they meet the minimal essentials of an acceptable medical school as outlined by the Council. This was true even before the war.

For a period of twelve years beginning in 1926 the credentials of physicians coming from abroad were verified by the Council through official correspondence with the medical schools directly or through the diplomatic services. Prior to the onset of the war in Europe it was necessary to discontinue this effort, and on the licensing boards rests the responsibility of evaluating the credentials presented by these graduates. In the 1942 edition of the American Medical Directory a symbol in the biographic data of foreign graduates indicates when the information given is the licensing board's record of the credential accepted as meeting the educational qualifications for licensure. The absence of the symbol may be interpreted to indicate that official verification is on file in the office of the Council.

A committee composed of representatives of various interested organizations has been formed to consider the problem of evaluation of foreign credentials submitted by physicians and students from foreign medical schools. The first meeting of the committee was held in February 1947. No positive recommendations emerged from this meeting, but the discussions will be continued and an attempt made to obtain pertinent data pertaining to schools and educational procedures in all countries.

The requirements of candidates for medical licensure in the United States, Alaska, Hawaii and Puerto Rico on the basis of credentials obtained in countries other than the United States and Canada are given in table 26. Seventeen states report that the holders of such credentials are not eligible for licensure. Nineteen states, Alaska, Hawaii and Puerto Rico require full citizenship and ten states naturalization papers as a condition precedent to taking the examination. The District of Columbia and Indiana make no reference to citizenship. In some states the recognition or nonrecognition of such individuals is by rule of the board; in others the provision is by statute. Ten states and Alaska which will admit foreign graduates to practice, require a certificate from the state board of examiners in the basic sciences. In twenty states, Alaska, Hawaii and Puerto Rico an internship in a hospital in the United States is a prerequisite. Additional qualifications of individual states are given in footnotes. Tennessee, which heretofore did not accept for licensure graduates of foreign faculties of medicine, has been added to this table in 1946.

Table 27 presents figures relating to physicians examined on the basis of credentials obtained in countries other than the United States and Canada by licensing boards in 1946. The figures represent both American and foreign born physicians educated abroad. Eighty-six faculties of medicine and four licensing corporations of sixteen European countries and fourteen other countries are represented. There were 494 physicians examined by twenty states, the District of Columbia, Hawaii and Puerto Rico, of whom 220 passed and 274, 55.5 per cent, failed. Graduates of the University of Vienna represented the largest group, 67, who were examined in twelve states, with a failure percentage of 59.7. Eight states examined 32 graduates of the University of Berlin, of whom 56.2 per cent failed. Forty physicians who hold the registrable qualification, Licentiate of the Royal College of Physicians and of Surgeons, Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow were examined in four states, and 30 per cent failed. Fifteen or more graduates of the universities of Havana, Bologna, Rome and Lausanne also were examined in the United States last year. Fewer than 5 graduates of sixty-five foreign schools appeared for licensure last year.

TABLE 28.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1946*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	920	637	30.8
1938	1,164	716	38.5
1939	1,691	839	50.4
1940	2,088	948	54.7
1941	1,717	698	59.2
1942	1,630	890	45.4
1943	1,031	518	49.8
1944	691	325	53.0
1945	475	209	56.0
1946	494	220	55.5
Totals	13,918	7,263	47.8

The greatest number of foreign graduates examined by any one state was 315 in New York, of whom 106 passed and 209 (66.3 per cent) failed. No other state tested more than 42 of these physicians. Fewer than 5 were examined by nine states.

Table 28 records the number of graduates of faculties of medicine abroad examined for medical licensure in the United States in the seventeen years 1930 to 1946 inclusive. In this period 13,918 were examined, of whom 7,263 passed and 47.8 per cent failed. Although there has been a considerable reduction in the number of foreign graduates seeking licensure in recent years, the percentage of failures has not changed significantly. The greatest number of failures occurred in 1941, when 59.2 per cent failed. At no time in this seventeen year period did fewer than 30.7 per cent fail.

In 1936 the number of foreign graduates began to increase, so that in 1940 there were over three times

TABLE 27.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1946*

Marginal Number		1 California		2 Colorado		3 Connecticut		4 Dist. of Columbia		5 Georgia		6 Illinois		7 Indiana		8 Maine		9 Maryland		10 Massachusetts		11 Missouri		12 Nebraska		13 New Hampshire		14 New Jersey		15 New York		16 Ohio		17 Pennsylvania		18 Rhode Island		19 Texas		20 Virginia		21 Washington		22 Hawaii and Puerto Rico		Totals	Examined—Passed	Examined—Failed	Percentage of Failures	Number of Boards Examined by	Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
	ARGENTINA																																																		
1	Universidad Nacional de Buenos Aires																	1	0																											1	1	0	0.0	1	1
	AUSTRALIA																																																		
2	University of Sydney Medical School																	1	0																											1	1	0	0.0	1	2
3	University of Melbourne																													2	0															2	2	0	0.0	1	3
	BELGIUM																																																		
4	Universiteit Gent																			0	1									1	1															3	1	2	66.7	2	4
	CHINA																																																		
5	Peiping Union Medical College	1	0																																											1	1	0	0.0	1	5
6	Pennsylvania Medical School (Medical Department of St. John's University), Shanghai																																											0	2	2	0	2	100.0	1	6
	COLOMBIA																																																		
7	Universidad Nacional Facultad de Medicina, Bogotá	0	1									0	1																																	2	0	2	100.0	2	7
	CUBA																																																		
8	Universidad de la Habana	2	0			1	1					7	2					2	0	0	2																							2	0	19	14	5	26.3	6	8
	CZECHOSLOVAKIA																																																		
9	Deutsche Universität, Prag	1	0									0	1							0	1									2	6															11	3	8	72.7	4	9
10	Universita Karlova, Praha																													2	4							1	0							7	3	4	57.1	2	10
11	Univerzita Komenského, Bratislava											0	1																	0	1															2	0	2	100.0	2	11
12	Masarykova Universita, Brno																													1	1															2	1	1	50.0	1	12
	DOMINICAN REPUBLIC																																																		
13	Universidad de Santo Domingo																	0	1																											1	0	1	100.0	1	13
	EL SALVADOR																																																		
14	Universidad de El Salvador	0	1																																											1	0	1	100.0	1	14
	ENGLAND																																																		
15	University of Liverpool Medical School																													1	1															2	1	1	50.0	1	15
16	University of London																													1	0															1	1	0	0.0	1	16
17	St. Bartholomew's Hospital Medical College																											1	0																	1	1	0	0.0	1	17
18	Licentiate of the Royal College of Physicians of London																																							1	0					1	1	0	0.0	1	18
19	Licentiate of the Royal College of Physicians of London, Member of the Royal College of Surgeons of England																													1	0															1	1	0	0.0	1	19
20	Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London																													2	1															3	2	1	33.3	1	20
	FRANCE																																																		
21	Université de Montpellier											0	1																							1	0									2	1	1	50.0	2	21
22	Université de Paris			1	0			1	0																					3	6															11	5	6	54.5	3	22
23	Université de Strasbourg																											1	0	0	1															2	1	1	50.0	2	23
	GERMANY																																																		
24	Friedrich-Wilhelms-Universität, Berlin	1	0									2	2			1	0	0	1			1	0	1	0					7	15													1	0	32	14	18	56.2	8	24
25	Rheinische Friedrich-Wilhelms-Universität, Bonn											1	1									1	0							0	3															6	2	4	66.7	3	25
26	Schlesische Friedrich-Wilhelms Universität, Breslau																			0	1	1	0							2	2															6	3	3	50.0	3	26
27	Friedrich-Alexanders Universität, Erlangen																													0	1															1	0	1	100.0	1	27
28	Albert-Ludwigs Universität, Freiburg	1	0									0	2															1	1	2	4															11	4	7	63.6	4	28
29	Vereinigten Friedrichs-Universität, Halle-Wittenberg																													0	1															1	0	1	100.0	1	29
30	Universität Heidelberg											0	1																	0	1															2	0	2	100.0	2	30
31	Christian-Albrechts Universität, Kiel																													0	1															1	0	1	100.0	1	31
32	Albertus-Universität, Königsberg											0	1																	0	4															5	0	5	100.0	2	32
33	Universität Leipzig									1	0							1	0	1	0									0	4	1	0													8	4	4	50.0	5	33
34	Ludwig-Maximilians Universität, München	1	0																											2	3	1	0													7	4	3	42.9	3	34
35	Universität Rostock																													0	1															1	0	1	100.0	1	35
36	Eberhard-Karls-Universität, Tübingen			1	0																									1	1															3	2	1	33.3	2	36
37	Julius-Maximilians Universität, Würzburg																													1	1															2	1	1	50.0	1	37
38	Hamburgische Universität	1	0																											0	3															4	1	3	75.0	2	38
39	Johann Wolfgang Goethe-Universität, Frankfurt-am-Main																											0	1																	1	0	1	100.0	1	39
40	Universität Wien	2	1			1	2			1	0	1	0			2	1	0	1	0	1	2	0							14	34	1	0	2	0			1	0							67	27	40	59.7	12	40
	GREECE																																																		
41	National University of Athens					0	1					1	2							0	2	1	0							0	3							1	0							11	3	8	72.7	6	41
	HAITI																																																		
42	Ecole Nationale de Medecine, Port-au-Prince											0	1																																	1	0	1	100.0	1	42

	HUNGARY																																																		
43	Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	1	0									1	0																	1	1							0	1							5	3	2	40.0	4	43
44	Magyar Királyi Ferenez József Tudományegyetem, Szeged																													1	0							0	1							2	1	1	50.0	2	44
45	Magyar Királyi Erzsébet Tudományegyetem, Pecs																											1	0	0	3															4	1	3	75.0	2	45
	INDIA																																																		
46	University of Calcutta																													1	0															1	1	0	0.0	1	46
	IRAN																																																		
47	Madresseh Teb, Teheran																													0	2															2	0	2	100.0	1	47
	IRAQ																																																		
48	Royal Iraq Medical College, Bagdad																													1	0															1	1	0	0.0	1	48
	IRELAND																																																		
49	National University of Ireland																											1	0																	1	1	0	0.0	1	49
50	University of Dublin																											1	0	2	0															3	3	0	0.0	2	50
	ITALY																																																		
51	Regia Università di Bari																													0	1															1	0	1	100.0	1	51
52	Regia Università di Bologna	1	0			1	1					1	1	0	1	0	1			0	1					0	1	2	0	2	15					2	0	1	0							31	10	21	67.7	11	52
53	Regia Università di Catania									1	0																																			1	1	0	0.0	1	53
54	Regia Università di Firenze																																					2	0							2	2	0	0.0	1	54
55	Regia Università di Genova	0	1																			1	0							1	1															4	2	2	50.0	3	55
56	Regia Università di Napoli																			0	1							2	0	0	6			1	0											10	3	7	70.0	4	56
57	Regia Università di Padova											0	1																	0	1															2	0	2	100.0	2	57
58	Regia Università di Palermo																													1	3															4	1	3	75.0	1	58
59	Regia Università di Pavia																													0	2															2	0	2	100.0	1	59
60	Regia Università di Pisa	0	1																																											1	0	1	100.0	1	60
61	Regia Università di Roma											0	1																	4	11					2	0	1	0							19	7	12	63.2	4	61
62	Regia Università di Siena																											0	1	0	1															2	0	2	100.0	2	62
63	Regia Università di Torino																	0	1											0	1															2	0	2	100.0	2	63
	LEBANON																																																		
64	American University of Beirut																											1	0									0	1							2	1	1	50.0	2	64
	MEXICO																																																		
65	Universidad Nacional, México D. F.	1	0	1	0																																							4	0	6	6	0	0.0	3	65
66	Universidad de Guadalajara	0	1									0	1																																	2	0	2	100.0	2	66
	NETHERLANDS																																																		
67	Universiteit van Amsterdam			1	0																									1	0															2	2	0	0.0	2	67
68	Rijks-Universiteit te Leiden																													1	0															1	1	0	0.0	1	68
69	Rijks-Universiteit te Utrecht																													0	2															2	0	2	100.0	1	69
	PHILIPPINES																																																		
70	University of the Philippines											1	0																																	1	1	0	0.0	1	70
	POLAND																																																		
71	Uniwersytet Jagiellonski, Cracow																													2	1															3	2	1	33.3	1	71
72	Uniwersytet Jana Kazimierza, Lwów																													1	0															1	1	0	0.0	1	72
73	Uniwersytet Jozefa Pilsudskiégo, Warszawa											2	1																	1	1															5	3	2	40.0	2	73
74	Uniwersytet Stefano Batorego, Wilno																													1	0															1	1	0	0.0	1	74
	SCOTLAND																																																		
75	University of Edinburgh	1	0																			1	0							1	1															4	3	1	25.0	3	75
76	University of Glasgow																													0	1															1	0	1	100.0	1	76
77	Licentiate of the Royal College of Physicians and Surgeons, Edinburgh; Licentiate of the Royal Faculty of Physicians and Surgeons, Glasgow			1	0															1	0							1	0	25	12															40	28	12	30.0	4	77
	SPAIN																																																		
78	Universidad Central de España, Madrid																													0	1															1	0	1	100.0	1	78
79	Universidad de Salamanca																																											1	0	1	1	0	0.0	1	79
	SWITZERLAND																																																		
80	Universität Basel											0	1							2	0									1	3							3	0							10	6	4	40.0	4	80
81	Universität Bern	1	0			0	1					1	0					1	0	1	0									0	2							0	1							8	4	4	50.0	7	81
82	Université de Genève					0	1																							3	7															11	3	8	72.7	2	82
83	Université de Lausanne	1	0									1	0							1	1									8	15									0	1					28	11	17	60.7	5	83
84	Universität Zürich																													1	4											1	0			6	2	4	66.7	2	84
	UNION OF SOCIALIST SOVIET REPUBLICS																																																		
85	Voronezh Medical Institute																													0	1															1	0	1	100.0	1	85
86	Kiev Medical Institute																													0	1															1	0	1	100.0	1	86
87	First Moscow Medical Institute																													0	3															3	0	3	100.0	1	87
88	Severo-Kavka Medical Institute																													0	1															1	0	1	100.0	1	88
89	Second Moscow Medical Institute																													1	1															2	1	1	50.0	1	89
	YUGOSLAVIA																																																		
90	Beogradskog Universiteta											0	1																																	1	0	1	100.0	1	90
	Totals	22		5		10		1		3		42		1		5		10		17		8		1		1		15		315		3		3		5		14		2		1		10		494	...	...	.....	..	
	Totals—Examined—Passed	16		5		3		1		3		19		0		3		6		6		8		1		0		12		106		3		3		5		10		1		1		8		...	220	...	.....	..	
	Totals—Examined—Failed	6		0		7		0		0		23		1		2		4		11		0		0		1		3		209		0		0		0		4		1		0		2		...	...	274	.....	..	
	Percentage Failed	27.3		0.0		70.0		0.0		0.0		54.8		100.0		40.0		40.0		64.7		0.0		0.0		100.0		20.0		66.3		0.0		0.0		0.0		28.6		50.0		0.0		20.0		...	...	...	55.5	..	
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22							

P—Passed; F—Faile

as many tested as in 1936. Since 1940 there have been annual decreases, though the number examined in 1946 was slightly more than in 1945, but the annual total is still in excess of the number licensed annually prior to 1935 and before the increased migration of foreign physicians to this country from Europe.

Officers of State Boards of Medical Examiners

Alabama	Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.
Arizona	Dr. J. H. Patterson, 826 Security Bldg., Phoenix.
Arkansas	Dr. L. J. Kosminsky, Texarkana.
California	Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.
Colorado	Dr. J. B. Davis, 831 Republic Bldg., Denver 2.
Connecticut	Dr. Creighton Barker, 258 Church St., New Haven.
Delaware	Dr. J. S. McDaniel, 229 S. State St., Dover.
District of Columbia	Dr. G. C. Ruhland, 6012 E. Muncipal Bldg., Washington.
Florida	Dr. Harold D. Van Schaick, 2736 S.W. 7th Ave., Miami 36.
Georgia	Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.
Idaho	Miss Estella S. Mulliner, 355 State Capitol Bldg., Boise.
Illinois	Mr. Philip M. Harman, Springfield.
Indiana	Miss R. V. Kirk, 627 K. of P. Bldg., Indianapolis 4.
Iowa	Mr. H. W. Grefe, Capitol Bldg., Des Moines 19.
Kansas	Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.
Kentucky	Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.
Louisiana	Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
Maine	Dr. A. P. Leighton, 192 State St., Portland.
Maryland	Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.
Massachusetts	Dr. H. Q. Gallupe, 413 E. State House, Boston 33.
Michigan	Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.
Minnesota	Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.
Mississippi	Dr. R. N. Whitfield, Jackson 113.
Missouri	Mr. J. A. Hailey, State Capitol Bldg., Box 4, Jefferson City.
Montana	Dr. O. G. Klein, 302 N. Main St., Helena.
Nebraska	Mr. O. F. Humble, 1009 State Capitol Bldg., Lincoln.
Nevada	Dr. G. H. Ross, 215 N. Carson St., Carson City.
New Hampshire	Dr. John S. Wheeler, 107 State House, Concord.
New Jersey	Dr. E. S. Hallinger, 28 W. State St., Trenton.
New Mexico	Dr. Le Grand Ward, 141 Palace Ave., Santa Fe.
New York	Dr. J. L. Lochner, 315 State Education Bldg., Albany.
North Carolina	Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.
North Dakota	Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.
Ohio	Dr. H. M. Platter, 21 W. Broad St., Columbus.
Oklahoma	Dr. F. C. Gallaher, 813 Braniff Bldg., Oklahoma City.
Oregon	Miss L. M. Conlee, 608 Failing Bldg., Portland 4.
Pennsylvania	Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.
Rhode Island	Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
South Carolina	Dr. N. B. Heyward, 1329 Blanding St., Columbia.
South Dakota	Dr. Gilbert Cottam, Capitol Bldg., Pierre.
Tennessee	Dr. H. W. Qualls, 130 Madison Ave., Memphis 3.
Texas	Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas 2.
Utah	Mr. W. R. McEntire, 324 State Capitol Bldg., Salt Lake City.
Vermont	Dr. F. J. Lawliss, Richford.
Virginia	Dr. K. D. Graves, 30½ Franklin Rd., S.W., Roanoke.
Washington	Miss Virginia Wotherspoon, Olympia.
West Virginia	Dr. N. H. Dyer, State Capitol, Charleston 5.
Wisconsin	Dr. C. A. Dawson, Tremont Bldg., River Falls.
Wyoming	Dr. G. M. Anderson, Capitol Bldg., Cheyenne.
Alaska	Dr. W. M. Whitehead, Box 140, Juneau.
Canal Zone	Dr M. C. Stayer, Balboa Heights.
Hawaii	Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.
Puerto Rico	Mr. Luis Cueto Coll, Parada 22, Santurce.
Virgin Islands	Dr. K. Knud-Hansen, Charlotte Amalie.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

A basic science law provides for the establishment of a board of examiners and requires that each person who desires to practice the healing arts appear before that board and demonstrate his knowledge of the basic sciences. Such boards are distinct from licensing boards. A certificate of proficiency in the basic sciences does not authorize the possessor to practice the healing art; it enables him only to apply for licensure so to practice.

A basic science certificate is a prerequisite for licensure in seventeen states, the District of Columbia and Alaska. Alaska was added to this group by the Territorial Legislature on April 3, 1946. The first states to adopt such legislation were Connecticut and Wisconsin in 1925. Other states comprising the group, together with the year of enactment of their basic science law, are recorded in table 29.

TABLE 29.—*States Having Basic Science Laws and Year of Enactment*

Alaska	1946	Nebraska	1927
Arizona	1936	New Mexico	1941
Arkansas	1929	Oklahoma	1937
Colorado	1937	Oregon	1933
Connecticut	1925	Rhode Island	1940
District of Columbia	1929	South Dakota	1939
Florida	1939	Tennessee	1943
Iowa	1935	Washington	1927
[illegible]	1937	Wisconsin	1925
[illegible]	1927		

TABLE 30.—*Subjects Included in Basic Science Examinations*

	Examinations Required in							
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	+	+	+	..	+	+	+	..
Arizona	+	+	+	..	+	+	+	..
Arkansas	+	+	+	..	..	+	+	..
Colorado	+	+	+	..	..	+	+	..
Connecticut	+	..	..	+	+	+	+	..
Dist. Columbia	+	+	+	..	..	+	+	..
Florida	+	+	+	..	..	+	+	..
Iowa	+	+	+	..	+	+	+	..
Michigan	+	+	+	..	+	+	+	+
Minnesota	+	+	+	..	+	+	+	..
Nebraska	+	+	+	..	+	+	+	..
New Mexico	+	+	+	..	..	+	+	..
Oklahoma	+	+	+	..	..	+	+	..
Oregon	+	..	+	..	+	+	+	..
Rhode Island	+	+	+	..	..	+	+	..
South Dakota	+	+	+	..	..	+	+	..
Tennessee	+	+	+	..	..	+	+	..
Washington	+	..	+	..	+	+	+	..
Wisconsin	+	..	..	+	..	+	+	..

The subjects in which examinations are conducted in the respective states, the District of Columbia and Alaska, as shown in table 30, are specified by statute. The examining boards are not authorized to add any subjects or to refrain from giving an examination in any subject specified by law, although the laws in some instances provide for certification without examination by the endorsement of a basic science certificate issued in another state, passing the National Board examination or the acceptance of examinations in the required subjects by a licensing board.

All nineteen boards examine in anatomy, pathology and physiology, seventeen examine in chemistry, fifteen in bacteriology, nine in hygiene, two in diagnosis and one in public health.

The results of examinations held and the number of certificates issued on the basis of reciprocity or endorsement during 1946 are presented in tables 31 and 32 as reported by the respective boards. A candidate in applying for a basic science certificate is not required by law to mention his school of practice. However, by checking the biographic records of physicians and medical student records of the American Medical Association and various directories it has been possible to determine the profession of the majority of candidates. Thus it has been possible to tabulate the figures in four groups, namely physicians and medical students, osteopaths, chiropractors and unclassified applicants. The latter category includes those for whom it was not possible to determine the profession represented. In Rhode Island doctors of dentistry represent the unclassified group. It may be assumed that others in this unclassified group include osteopaths, chiropractors and also naturopaths who have not been identified by the reference material available.

The nineteen basic science boards in operation in 1946 examined a total of 3,333 candidates, table 31.

TABLE 31.—*Basic Science Certificates Issued by Examination, Reciprocity and Endorsement, 1946*

	Examination					Reciprocity, Endorsement or Waiver					
	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Alaska	3	0	0	0	3	2	0	0	0	2	5
Arizona	51	0	0	0	51	108	39	1	0	148	199
Arkansas	56	1	1	0	58	23	0	0	0	23	81
Colorado	169	1	0	1	171	75	9	1	0	85	256
Connecticut	171	5	4	1	181	0	0	0	0	0	181
District of Columbia	27	0	0	0	27	149	0	0	0	149	176
Florida	304	4	1	0	309	0	0	0	0	0	309
Iowa	91	49	5	3	148	155	46	2	0	203	351
Michigan	218	2	0	2	222	21	19	1	0	41	263
Minnesota	278	20	1	2	301	140	2	0	0	142	443
Nebraska	99	0	0	0	99	56	0	0	0	56	155
New Mexico	101	10	0	0	111	0	0	0	0	0	111
Oklahoma	58	0	0	0	58	58	0	0	0	58	116
Oregon	138	2	0	2	142	67	23	2	0	92	234
Rhode Island	78	0	1	34	113	0	0	0	0	0	113
South Dakota	42	0	0	2	44	97	4	2	1	104	148
Tennessee	169	0	0	0	169	141	0	0	0	141	310
Washington	136	5	0	0	141	0	0	0	0	0	141
Wisconsin	202	7	1	0	210	216	11	3	0	230	440
Totals	2,391	106	14	47	2,558	1,308	153	12	1	1,474	4,032

Physicians and medical students represent the greatest number examined. There were 2,937 in this group. There were also examined 196 osteopaths, 40 chiropractors and 77 in the unclassified group. Of all applicants 23.3 per cent failed, of the physicians and medical students examined 18.7 per cent failed, osteopaths 45.1 per cent, chiropractors 65 per cent and unclassified 39 per cent. The basic science board of Florida examined the greatest number, 407, representing 397 physicians and medical students and 10 others with 24.1 per cent failures. Iowa, Michigan and Minnesota examined more than 300. The percentage of failures in these states was 58.2, 34.9 and 16.2 respectively. New Mexico and Alaska reported no failures.

Osteopaths were examined in Arkansas, Colorado, Connecticut, District of Columbia, Florida, Iowa, Michigan, Minnesota, New Mexico, Oregon, Tennessee, Washington and Wisconsin. Chiropractors appeared for certification before the boards in Arkansas, Connecticut, District of Columbia, Florida, Iowa, Michigan, Minnesota, Rhode Island, Washington and Wisconsin.

It is the policy of the Arizona Board of Examiners in the Basic Sciences in reporting results of its examinations to omit the names of applicants who fail examinations. The number who fail are therefore recorded only in the total column. Iowa in 1946 reported failures by total number only in reporting results of one of their examinations.

TABLE 32.—*Applicants Examined in Basic Sciences, 1946*

	Physicians and Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Alaska	3	0	0	0	0	0	0	0	3	3	0	0.0
Arizona	51	0	0	0	0	0	0	0	71	51	20*	28.2
Arkansas	56	2	1	0	1	0	0	0	60	58	2	3.3
Colorado	169	30	1	4	0	0	1	0	205	171	34	16.6
Connecticut	171	5	5	1	4	2	1	2	191	181	10	5.3
District of Columbia	27	2	0	1	0	1	0	0	31	27	4	12.9
Florida	304	93	4	3	1	2	0	0	407	309	98	24.1
Iowa	91	65	49	48	5	16	3	14	354	148	206†	58.2
Michigan	218	110	2	7	0	1	2	1	341	222	119	34.9
Minnesota	278	42	20	16	1	0	2	0	359	301	58	16.2
Nebraska	99	24	0	0	0	0	0	0	123	99	24	19.5
New Mexico	101	0	10	0	0	0	0	0	111	111	0	0.0
Oklahoma	58	5	0	0	0	0	0	0	63	58	5	79.4
Oregon	138	62	2	5	0	0	2	2	211	142	69	32.7
Rhode Island	78	3	0	0	1	1	34	10	127	113	14	11.0
South Dakota	42	15	0	0	0	0	2	1	60	44	16	26.7
Tennessee	169	36	0	1	0	0	0	0	206	169	37	18.0
Washington	136	15	5	4	0	1	0	0	161	141	20	12.4
Wisconsin	202	37	7	0	1	2	0	0	249	210	39	15.7
Total—Examined	2,937		196		40		77		3,333	.....	...	....
Totals—Passed	2,391		106		14		47		.....	2,558	...	....
Totals—Failed	546		90		26		30		.....	.....	775	....
Percentage Failed	18.7		45.1		65.0		39.0		.....	.....	...	23.3

* Nature of practice undeterminable since names of failures not supplied.

† Nature of practice of 63 undeterminable since names of failures not supplied.

Twelve states, the District of Columbia and Alaska granted basic science certificates without examination, by reciprocity, endorsement, waiver or exemption. There were 1,474 certificates awarded by this method in 1946. By both examination and endorsement, 4,032 certificates of proficiency were issued. The number of successful candidates in these two groups by states are recorded in table 32. Among the successful candi-

TABLE 33.—*Total Candidates for Basic Science Certification, 1927-1946*

		Physicians and Medical Students						Other Practitioners					
	Number of Boards	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	0	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	118	724	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	141	727	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	106	696	78	44	34	43.6	12	56
1933	8	601	527	74	12.3	121	648	60	30	30	50.0	10	40
1934	9	815	725	90	11.0	127	852	51	26	25	49.0	11	37
1935	10	882	761	121	13.7	110	871	74	33	41	55.4	4	37
1936	10	1,032	891	141	13.7	230	1,121	66	26	40	60.6	13	39
1937	12	1,231	1,061	170	13.8	192	1,253	113	41	72	63.7	10	51
1938	12	1,168	1,026	142	12.2	267	1,293	158	70	88	55.7	26	96
1939	14	1,141	1,013	128	11.2	727	1,740	218	97	121	55.5	294	391
1940	16	1,303	1,140	163	12.5	324	1,464	280	153	127	43.9	22	175
1941	17	1,768	1,560	208	11.8	280	1,840	356	191	165	46.3	73	264
1942	17	1,725	1,476	249	14.4	213	1,689	497	249	248	49.9	91	340
1943	18	2,330	2,098	232	10.0	296	2,394	389	211	178	45.8	86	297
1944	18	2,284	1,868	416	18.2	222	2,090	465	276	189	40.6	87	363
1945	18	2,576	2,146	430	16.6	412	2,558	397	193	204	51.4	172	365
1946	19	2,937	2,391	546	18.7	1,308	3,699	313	167	146	46.6	166	333
Totals		25,434	21,940	3,494	13.6	5,314	27,254	3,847	1,962	1,885	59.0	1,082	3,044

dates

dates were 3,699 physicians or medical students, 259 osteopaths, 26 chiropractors and 48 others. Wisconsin certified the most applicants without examination, 230, of whom 216 were physicians, 11 osteopaths and 3 chiropractors. Florida and Washington have no reciprocal relations. None were certified without examination in 1946 in Connecticut, New Mexico and Rhode Island.

OFFICIALS OF BASIC SCIENCE BOARDS

Arizona—Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.
Arkansas—Mr. L E. Gebauer, 701 Main Street, Little Rock.
Colorado—Esther B. Starks, D. O., 1459 Ogden Street, Denver.
Connecticut—Mr. C M. Bakewell, 250 Church Street, New Haven.
District of Columbia—Dr. G. C Ruhland, 6012 E. Municipal Building, Washington
Florida—Dr M. W. Emmell, University of Florida, Gainesville
Iowa—Dr. Ben H. Peterson, Coe College, Cedar Rapids
Michigan—Miss Eloise LeBeau, 101 N. Walnut Street, Lansing.
Minnesota—Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.
Nebraska—Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9
New Mexico—Miss Marion M. Rhea, 114 E Marcy St, Santa Fe
Oklahoma—Dr. Frank C. Gallagher, 813 Braniff Bldg, Oklahoma City.
Oregon—Mr. C D Byrne, University of Oregon, Eugene
Rhode Island—Mr Thomas B. Casey, 366 State Office Building, Providence
South Dakota—Dr. G. M. Evans, Yankton.
Tennessee—Dr. O. W. Hyman, 874 Union Avenue, Memphis.
Washington—Mr. Harry C Huse, Olympia
Wisconsin—Mr. William H Barber, Watson and Scott Sts, Ripon

Altogether 4,032 candidates received basic science certificates in the seventeen states, the District of Columbia and Alaska, ranging from 5 in Alaska to 443 in Minnesota, while 775 failed after examination during the year 1946.

Table 33 records the number of candidates examined and certified, and the number certified without examination by basic science boards in twenty years, 1927 to 1946 inclusive. In 1927 when five boards were functioning, there were 305 examined, of whom 8.5 per cent failed, and 22 others, of whom 31.8 per cent failed. In 1946 there were examined 2,937 physicians with 18.7 per cent failures and 313 others, of whom 46.6 per cent failed.

In the twenty year period 25,434 physicians and medical students were examined, of whom 21,940 were successful in their examinations. In the same period 3,847 other practitioners took the test and 1,962 were successful. In this period 5,314 physicians and 1,082 others were certified without examination. In twenty years 30,298 certificates have been granted to 27,254 physicians and to 3,044 other practitioners.

Alaska was added to the group requiring a basic science certificate as a prerequisite to the practice of the healing art in 1946. The law provides for the issuance of a certificate without examination to diplomates of the National Board of Medical Examiners and to those persons who have passed examinations before an examining board of a state or foreign country who will accord a like privilege to certificants of the basic science board of Alaska. No other new basic science legislation was enacted in the United States in 1946.

The principle of basic science legislation is to provide a means of insuring that all who seek licensure to care for sick and injured persons shall first possess a reasonable knowledge of the sciences fundamental to the healing art. The enforcement of such laws affects mostly the group classified as "other practitioners." This is particularly significant when one takes into account that the testing of individuals for basic science registration is made by nonmedical examiners. The results demonstrate that, in general, practitioners other than regular physicians are poorly equipped in the fundamentals of medicine and should not be entrusted to care for the health of the people.

Efforts are being made by the American Association of Basic Science Boards to provide information based on experience to states contemplating new basic science board legislation and to develop procedures to facilitate reciprocity arrangements. In some instances basic science certification by reciprocity is unnecessarily difficult because of otherwise unimportant differences in the laws of the various states. A committee of three representatives of the Federation of State Medical Boards has been appointed to meet with a similar committee representing the state basic science boards in an effort to better integrate the operation of basic science laws with the system of medical licensure now existing in the various states. This committee has not as yet reported the results of its findings.

NATIONAL BOARD OF MEDICAL EXAMINERS

The certificate of the National Board of Medical Examiners is accepted as an adequate qualification for a medical license by the licensing authorities of forty-four states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Canal Zone. The National Board certificate is not recognized at present by the licensing boards of Florida, Montana, Nevada and Wisconsin. Nevada has temporarily suspended reciprocal relations in medical licensure. The licensing board in Louisiana exempts diplomates of the National Board from the state examination if they have been licensed in a state with which Louisiana reciprocates. Additional examinations are required by some of the state licensing boards. These are oral examinations in Illinois, Maine, Rhode Island and Wyoming, a brief supplemental written examination in Michigan, a rotating internship in Pennsylvania and two years of medical practice in Delaware The states, territories and possessions which will endorse the certificate of the National Board of Medical Examiners are recorded in table 34.

TABLE 34.—*States Endorsing Certificates of the National Board of Medical Examiners*

Alabama
Alaska
Arizona
Arkansas
California
Canal Zone
Colorado
Connecticut
Delaware
Dist of Columbia
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Nebraska
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Puerto Rico
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wyoming

The basic science boards of Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Tennessee, the District of Columbia and Alaska honor the examination of the National Board and give a qualifying certificate to its diplomates without further examination. South Dakota exempts medical officers of World War II from the basic science requirement.

Diplomates of the National Board are admitted to the final examination of the Examining Board in England, the Triple Qualification Board of Scotland and the Conjoint Board in Ireland. These final examinations are both written and oral and correspond to parts II and III of the National Board. The National Board, in turn, admits the diplomates of these boards directly to parts II and III of its examination, provided they hold a degree in medicine from an acceptable university. The certificate of the National Board has in the past been recognized in Lebanon (Syria), Spain and Turkey, under certain conditions in South Africa and in other foreign countries.

Diplomates are exempt from some of the qualifications required by the United States Public Health Service.

Requirements for admission to the National Board examinations include a standard four year high school course, two years of acceptable college work including English, physics, chemistry, biology and a foreign language and a medical education satisfactorily completed in an approved school in this country or Canada. Graduates of the university medical schools of Great Britain and Ireland are admitted to the examination provided these graduates have been licensed to practice in the country in which the school attended is located.

The almost universal recognition of the examinations of the National Board is evidenced by the acceptance of the board's examinations by many medical schools as part of their own examination and promotion procedure. At some of the schools the students are required to pass part I at the end of the second year and part II at the end of the fourth year. Other schools require that part II be passed at the end of the fourth year. Candidates who fail to pass the National Board examinations are given a supplemental examination at most schools. The schools that require their students to take the National Board's examinations under one plan or another are Albany, Boston, Buffalo, Duke, George Washington, Harvard, Long Island, New York Medical College and Yale. In addition to the schools named there are a few others at which those students who voluntarily take and pass the National Board's examinations, either in part I or in part II, are excused from the corresponding final school examinations. This group of schools includes Colorado, Georgetown, Illinois, Loyola, Minnesota, Pennsylvania, Tufts and the Woman's Medical College. Regarding this plan the board states that "this practice places additional work and responsibility on the National Board of Medical Examiners. The board believes, however, that such use of its examinations is of definite value to the board because it necessitates that the examination be kept in close step with present medical education in this country. It appreciates the confidence in the fairness and thoroughness of its examinations that is implied by the substitution of the board's examinations for the former college comprehensive examination."

In the following paragraphs data are presented for the twenty-eighth consecutive year regarding the examinations conducted and the issuance of certificates by the National Board of Medical Examiners. These data are based on official reports received periodically from the executive office of the board. The awarding of certificates to candidates forms a part of their biographic records maintained by the American Medical Association.

The first examination was given by the National Board in October 1916. From that date and up to and including a test held in June 1921, eleven examinations were given and 268 candidtaes were certified. The results of each examination during this period are given in table 35. These data, together with subsequent tables containing figures to and including 1946, have been presented annually in THE JOURNAL for twenty-nine consecutive years.

Since 1922 the examination of the National Board has been divided into three separate parts, which must be taken and completed in the following sequence: part I, consisting of a written examination in the basic sciences; part II, a written examination in five major clinical subjects, and part III, a clinical and practical examination in six major clinical divisions and their component subjects or subdivisions.

The tables that are hereinafter presented enumerate the results of examinations in parts I, II and III for each calendar year since 1922, including those who passed and failed examinations and those certified.

Three examinations each were given in parts I and II in 1946 in various approved medical schools throughout the country. Examinations in part III are given under the direction of local subsidiary boards at times sufficiently frequent to accommodate all eligible candidates. Subsidiary boards have been organized for this purpose in twenty-four centers. Examinations in part III were held in 1946 during the months of March, April, June, October, November and December.

TABLE 35.—*National Board Examinations, 1916-1921*

Date		Total Examined	Failed	Percentage Failed
October	1916	10	5	50.0
June	1917	12	3	25.0
October	1917	28	6	21.4
January	1918	20	2	10.0
April	1918	23	5	21.7
December	1918	16	1	6.3
June	1919	52	1	1.9
February	1920	48	12	25.0
May	1920	60	14	23.3
February	1921	16	5	31.3
June	1921	40	3	7.5
Totals		325	57	17.5

A candidate is eligible for part I who has met the premedical requirements and has completed successfully the first two years of work in an approved medical school. An incomplete examination is allowed candidates taking part I at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. These examinations in the subjects not yet completed are therefore postponed and may be taken at any examination period after the candidate has completed them in his *medical school.* They are recorded in these statistics under the heading "Incomplete Examinations" and are excluded from the calculations referring to the percentage of failures. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months.

A candidate is eligible for part II who has passed part I and has completed successfully a four year medical course in an approved medical school.

The figures in tables 36 and 37 cover details of each examination given during 1946 and since 1922 and include some who fail and are reexamined during the same year and those who pass parts I and II in the same year. They represent, therefore, examinations conducted and not individuals examined.

TABLE 36.—*National Board Examinations in Part I, 1922-1946*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1946	659	424	178	57	11.7
May 1946	1,276	668	508	100	14.3
September-October 1946	1,213	603	503	107	15.1
Totals	3,148	1,695	1,189	264	13.5
1922	388	263	58	67	20.3
1923	507	349	77	81	18.8
1924	591	415	69	107	20.5
1925	608	400	50	158	28.3
1926	625	436	104	85	16.3
1927	702	452	159	91	16.8
1928	843	533	231	79	12.9
1929	1,006	675	331	90	11.8
1930	1,260	801	345	114	12.5
1931	1,277	755	425	97	11.4
1932	1,307	847	371	89	9.5
1933	1,234	782	316	136	14.8
1934	1,241	809	347	85	9.5
1935	1,264	785	410	69	8.1
1936	1,344	858	363	123	12.5
1937	1,435	871	415	149	14.6
1938	1,654	986	508	160	14.0
1939	1,733	1,048	460	225	17.7
1940	1,653	1,069	375	209	16.4
1941	1,640	1,087	346	207	16.0
1942	1,867	1,204	471	192	13.8
1943	2,656	1,441	962	253	14.9
1944	4,228	2,325	1,465	438	15.9
1945	3,865	2,106	1,475	284	11.8
1946	3,148	1,695	1,189	264	13.5
Totals	38,166	22,992	11,322	3,652	14.3

TABLE 37.—*National Board Examinations in Part II, 1922-1946*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1946	1,116	1,096	0	20	1.7
May 1946	323	319	0	4	1.2
December 1946	385	366	0	19	4.9
Totals	1,824	1,781	0	43	2.4
1922	109	90	0	19	17.4
1923	192	170	2	20	10.5
1924	267	227	0	40	15.0
1925	342	309	0	33	9.6
1926	381	334	1	46	12.1
1927	361	314	1	46	12.8
1928	410	371	1	38	9.3
1929	465	399	19	47	10.5
1930	620	543	7	70	11.4
1931	719	630	2	87	12.1
1932	732	674	0	58	7.9
1933	714	651	0	63	8.8
1934	633	583	0	50	7.9
1935	689	620	0	69	10.0
1936	768	716	2	50	6.5
1937	855	803	1	51	6.0
1938	861	815	0	46	5.3
1939	938	884	0	54	5.8
1940	1,028	963	9	56	5.5
1941	1,001	954	1	46	4.6
1942	1,072	1,031	0	41	3.8
1943	1,861	1,805	0	56	3.0
1944	1,405	1,350	0	55	3.9
1945	1,599	1,565	0	34	2.1
1946	1,824	1,781	0	43	2.4
Totals	19,846	18,582	46	1,218	6.2

During the year 1946, 3,148 examinations were given in part I; 1,695 passed and 264, or 13.5 per cent, failed. There were 1,189 incomplete examinations given. In calculating the percentage of failures these incomplete examination figures are excluded. In part II, 1,824 examinations were held; 1,781 passed and 43, or 2.4 per cent, failed. Incomplete examinations are only rarely given in part II. There were none given in 1946.

There have been 38,166 examinations given in part I since 1922 and 19,846 in part II. During this period 22,992 passed part I and 18,582 passed part II. In twenty-five years there have been 3,852 failures in part I, 14.3 per cent, and 1,218 failures in part II, 6.2 per cent. The wartime accelerated program in operation in all medical schools is evidenced by the increase in the number of candidates taking the examinations since 1942. The greatest number of examinations in part I were given in 1944 and in part II in 1943.

TABLE 38.—*National Board Examinations in Part III, 1922-1946*

	Total Examinations	Passed	Failed	Percentage Failed
1922	22	22	0	0.0
1923	82	81	1	1.2
1924	126	120	6	4.8
1925	219	206	13	5.9
1926	255	243	12	4.7
1927	293	272	21	7.2
1928	322	306	16	5.0
1929	352	337	15	4.3
1930	420	401	19	4.5
1931	437	419	18	4.1
1932	550	522	28	5.1
1933	551	526	25	4.5
1934	567	548	19	3.4
1935	598	578	20	3.3
1936	576	547	29	5.0
1937	668	630	38	5.7
1938	706	682	24	3.4
1939	770	729	41	5.3
1940	792	771	21	2.7
1941	910	885	25	2.7
1942	1,054	1,041	13	1.2
1943	1,230	1,213	17	1.4
1944	1,167	1,145	22	1.9
1945	1,244	1,231	13	1.0
1946	1,632	1,611	21	1.3
Totals	15,543	15,066	477	3.1

A candidate is eligible for part III who has passed parts I and II, received his M.D. degree and has satisfactorily completed an internship in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or by the Canadian Medical Association or has served in a laboratory acceptable to the National Board. In 1946, 1,632 tests were given in part III; 1,611 passed and 21, 1.3 per cent, failed. Results of examinations given in this part in twenty-five years are given in table 38 and indicate that 15,543 were tested, of whom 15,066 were granted certificates. The percentage of failures in this part in twenty-five years was 3.1. Since the inception of the National Board in 1916, 15,334 certificates have been awarded.

Physicians who earn the certificate are designated diplomates of the National Board and are privileged to use the designating initials D.N.B.

The figures thus far presented represent examinations given. The number of individuals tested during any one year is recorded for the twenty-five year period in table 39. The classification as "Passed" or "Failed" in cases in which more than one examination has been taken in a given year was based on the results of the last examination during the year in question. For example, if in 1946 a candidate passed part I but later in 1946 failed part II he is computed in the tabulation as having failed. On this basis figures computed indicate that there were 5,912 who took at least one of the tests of the National Board in 1946, as compared with 525 in 1922. The trend has been steadily upward. Last year the number of candidates was 298 greater than in the previous year, which exceeded the 1944 figure by 549. In all, 65,498 individuals were examined in one or more of the annual examinations in the twenty-five years shown, of whom 51,759 passed, 9,059 took incomplete examinations and 4,680, or 8.3 per cent, failed.

Table 39.—*Parts I, II and III, Excluding Duplications, 1922-1946*

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	976	736	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	355	137	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	408	129	6.6
1936	2,517	1,989	353	175	8.1
1937	2,735	2,151	397	187	8.0
1938	2,992	2,308	493	191	7.6
1939	3,221	2,476	443	302	10.9
1940	3,188	2,597	363	228	8.1
1941	3,318	2,749	332	237	7.9
1942	3,607	3,014	391	202	6.3
1943	4,514	3,671	606	237	6.1
1944	5,363	4,235	759	369	8.0
1945	5,614	4,468	886	260	5.5
1946	5,912	4,730	898	284	5.7
Totals	65,498	51,759	9,059	4,680	8.3

The 1,611 physicians certified as diplomates in 1946 represented sixty existing medical schools and one extinct medical school in the United States, six in Canada and six foreign universities, as shown in table 40. A few of these foreign graduates were diplomates from medical schools in continental Europe who had registered before the National Board discontinued admitting graduates of these schools.

Diplomates licensed to practice medicine on the basis of their credentials increased from 2 in 1917 to 2,654 in 1946 and 12,682 have been so licensed since the National Board was formed. However, 15,066 have received the certificate of the board. It would appear that 2,384 have not used the credentials as a licensing medium. In 1946 diplomates were granted licenses to practice medicine on the basis of their credentials in 43 states, the District of Columbia, Hawaii and Puerto Rico. The number so registered in each state is reported in table 41.

The constitution of the National Board of Medical Examiners provides for a membership of thirty representing the federal services, the Federation of State Medical Boards of the United States, the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and members elected at large. The acting president of the board is Borden S. Veeder, M.D., the medical secretary, J. S. Rodman, M.D., and the executive secretary and treasurer, Mr. Everett S. Elwood. The address of the board is 225 South 15th Street, Philadelphia.

Table 40.—*Diplomates from Individual Medical Schools, 1946*

University of Arkansas	3	New York Medical College	93
College of Medical Evangelists	42	New York University	97
Stanford University	3	Syracuse University	28
University of California	1	University of Buffalo	77
University of Colorado	8	University of Rochester	42
Yale University	72	Duke University	78
George Washington University	74	Bowman-Gray School of Med.	4
Georgetown University	45	University of Cincinnati	3
Howard University	8	Western Reserve University	1
Emory University	1	University of Oregon	4
Loyola University	6	Hahnemann, Philadelphia	9
Northwestern University	24	Jefferson Medical College	14
University of Chicago	4	Temple University	4
University of Illinois	10	University of Pennsylvania	20
Indiana University	7	University of Pittsburgh	3
State University of Iowa	28	Woman's Medical College	1
University of Louisville	11	Meharry Medical College	12
Louisiana State University	1	University of Tennessee	1
Tulane University	7	Vanderbilt Universtiy	7
Johns Hopkins University	14	University of Utah	2
University of Maryland	8	University of Vermont	25
Boston University	68	Medical College of Virginia	2
Harvard Medical School	145	University of Virginia	2
Tufts College Medical School	128	Marquette University	14
University of Michigan	6	University of Wisconsin	1
Wayne University	6	Dalhousie University	1
University of Minnesota	10	McGill University	29
St. Louis University	18	Unversity of Alberta	1
Washington University	5	University of Manitoba	1
Creighton University	9	University of Montreal	1
University of Nebraska	3	University of Toronto	1
Albany Medical College	34	Extinct medical schools	3
Columbia University	113	Foreign	7
Cornell University	38		
Long Island College of Med.	63	Total	1,611

Table 41.—*Licenses Granted on the Basis of National Board Certificates, 1946*

Alabama	15	New Hampshire	51
Arizona	11	New Jersey	125
Arkansas	4	New Mexico	5
California	247	New York	754
Colorado	24	North Carolina	48
Connecticut	129	North Dakota	3
Delaware	1	Ohio	66
District of Columbia	106	Oklahoma	8
Georgia	20	Oregon	20
Idaho	3	Pennsylvania	63
Illinois	72	Rhode Island	25
Iowa	25	South Carolina	8
Kansas	20	South Dakota	2
Kentucky	10	Tennessee	8
Maine	28	Texas	39
Maryland	42	Utah	11
Massachusetts	374	Vermont	46
Michigan	33	Virginia	41
Minnesota	44	Washington	32
Mississippi	11	West Virginia	16
Missouri	30	Wyoming	2
Nebraska	7	Hawaii	11
Nevada	7	Puerto Rico	7
Total			2,654

EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

The "Essentials for Approved Examining Boards in Specialties," originally published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION July 7, 1934, have been revised, particularly as they now refer to historical background, organization of boards, their operation and procedures for obtaining approval. This revision was officially approved by the House of Delegates of the American Medical Association on Dec. 9, 1946. These "Essentials" are as follows:

ESSENTIALS FOR APPROVED EXAMINING BOARDS IN SPECIALTIES

INTRODUCTION

The American Board of Ophthalmology, the first of the examining boards in the specialties, was incorporated in 1917. Four additional boards were organized by 1933 (Otolaryngology in 1924, Obstetrics and Gynecology in 1930, Dermatology and Syphilology in 1932 and Pediatrics in 1933).

In 1933 the House of Delegates of the American Medical Association adopted a resolution authorizing the Council on Medical Education and Hospitals "to express its approval of such special examining boards as conform to the standards of administration formulated by the Council" and providing for the employment of "the machinery of the American Medical Association, including the publication of its Directory, in furthering the work of such examining boards as may be accredited by the Council."

In 1933-1934 the Advisory Board for Medical Specialties was organized with representation from each of the approved boards to "act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists." The Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties work in close collaboration through joint meetings and frequent conferences.

PURPOSE AND FUNCTIONS OF A SPECIALTY BOARD

An American Board in a specialty is organized (*a*) to assist in improving the quality of graduate education in that field, (*b*) to establish minimum educational and training standards in the specialty, in conformity with the general provisions of these "Essentials," (*c*) to determine whether candidates have received adequate preparation as defined by the Board, (*d*) to provide comprehensive examinations to determine the ability and fitness of such candidates and (*e*) to certify to the competence of those physicians who have satisfied the requirements of the board, as a protection to the public and profession.

ORGANIZATION

An examining board in a specialty, to be approved by the Council on Medical Education and Hospitals, should represent a recognized and distinct specialty or well defined field of medicine. It should be composed of representatives of the national organizations in the field as well as the related section of the American Medical Association. The board should be incorporated.

DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists. In each case the symbol employed in designating the specialists in the Directory of the American Medical Association is given (A.B. 1, and so on). Certain of the boards also certify candidates in subspecialties, as indicated by footnotes:

	Name of Board	Year of Incorporation
A.B.	1. American Board of Pediatrics[1]	1933
A.B.	2. American Board of Psychiatry and Neurology	1934
A.B.	3. American Board of Orthopaedic Surgery	1934
A.B.	4. American Board of Dermatology and Syphilology	1932
A.B.	5. American Board of Radiology	1934
A.B.	6. American Board of Urology	1935
A.B.	7. American Board of Obstetrics and Gynecology	1930
A.B.	8. American Board of Internal Medicine[2]	1936
A.B.	9. American Board of Pathology	1936
A.B.	10. American Board of Ophthalmology	1917
A.B.	11. American Board of Otolaryngology	1924
A.B.	12. American Board of Surgery[3]	1937
A.B.	13. American Board of Anesthesiology	1938
A.B.	14. American Board of Plastic Surgery	1937
A.B.	15. American Board of Neurological Surgery	1940

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[1] Also certifies specialists in allergy.

[2] Also certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis.

[3] Also certifies specialists in proctology.

QUALIFICATIONS OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standard:

A. General Qualifications.

1. Satisfactory moral and ethical standing in the profession.
2. A license to practice medicine in a state, territory or possession of the United States.

B. Professional Education.

1. Graduation from a medical school of the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. Candidates who submit credentials from institutions outside of the United States and Canada should be required to pass the examination of the National Board of Medical Examiners.
2. Completion of an internship of not less than one year in a hospital approved by the same Council.

C. Special Training.

1. A period of special training after the internship, preferably three years, in clinics, dispensaries, hospitals or laboratories approved by the Council on Medical Education and Hospitals and the respective specialty board as competent to provide a satisfactory training in the special field of study. In individual instances specialty boards may grant training credit for work done in preceptorships. Candidates whose special training has been received outside of the United States should submit credentials satisfactory to the examining boards. Credits for military service may be granted by individual boards.
2. This specialized training preparation shall likewise:
    (*a*) include satisfactory graduate training in the basic sciences which is considered by the American Board necessary to the proper understanding of the specialty in question;
    (*b*) be supplemented by an additional period of not less than two years of training and/or practice in the special field concerned;
    (*c*) be evaluated by examinations which should include the basic medical sciences as well as the clinical, laboratory and public health aspects of the specialty.

ESTABLISHMENT OF AN ACCEPTABLE SPECIALTY BOARD

In considering the organization of an American Board in a special field of medicine seeking recognition by the Council on Medical Education and Hospitals of the American Medical Association the procedure is as follows:

A. The application should be presented to the Advisory Board for Medical Specialties. This board in turn shall fully inform the Council on Medical Education and Hospitals regarding the application.

B. The application after being received from the Advisory Board for Medical Specialties will carefully be deliberated by the Council, due consideration being given to the need for a new board, the relationship of that board to the existing boards and the adequacy of the proposed educational programs and available facilities for the preparation of physicians for the certification examinations.

C. The Council will approve new boards only after recommendation by the Advisory Board for Medical Specialties.

D. Official recognition of the board is indicated by listing the specialty in the "Essentials for Approved Examining Boards in Specialties" and indicating certified specialists with an appropriate symbol in the Directory of the American Medical Association.

RESIDENCIES IN THE SPECIALTIES

Procedures for considering an institution for approval of a residency for training in a recognized specialty are as follows:

A. The institution should make application to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

B. The Council conducts a survey of the institution to determine whether the residency complies with the Council's "Essentials of Approved Residencies and Fellowships."

C. The Council prepares a report on its findings and conclusions which is submitted to the specialty board concerned for its recommendations.

D. Approval may then be granted by the Council.

WITHDRAWAL OF APPROVAL

On conference with the respective specialty boards or with the Advisory Board for Medical Specialties, the recognition extended by the Council on Medical Education and Hospitals of the American Medical Association to holders of certificates from special examining boards, or that granted to a specialty board, may be withdrawn. Approval may likewise be withdrawn from institutions offering residencies when resurveys by the Council reveal a failure of the institution to maintain a satisfactory educational program.

Each specialty board publishes a booklet containing information regarding its organization, personnel, purposes and requirements for certification. A statement of these requirements for each board was published in the Educational Number of THE JOURNAL in 1942.[4] Only a few minor changes have been made by some of the boards since these regulations were published in 1942.

In 1946 three boards certified candidates in subspecialties. The American Board of Internal Medicine certified in allergy, cardiovascular disease, gastroenterology and pulmonary diseases (formerly called tuberculosis). Similarly the American Board of Surgery certified specialists in proctology. The American Board of Pediatrics has developed procedures for certifying pediatricians in allergy and certified five physicians to date. Regular board certification is a prerequisite for certification in the subspecialty. This function of these boards in internal medicine, surgery and pediatrics certifying specialists in the subspecialties is also approved by the Council.

There has been some misunderstanding regarding the status of the so-called subspecialties of proctology (in surgery), cardiovascular diseases, gastroenterology, tuberculosis (in medicine) and allergy (in medicine and pediatrics). These subspecialties are fully recognized by the Council on Medical Education and Hospitals of the American Medical Association. As such they are appropriate fields in which to organize residency training when the facilities warrant. Approved training programs will be listed under these headings in the Council's official list of approved residencies whenever the subspecialty board so desires.

The majority of the boards grant some credit for military service. The policies adopted by the boards vary. One board grants an indefinite amount of credit, to be determined by an evaluation of the experience of individual applicants. The board in surgery grants full credit for work done in the surgical division of a regularly constituted army or navy hospital. Most boards limit the credit allowed to one year of training and/or one year of experience. The special provisions for military credit made by each board were published in the 1943 Educational Number of THE JOURNAL.[5] Medical officers who did not keep an account of work done in military service in the booklet entitled "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards" provided by the boards may now submit a duly certified statement of their military service as a part of the credentials to be submitted on application for the certification examination.

Because of the large number of applications for approval of residency training programs submitted by hospitals developing these programs in response to the increased demand for training by returning medical officers, the Council on Medical Education and Hospitals of the American Medical Association in February 1946 approved a plan for the temporary approval of residencies. This plan was developed in collaboration with the Advisory Board for Medical Specialties through its executive committee. The efforts of the Council, hospitals and medical schools have resulted in providing residency positions in civilian hospitals for 10,422 physicians as of March 1, 1947 as compared with 5,256 in 1941. In the course of the calendar year 1946 there were 511 residency services approved on a temporary basis. Of these services nearly 40 per cent have subsequently been given permanent approval on the basis of surveys of the hospitals providing the residencies. It is anticipated by the Council that the temporary approval of residencies might soon be discontinued.

TABLE 42.—*Specialty Board Credit for Preceptorship Training*

		Preceptors Limitations			
	Credit Awarded	Any Certified Board Member	Other Than Certified Board Member	List of Preceptors Maintained	Maximum Clinical Training Credit
Anesthesiology	Yes	No[2]	Yes (rarely)[2]	No	2 years
Dermatology and syphilology	Yes	No[2]	No	Yes	[5]
Internal medicine	No[1]	....	....	...	....
Neurologic surgery	Yes	No[2]	No	No	No limit set
Obstetrics and gynecology	Yes	Yes	Yes[2]	No	Aver. 6 mo. per year of service
Ophthalmology	Yes	No[2]	Yes[2]	No	No limit set
Orthopedic surgery	Yes	Yes	No	No	3 years
Otolaryngology	Yes	Yes	Yes[2]	No	5 years[6]
Pathology	No	....	....	...	....
Pediatrics	No	....	....	...	....
Plastic surgery	Yes	Yes	No	No	Full credit
Psychiatry and neurology	No	....	....	...	....
Radiology	No	....	....	...	....
Surgery	Yes	Yes[3]	No	No	2 years
Urology	Yes	Yes[4]	No	No	3 years

1. All preceptorships now recognized by the board to be discontinued July 1, 1947. No new preceptors to be appointed.
2. Facilities and teacher qualifications must be approved by board.
3. Institution must be approved for graduate training.
4. Board member must certify training facilities are adequate and must certify at end of training period that candidate has had adequate training.
5. Two years, half time, one half of each day being spent in an approved institution; or one year full time in the preceptor's office in localities where approved institutions are not available.
6. Six years required after July 1950.

TABLE 43.—*Annual Specialty Board Certifications Since 1940*

Year (Ended March)	Number of Boards in Existence	Number Certified That Year	Accumulated Totals
1940	14	.....	15,853
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,404	28,476

Eleven boards recognize training with a qualified preceptor as a substitute for special clinical training. The policies of the boards toward the acceptance of such training are briefly outlined in table 42. The time credit allowed varies but in all instances is decided on an individual basis. The individual facilities and teacher qualifications of the preceptor must be approved by the respective board. This type of training is not accepted by four boards. The American Board of

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[4] J. A. M. A. **119:** 1345 (Aug. 15) 1942.
[5] J. A. M. A. **122:** 1085 (Aug. 14) 1943.

Internal Medicine has recently ruled that all preceptorships will be discontinued as of July 1, 1947 and no new preceptors will be appointed. Only four of the boards will give consideration to preceptor training carried out under a qualified specialist who is not himself certified by the appropriate board. One board maintains a list of preceptors.

Table 43 gives the annual number of specialists certified by all boards for the past seven years and the accumulated totals. The largest number (2,404) obtained certificates in the period from March 1, 1946 to March 1, 1947. Of all those physicians now certified, 12,623 (44 per cent) received their specialty credentials in the past seven years.

A list of the specialty boards, their officers and the number of certificates awarded prior to March 1, 1946 and the number certified to March 1, 1947 respectively appear in table 44. On March 1, 1946 there were 26,072 physicians certified by the fifteen boards, and in the year ended March 1, 1947, 2,404 were certified. Up to this date a total of 28,476 had been certified.

Included in the 28,476 certified in major specialties are 882 who were also certified in subspecialties by the boards in internal medicine, pediatrics and surgery as follows:

Internal Medicine	
Allergy	95
Cardiovascular Disease	361
Gastroenterology	183
Pulmonary Diseases (formerly called "Tuberculosis")	163
Pediatrics	
Allergy	5
Surgery	
Proctology	75
Total	882

The greatest number in any one specialty were certified in internal medicine: 4,449 to March 1, 1947. Of this number 543 were certified in the past year. During the past year also 445 were certified by the board in psychiatry and neurology, bringing the total certified by this board to 2,438. Significant increases in the last year were also noted in surgery (284), obstetrics and gynecology (172), radiology (168) and pediatrics (152). Neurological surgery certified twenty and plastic surgery eight. The oldest board in existence, ophthalmology (organized in 1917) certified 74 last year, bringing the total certified to date as 2,564. Heretofore the greatest number certified in any one specialty was in otolaryngology. In this specialty 3,988 have received the board's certificate since its organization in 1924.

A key number has been assigned to each approved board, such as A.B. 1, and the biographic records of physicians published in the American Medical Directory includes by these means reference to those certified.

The second volume of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties, was published in 1946. This directory coordinates the work of the several specialty boards by combining in one volume the details of the activities of all boards with lists of their diplomates, including biographic information and data pertaining to the graduate educational background of each of the specialists certified by an American board. This volume lists 24,028 specialists certified prior to November 1945 by the fifteen American Boards and represents only those living at the time of publication but includes many who have retired from active practice.

TABLE 44.—*Approved Examining Boards in Medical Specialties*

Key No.	Name of Board	Year of Incorporation	Total Certificates Awarded to March 1, 1946	Total Certificates Awarded to March 1 1947
A.B. 1.	American Board of Pediatrics Pres., C. Anderson Aldrich, 102 Second Ave. S.W., Rochester, Minn. Sec., Leo F. Hill, 718 Royal Union Bldg., 7th and Grand Blvd., Des Moines, Iowa	1933	2,420	2,572
A.B. 2.	American Board of Psychiatry and Neurology Pres., Walter Freeman, 2014 R St. N.W., Washington 9, D. C. Sec., F. J. Braceland, 102-110 Second Ave. S.W., Rochester, Minn.	1934	1,993	2,438
A.B. 3.	American Board of Orthopaedic Surgery Pres., Guy A. Caldwell, 3503 Prytania St., New Orleans Sec., F. M. McKeever, 1136 W. 6th St., Los Angeles 14	1934	940	1,042
A.B. 4.	American Board of Dermatology and Syphilology Pres., Francis E. Senear, 55 E. Washington St., Chicago Sec., George M. Lewis, 66 E. 66th St., New York City	1932	753	844
A.B. 5.	American Board of Radiology Pres., J. W. Pierson, 1107 St. Paul St., Baltimore Sec., B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.	1934	2,198	2,366
A.B. 6	American Board of Urology Pres., Gilbert J. Thomas, 1409 Willow St., Minneapolis Sec., Harry Culver, 1409 Willow St., Minneapolis	1935	1,050	1,136
A.B. 7.	American Board of Obstetrics and Gynecology Pres., Walter T. Dannreuther, 580 Park Ave., New York City Sec., Paul Titus, 1015 Highland Bldg., Pittsburgh 6	1930	1,965	2,137
A. B. 8.	American Board of Internal Medicine Chairman, James J. Waring, 4200 E. 9th Ave., Denver 7 Sec.-Treas., Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn. Asst. Sec., William A. Werrell, 1 West Main St., Madison 3, Wis.	1936	3,906	4,449
A.B. 9.	American Board of Pathology Pres., N. C. Foot, 525 E. 68th St., New York Sec., Robert A. Moore, Washington University School of Medicine, St. Louis 10.	1936	1,240	1,339
A.B. 10.	American Board of Ophthalmology Chairman, Everett L. Goar, 1300 Walker Ave., Houston, Texas Sec., S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine	1917	2,490	2,564
A.B. 11.	American Board of Otolaryngology Pres., Harris P. Mosher, 127 Front St., Marblehead, Mass. Sec., Dean M. Lierle, University Hospital, Iowa City	1924	3,886	3,988
A.B. 12.	American Board of Surgery Chairman, Vernon C. David, 59 E. Madison St., Chicago Sec., J. Stewart Rodman, 225 S. 15th St., Philadelphia	1937	2,620	2,904
A.B. 13.	American Board of Anesthesiology Sec., Paul M. Wood, 131 Riverside Dr., New York City 24	1938	278	316
A.B. 14.	American Board of Plastic Surgery Chairman, James Barrett Brown, 508 N. Grand Blvd., St. Louis 3 Sec., Robert H. Ivy, c/o Clerical Secretary, 4647 Pershing Ave., St. Louis 8.	1937	163	171
A.B. 15.	American Board of Neurological Surgery Chairm 384 P Sec., Paul C. Bucy, 912 S. Wood St., Chicago 12.	1940	170	190
	Totals		26,072	28,476

Advisory Board for Medical Specialties
Pres., Robin C. Buerki, University of Pennsylvania Graduate School of Medicine, Philadelphia
Sec., B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

Certification in the subspecialties: By the American Board of Internal Medicine: allergy 95, cardiovascular disease 3 *pulmonary diseases* (called "tuberculosis" unti American Board of Pediatrics: allergy 5. By Surgery: proctology 75. Total certified in the figures are included in the foregoing tabulation.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - : Eight dollars per annum in advance

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SATURDAY, MAY 17, 1947

MEDICAL LICENSURE

When Dr. Arthur Dean Bevan retired from the chairmanship of the Council on Medical Education and Hospitals of the American Medical Association more than twenty years ago he wisely emphasized that the accomplishments of the Council depended in large measure on its cooperation with other agencies and organizations that seek to improve medical education and the quality of medical care. The collaboration of the Council with the medical licensing agencies is typical of this philosophy. The publication of licensure statistics has figured prominently in the improvement of medical education in this country for over four decades. In this issue are presented the data on licensure for the year 1946, made possible by the conscientious reporting of examination and reciprocity actions of every governmental unit of the United States, its territories and its possessions, as well as the boards of examiners in the basic medical sciences, the National Board of Medical Examiners and each examining board in the medical specialties.

The candidates for licensure in the United States whose examination results are reported represented sixty-nine approved medical schools in the United States, nine approved medical schools of Canada, eighty-six faculties of medicine and four licensing corporations of other countries, eight medical schools now extinct, six unapproved institutions and seven colleges of osteopathy.

During the year 1946 there were 16,129 licenses issued, 6,559 after examination and 9,570 by reciprocity and endorsement. These figures represent an unprecedented increase over all previous years in both groups. Of those licensed, 6,959 represented real additions to the profession in this country, since many previously held licenses elsewhere. The number of physicians lost by death and emigration was 3,358, so that in 1946 the physician population in the United States was increased by 3,601.

Never before have there been anywhere near as many licenses issued by reciprocity and endorsement as in the past year. This is probably because unprecedented numbers of physicians are seeking new locations after the disrupting influence of the war.

Failures of candidates in various categories in examinations given by state licensing boards followed the familiar pattern. Only 3.1 per cent of graduates of existing approved medical schools failed. On the other hand, 41.6 per cent of those from unapproved schools failed and 55.5 per cent of the graduates of schools outside the United States and Canada did not pass.

Reprints of this report and of separate tables, in demand from numerous sources, will be available on request as one of the services rendered by the Council in replying to the thousands of annual requests for information on licensure.

METOPON HYDROCHLORIDE

In 1929 with funds provided by the Rockefeller Foundation the National Research Council, through its Committee on Drug Addiction, established a coordinated program to study drug addiction and to search for a nonaddicting pain-relieving drug comparable to morphine. The principal participating organizations were the Universities of Virginia and Michigan, the United States Public Health Service, the Treasury Department's Bureau of Narcotics and the health department of the state of Massachusetts. These agencies brought together chemical, pharmacologic and clinical facilities for the purposes of the study. Now a new morphine derivative—metopon hydrochloride (methyldihydromorphinone hydrochloride), one of many compounds made and studied in this coordinated effort—will soon be available.

Chemically metopon is a morphine derivative; pharmacologically it is qualitatively like morphine even to the properties of tolerance and addiction liability. Chemically metopon differs from morphine in three particulars: one double bond of the phenanthrene nucleus has been reduced by hydrogenation, the alcoholic hydroxyl has been replaced by oxygen and a new substituent, a methyl group, has been attached to the phenanthrene nucleus. Studies made thus far indicate that pharmacologically metopon differs from morphine quantitatively in all its important actions—its analgesic effectiveness is at least double and its duration of action is about equal to that of morphine; it is nearly devoid of emetic action; tolerance to it appears to develop more slowly and to disappear more quickly and physical dependence builds up more slowly than with morphine; therapeutic analgesic doses produce little or no respiratory depression and much less mental dulness than does morphine, and it is relatively highly effective by oral administration.

In addition to animal experiments these differences have been established by extensive employment of the drug in two types of patients: people addicted to morphine and others (patients dying of cancer) needing prolonged relief from pain but without previous experience with opiates. In morphine addicts metopon appears only partially to prevent the impending signs of physical and psychic dependence. When the drug is administered orally to patients with incurable cancer it gives adequate relief from pain with little mental dulling, without nausea or vomiting and with slow development of tolerance and dependence.

The high analgesic effectiveness of oral doses (with the elimination of the disadvantage to the patient of hypodermic injection), the absence of nausea and vomiting even in patients who vomit with morphine or other derivatives, the absence of mental dulness and the slow development of tolerance and dependence place metopon in a class by itself for the treatment of the chronic suffering of cancer. It is for that purpose exclusively that it is being manufactured and marketed.

Metopon will be available only in capsule form for oral administration. The capsules will be put up in bottles of 100, and each capsule will contain 3 mg. of metopon hydrochloride. They can be obtained by physicians only from Sharp & Dohme or Parke, Davis & Co. on a regular official narcotic order form, which must be accompanied with a signed statement supplying information as to the number of patients to be treated and the diagnosis on each. The drug will be distributed for no other purpose than oral administration for chronic relief of pain in cases of cancer.

The dose of metopon hydrochloride is 6 to 9 mg. (two or three capsules), to be repeated only on recurrence of pain, avoiding regular by-the-clock administration. As with morphine, the dose should be kept at the lowest level compatible with adequate relief of pain. Therefore, administration should be started with two capsules per dose, increasing to three only if the analgesic effect is insufficient.

Tolerance to any narcotic drug develops more rapidly with excessive dosage and under regular by-the-clock administration. Also, as a rule, the pain of cancer varies widely in intensity from time to time. Pain, therefore, should be the only guide to time of administration and level of dosage. Tolerance to metopon hydrochloride develops slowly; it can be delayed or interrupted entirely by withholding the drug occasionally for twelve hours or for as much of that period as the incidence of pain will permit.

To each physician will be sent a record card for each patient to whom metopon hydrochloride is to be administered. He will be requested to fill out these cards and return them in the addressed return envelop. He must furnish this record of his patient and his use of metopon hydrochloride if he wishes to repeat his order for the drug. The principal object of this detailed report is to check the satisfactoriness of metopon hydrochloride administration in general practice. The physician's cooperation in making it as complete as possible is earnestly solicited.

The limited use of metopon hydrochloride as here described has been recommended by the Drug Addiction Committee of the National Research Council; this committee, with the cooperation of the American Cancer Society, will supervise the distribution of the drug. The committee is composed of William Charles White, Chairman, Washington, D. C.; H. J. Anslinger, Commissioner of Narcotics, United States Treasury Department, Washington, D. C.; Lyndon F. Small, National Institute of Health, Washington, D. C., and Nathan B. Eddy, National Institute of Health, Washington, D. C.[1]

THE TEACHING OF NUTRITION—IV

Until recently consideration of dietary problems in relation to surgical patients has been of relatively small importance. Quantitative rather than qualitative problems were of chief concern. When to give food to patients after gastric operations or peritonitis was the type of nutritional problem that interested the surgeon. A real knowledge of dietetics was not needed to solve such problems, if they were solved. Actually, true quantitative thinking concerning the problem was seldom if ever done. Measurements were not used, but expressions such as "give the patient a 'light' soft solid diet." Medical consultants were asked for advice when any problems more complicated than these appeared.

Recently, however, nutrition has been found so important in the recovery of patients with various "surgical" diseases that the surgeon himself has been forced to pay more and more attention to the diets and dietary supplements, such as vitamins, that are given his patients. This is especially true since intravenous alimentation with protein digests, plasma and vitamins has been made available to complicate the former rather simple routines for early postoperative care that existed ten years ago. Then the only fluids given intravenously were saline solution, glucose and whole blood.

Infections and injuries (and the latter include major surgical operations) produce rapid wastage of protein tissues and of stores of vitamins and minerals. A fair percentage of the patients also suffer from deficiencies of protein and various vitamins and minerals before their injury. Severe infection or injury may result in early nutritional disturbance in the healthy patient, while slight infection or injury may have the same result in the man already depleted.

So far as is known, formal, systematic teaching of the nutrition of surgical patients is done in few medical schools or hospitals. Although it is not easy to find the time for anything new in any curriculum, the small amount of time necessary should be found.

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[1] Queries and comments on metopon may be directed to Dr. Eddy, who will answer them for the committee.

Formal lectures can do little more than create an interest in the subject. Detailed work on individual patients with responsibility for diets is needed, together with close observation of the patient's response to the food and other nutrients ordered. Exercises should be held with small sections of students who are working actively and constantly with the patients. Besides the instructor, residents, interns, students and, above all, a trained dietitian should make up the study group. First, the members of the group must think in terms of the amounts of protein, vitamins, minerals and calories their patient needs to maintain his strength and to replace at the optimum rate any past deficits. Second, they must learn to think of food in terms of the carbohydrate, protein, fat, vitamins and minerals the food contains and the number of calories it furnishes. Third, they must estimate, with the aid of the dietitian, how closely it is practical for them to try to balance intake against probable utilization and need.

The ground that could be covered by such a study group is much greater than the time that could possibly be allotted to it. However, some of the most important subjects that should be kept in mind are the relationships of protein, vitamins and anemia to surgical shock; the loss of protein and sodium chloride in pus and other excretions; loss of weight after surgery and its prevention; the relative importance of technical errors, distention, plasma protein deficiency and ascorbic acid deficiency in wound disruption or in poor wound healing; differences between the amounts and kinds of food ordered and the foods presented to the patients; differences between the amounts and kind of food presented to the patients and the foods eaten; differences between the amounts and kinds of food eaten and the foods actually absorbed from the intestine; the food values in the various diets consumed and how they may be calculated; how a diet containing 400 Gm. of protein and furnishing 4,000 calories can be given to a very sick patient, and what vitamins, minerals, protein and calories are needed each day by the patient with chronic ulcerative colitis or with an extensive unhealed burn at the end of three weeks.

Suggested answers to these questions may be easily available, but how often are the questions asked or discussed in active surgical services?

Such a study group could pay some attention to the costs of the various diets and supplements ordered. In general all doctors try to find ways and means of securing for their patients any necessary treatment regardless of cost. However, especially in nutrition, there are times when less costly materials are as good as or better than costly ones. For instance, if plasma is used intravenously purely to furnish protein, it costs at least $1 per gram of protein. Suitable digests for intravenous use furnish protein equivalent at less than 10 cents per gram and are often safer to give to the depleted patient because they do not contain the large amount of sodium that plasma does. When it comes to oral feeding hamburger steak at 40 cents a pound furnishes protein at one-half cent a gram. But skim milk powder at $16 a hundred pounds furnishes protein at 1 mill per gram, and with it one gets a large quantity of sugar and certain vitamins free. When a patient is seriously depleted of protein and has a deficit of many kilograms, plasma is useless for intravenous feeding and skim milk and skim milk powder are better than steak for oral feeding! This is true not only because of the price but also because so much more can be taken by the patient in a given time. These are some of the most important elementary lessons of nutrition that surgeons should study and learn.

Current Comment

GAMMA GLOBULIN VS. THE COMMON COLD

Clinical evidence that human serum globulin contains antibodies against common respiratory diseases presumably caused by unknown pneumotropic viruses is offered by Adams and Smith[1] of the Department of Pediatrics, University of Minnesota. Medical students were selected for prophylactic tests. A careful history of their past experiences with acute respiratory infections was obtained. From these data they were divided into groups based on the previous frequency of the disease. One half of each group was selected for experimental study. In October an initial dose of 6 cc. of concentrated gamma globulin solution was administered intramuscularly to each student of the experimental group. Thereafter 4 cc. of the same solution was given at monthly intervals, most of the students receiving a total of 30 cc. in seven inoculations. The occurrence and severity of attacks of respiratory disease were determined at frequent intervals for each group. In the experimental groups, 77 episodes of acute respiratory disease were recorded during the academic year. There were 132 episodes in the nontreated group. In the experimental groups the diseases were classified as severe in 10 instances, moderate in 17 and mild in 49 cases. The previous season record of this group showed 28 severe attacks, 38 moderate and 46 mild. In the nontreated group the number and severity of the attacks were identical with those of the previous year. From these data the conclusions are that human gamma serum globulin given in the arbitrarily selected doses reduces the incidence of attacks of acute respiratory disease by about 40 per cent, with a parallel reduction in the severity of individual cases. Whether or not the effective antibodies are specific or nonspecific for the corresponding viruses has not yet been determined. The presence of nonspecific virus inactivating substances in certain Brazilian species of marsupials and rodents has been recently reported by Koprowski[2] of the Rockefeller Foundation.

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1. Adams, J. M., and Smith, N.: Proc. Soc. Exper. Biol. & Med. 63: 446 (Nov.) 1946.
2. Koprowski, Hilary: J. Immunol. 54: 387 (Dec.) 1946.

ORGANIZATION SECTION

World Medical Association

(NOTE.—*Following is a report by two members of the Board of Trustees covering recent attendance of a session of the World Medical Association.*—ED.)

The World Medical Association was proposed in September 1946 at a conference in London. It is the successor of the Association Professionelle Internationale des Médecins.

The purpose of the organization is to foster close relationships among the national medical associations of the world.

A second conference was held in London in November 1946, at which time a tentative draft of a constitution and by-laws was drawn up. An organizing committee of ten was appointed, comprising representatives from Belgium, Canada, Czechoslovakia, France, Great Britain, Egypt, Spain, Sweden, Switzerland and the United States. Dr. T. C. Routley of Canada was elected chairman of the organizing committee, and a joint secretariat was appointed, consisting of the secretary of the British Medical Association, Dr. Charles Hill, and the secretary of the French Medical Association, Dr. P. Cibrie. Dr. O. Leuch of Switzerland was designated treasurer.

The tentative draft of the constitution and by-laws was circulated among the members of the organizing committee for study and comment. It served as the basis of the agenda for the two day meeting held in London at the British Medical Association House on April 14 and 15, 1947.

At this meeting a final draft of the constitution and by-laws was agreed on, and this is to be submitted to the first plenary session of the association for ratification. This session will be held in Paris Sept. 16 to 20, 1947.

The object of the association, in pursuit of which it shall use every means available to it, are:

1. To promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available.
2. To maintain the honor and protect the interests of the medical profession.
3. To study and report on the professional problems which confront the medical profession in the different countries.
4. To organize an exchange of information on matters of interest to the medical profession.
5. To establish relations with and to present the views of the medical profession to the World Health Organization, UNESCO and other appropriate bodies.
6. To assist all peoples of the world to attain the highest possible level of health.

The original draft had provided that the association could pass resolutions and make recommendations relative to the medical care situation in any country. The American representatives objected strenuously to this and it was deleted. We made no objections to factual reports but felt that no outside agency should make recommendations relative to our internal situation or the internal situation of any other country.

It was decided that the association should consist of a general assembly comprising two delegates from each participating association. Each association may also send observers in addition to the delegates. This general assembly shall have general control over the policy and affairs of the association. The officers are to be a president, a president-elect, a secretariat (which, as soon as possible, will consist of a single secretary on a paid full time basis with the necessary assistance) and a treasurer. The general assembly will meet once a year and, so far as possible, in a different country each year. The president-elect will be chosen from among the outstanding physicians of the country in which the next meeting is to be held.

A council is to be established, which will consist of the president, the president-elect, the treasurer and nine elective members, three of whom are to be elected each year for three years. The first year three are to be elected for three years, three for two years and three for one year. The council will meet just before and just after the general assembly and once in between the meetings of the assembly. It will carry out the resolutions of the assembly and administer its affairs in conformity with the constitution and by-laws. The council shall elect its own chairman.

English and French are the official languages, and translation is provided.

A journal is to be published at intervals yet to be decided. Articles may be published in either English or French, but official notices are to be published in both languages. The council is to nominate an editor of the journal, to be elected by the general assembly.

The constitution can be amended only after nine months' notice and by a two-thirds vote. The by-laws and resolutions pertaining to finance may be amended after four months' notice and by a majority vote. Referenda of the member associations are provided for on important changes of policy.

The dues of the association depend in part on the size of the member association. Each member association is to pay 10 Swiss centimes per member, but each association will pay at least 1,000 Swiss francs and no member association shall pay more than 10,000 Swiss francs. The council will have authority to reduce the assessment in appropriate circumstances.

This caused considerable discussion, as some members suggested a flat rate per member. This was objected to by us, as it would have resulted in our paying more than half of all the assessments. It was pointed out that the American Medical Association, although comprising over 130,000 members, receives no dues from its members and receives only the subscriptions for the publications subscribed for by its Fellows.

The aforementioned arrangement was then agreed on as a compromise.

There are now fifty-nine national medical organizations in the world. The national associations of the following countries are the founder associations of the World Medical Association: Austria, Australia, Belgium, Canada, Chile, Czechoslovakia, Denmark, Egypt, Eire, Finland, France, Great Britain, Greece, Hungary, Iceland, Iraq, Luxembourg, the Netherlands, New Zealand, Norway, Persia, Poland, Portugal, Spain, Sweden, South Africa, Switzerland, Turkey and the United States.

This new organization has great potentialities. It will afford a mode of rapprochement among the doctors of the world. With the present chaotic state of international affairs, it would seem that the doctors should have no difficulty in getting together as they have one common aim, expressed in the final item of the object of the association, "to assist all peoples of the world to attain the highest possible level of health."

After the draft of the constitution and by-laws had been completed, a tentative budget was authorized.

Dr. T. C. Routley was designated to represent the World Medical Association at the Centenary of the American Medical Association.

Dr. Routley reported that tentative arrangements had been made to distribute a book on nutrition, prepared by the American Medical Association, the Canadian Medical Association and the National Research Council of the United States, to all doctors of the world. The expense of printing is to be defrayed by the Mead Johnson Company.

A draft of a questionnaire to be sent to all national medical associations was approved and it has been sent out. The questionnaire is entitled "Enquiry into the Present Position of the Medical Profession and Its Relation to the State."

On the evening of April 14 the British Medical Association gave a dinner to the committee. It was presided over by Sir Hugh Lett, president of the British Medical Association.

Later in the week we were both privileged to inspect the work of two of the largest hospitals in London.

On the evening of April 17 we were entertained at the Athenaeum Club by Dr. Hugh Clegg, editor of the *British Medical Journal.* We had an opportunity to discuss the new British National Health Service Act with Sir Wilson Jameson, chief medical officer of the British Health Ministry, and Sir Allan Daly, chief medical officer of the London Hospital Council.

Respectfully submitted,

LOUIS H. BAUER, M.D.
ELMER L. HENDERSON, M.D.

Council on Medical Service

CASH SICKNESS BENEFITS FOR RAILROAD WORKERS

A cash sickness benefit system for railroad workers will begin operating throughout the nation on July 1. These benefits were added under the 1946 amendments to the Railroad Unemployment Insurance Act and provide partial compensation for wage loss due to disability on the same basis as that due to unemployment. The system will be administered by the Railroad Retirement Board, which administers the Railroad Unemployment Insurance Act.

All disabilities which prevent railroad employees from working, regardless of how or where they occur, are covered under the program. In the first year of operations, about 300,000 of the 2,075,000 railroad workers qualified are expected to receive benefits, and the total amount of benefits is expected to reach $36,000,000.

A physician's statement of sickness will be required before claims can be paid. It is believed that the program will require about 650,000 medical examinations a year. Employees are free to choose their own doctors, and any physician to whom an employee goes for examination or treatment may supply the information required as initial proof of an employee's claim.

The forms on which medical information will be requested from a physician are the "Statement of Sickness" and the "Supplemental Doctor's Statement." The first mentioned form is intended primarily to obtain information at the beginning of each illness, and the second is intended to obtain additional information only when such information is needed later on in the same illness. The statements are designed to furnish, as simply and as conveniently as possible for the physician, the minimum information required for board purposes.

The "Statement of Sickness" on which the medical evidence is to be furnished must be mailed to the appropriate office of the Railroad Retirement Board within seven days after the first day claimed as a day of sickness, or the employee may lose part of his benefits. Claims for succeeding fourteen day periods may be allowed for a predetermined period as indicated by the medical evidence on the doctor's initial statement, but in continuing illnesses supplemental information about the patient's illness may also be requested from the physician.

Claims will be filed and adjudicated in the regional offices of the Railroad Retirement Board. These offices are located in Atlanta, New York, Cleveland, Chicago, Dallas, Kansas City, Minneapolis, Denver and San Francisco and serve the adjoining territories. Each will have a physician who will act as a medical consultant. Additional information about the program may be obtained from any of the aforementioned offices.

Washington Letter

(From a Special Correspondent)

May 12, 1947.

Presidential Physician Reports Mr. Truman in Best of Health

Brig. Gen. Wallace Graham, presidential physician, announced that President Truman was in good health on his sixty-third birthday, May 8, although weighing 10 pounds more than he did when he took office. Mr. Truman rises around 5:30 a. m. daily and frequently takes long walks before breakfast. He usually naps for twenty or thirty minutes after luncheon and takes a plunge in the White House pool three times a week.

Bradley Pledges Battle for Veterans Administration Medical Program

Gen. Omar N. Bradley, Veterans Administrator, told his top lieutenants that he will cooperate with Congress in effecting economies but will oppose reductions that will mean a "waste of human resources." He declared that in no case would he permit a reduction in the quality of the Veterans Administration medical program, which he said had "advanced until today it ranks as the outstanding medical program in the world." Among the agency's accomplishments for the past twenty months he listed discharge of 685,000 patients from Veterans Administration hospitals, doubling rate of hospital patient turnover, addition of 23,000 hospital beds, 8,000,000 outpatient examinations, 6,000,000 outpatient treatments and the opening of 152 outpatient clinics and 31 clinics for mental hygiene.

War Department to Stress Medical Research

The War Department has announced that it will continue its program of military medicine research. Fundamental research will be vigorously continued in the field of chemistry, physiology, pathology and psychology in relation to extremely low temperatures. Development of prosthetic devices, including sensory devices, will be continued in conjunction with the National Research Council and the Veterans Administration. Research in the field of nutritonal, physiologic and psychologic studies of personnel in relation to environment will be continued. Research and collection of data in the field of pathology will be continued by the Army Institute of Pathology. Research will be continued in the field of preventive medicine, i. e. immunology, sanitation, malaria control, venereal disease control, insect and rodent control and respiratory and intestinal disease control methods. Projects will be continued in the broad field of medical and surgical practice, particularly for the development and study of new treatment methods, new therapeutic agents, traumatic surgery, chemotherapy and the treatment of shock. A program in wound ballistics will be carried out in cooperation with the Medical Department, the Ordnance Department and the Chemical Corps. Studies will be carried out to include new methods for use of present antibiotic agents as well as the development of entirely new agents. Fundamental research into the causes and prevention of psychoneurosis will be carried on. Research must be continued into special diseases not covered in the category of medical and surgical practice.

Bureau of Standards Builds Apparatus to Study Atomic Rays

The National Bureau of Standards announced that its scientists have built a "beta-ray spectrometer" to be used in resarch on about 400 radioactive isotopes. The equipment is designed for study of beta particles and gamma rays, some of which are poisonous to certain tissues, while others are said to be usable in both medical treatments and x-ray examination.

Federation of American Scientists

Dr. Robert Marshak, Rochester University physicist, was elected chairman of the Federation of American Scientists. Formerly with the Los Alamos, N. M., laboratory of the atomic bomb project, Dr. Marshak said that the federation would continue its fight for world control of atomic energy under international law and scientific freedom.

Bureau of Information

LOCATION OF PHYSICIANS

Virginia Shuler
Chicago

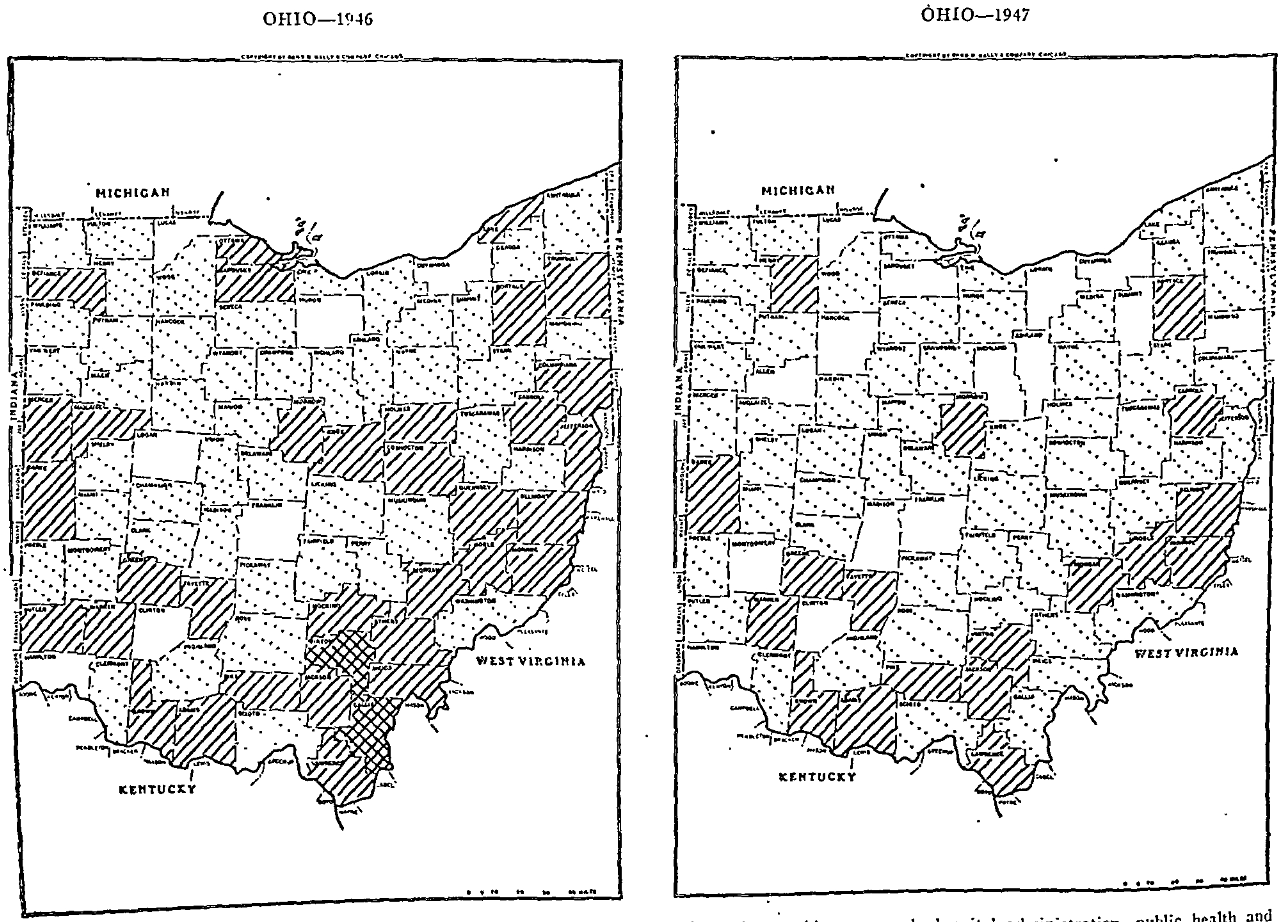
Demobilization is not completely over. Many young physicians are still in the armed forces, and a large proportion of the resident physicians doing postgraduate work in hospitals are men who served in World War II. According to the Directory Department of the American Medical Association, approximately five thousand physicians have not yet decided on a permanent location.

Already the Bureau of Information is sensing the trend of returned medical officers to move away from their recent venture in city practice to accept the opportunities of more active practice in smaller communities. From studies of physician distribution the general picture for location of physicians during the year following V-J day shows an adequate supply of physicians in most of the states but reflects a need for a more coordinated system of medical service in many of the rural areas.

Leaders of the medical profession interested in better rural medical service are working with the farm organizations to outline a program of activity to develop in rural areas an appreciation of modern medical service and the responsibility of the community in planning a health program that will make the country physician a working partner toward decentralization of medical care from urban or large trade centers to the more rural sections of the population. The medical profession and the farm groups want to make rural medical service more adequate not only to the farmer but also to those who extend this service to the farmer.

Dr. F. S. Crockett, Chairman of the Committee on Rural Medical Service of the American Medical Association, has recently announced that the Farm Bureau, the Farmers Union, the Cooperative Milk Producers' Federation and the Grange have each appointed two of their members to act in an advisory capacity to the Committee on Rural Medical Service of the American Medical Association. This committee will hold a meeting soon to outline and develop an active program for regional and local rural representatives. Thomas A. Hendricks, Secretary of the Council on Medical Service, is working out a plan with the Committee on Rural Medical Service to coordinate the Council's and the Committee's regional meetings in order to develop through workshop conferences the most adequate extension of medical service to all areas.

In December 1946 the Bureau of Information began a survey through the local medical societies to determine the conditions and distribution of medical care in the rural areas of the country. Through the cooperation of the secretaries of the state and county medical societies, listings of areas which have requested physicians are available to help the doctor in selecting an area in which to establish his medical practice.


OHIO—1946

OHIO—1947

Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

This is the first of a series of charts showing the trend in locations of physicians from April 1946 to January 1947.

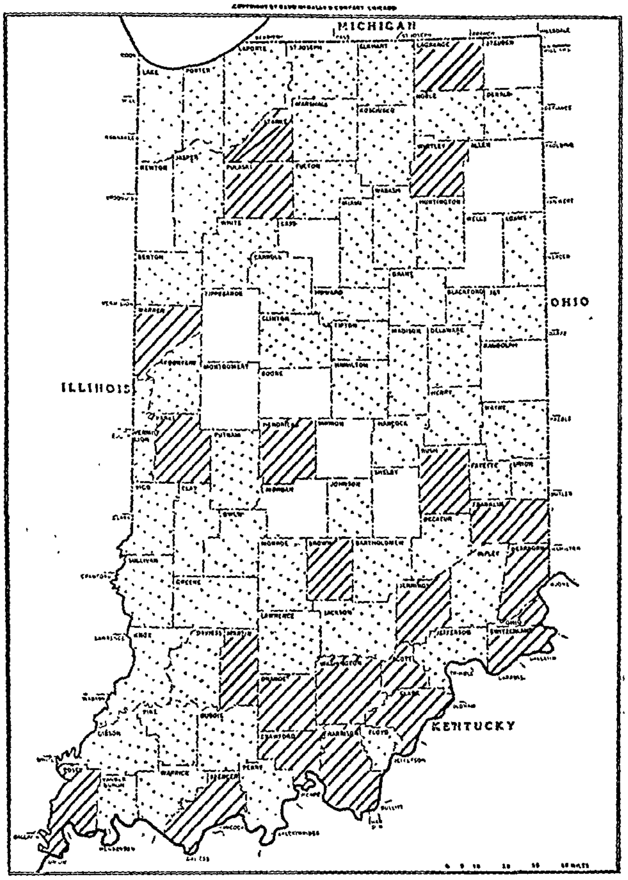
Areas in Ohio Requesting General Practitioners

County	Town	Population
Adams	Manchester	2,163
	Peebles	1,356
	Seaman	726
	Stout	169
	Winchester	798
Ashland	Nankin	250
	Savannah	358
	Sullivan	207
Ashtabula	Andover	945
	Pierpont	150
	Rock Creek	492
Athens	Albany	551
	Amesville	286
	Chauncey	1,234
	New Marshfield	435
Auglaize	Cridersville	581
Champaign	Christianburg	600
	[illegible]	1,653
	[illegible]	121
	[illegible]	263
Clark		95,697
Clinton		22,574
	Clarksville	430
	Port William	1,000
Columbiana	Winona	185
Coshocton	Conesville	500
	Keene	150
	Warsaw	465
Crawford	Brokensward	100
	Lemert	62
	North Robinson	195
Darke	North Star	200
Erie	Berlin Heights	551
	Birmingham	250
	Kelleys Island	564
Fairfield	Carroll	337
	Stoutsville	509
Fayette	Jeffersonville	785
	Milledgeville	178
Fulton	Lyons	464
	Metamora	490
Franklin	Hilliards	583
Gallia		24,930
Green		35,863
Guernsey	Buffalo	584
	Kimbolton	214
	Lore City	1,200
	Pleasant City	563
Hancock	Vanlue	400
Hardin	Ada	2,368
	Forest	1,200
	Mount Victory	645
	Ridgeway	375
Henry	Deshler	1,570
Highland	[illegible]	262
	[illegible]	223
	[illegible]	76
Hocking	Carbon Hill	499
	Logan	6,177
	Murray City	1,009
	South Bloomingville	100
Holmes	Killbuck	716
Huron	Greenwich	996
Jackson		27,004
	Jackson	6,295
	Oak Hill	1,619
Jefferson	Bergholz	1,122
	[illegible]	339
	[illegible]	300
	[illegible]	717
	[illegible]	458
Knox	[illegible]	800
Lawrence	[illegible]	2,351
	Pedro	30
	Rock Camp	58
	South Point	499
Licking	Croton	354
	Etna	300
	Hanover	325
	Hebron	723
	Johnstown	1,100
Logan	DeGraff	736
	Lewistown	250
	Quincy	536
	[illegible]	560
	[illegible]	554
	[illegible]	1,228
Lucas	Holland	607
Mahoning	Damascus	411
	New Springfield	326
	North Benton	250
	North Jackson	402
Marion	Green Camp	327
	Meeker	120
	Morral	398
Meigs	Chester	168
	Long Bottom	250
	Racine	490
	Reedsville	200
	Rutland	562
Mercer		26,256
	Mendon	547
Miami	Fletcher	436
	Laura	317
Monroe	Antioch	145
	Jerusalem	186
	Lewisville	252
	Malaga	100
Montgomery	[illegible]	6,000
Morgan	[illegible]	200
	[illegible]	100
Morrow	[illegible]	1,304
	Marengo	275
	Mount Gilead	2,008
Muskingum	Adamsville	175
	Adams Mill	155
	Nashport	150
	Trinway	432
Paulding	Oakwood	500
	Paulding	2,044
Pickaway	Tarlton	274
Pike	Cynthiana	200
	Omega	150
	Wakefield	200
Portage	Hiram	389
	Windham	316
Preble	[illegible]	311
	[illegible]	989
	[illegible]	395
Putnam	[illegible]	185
	[illegible]	326
	Kalida	521
	Ottoville	443
Richland	Belleville	1,199
	Lexington	713
Ross	Frankfort	839
Scioto	Buena Vista	335
	Minford	200
	Otway	265
	Wheelersburg	1,500
Shelby	Jackson Center	600
	Pemberton	175
Stark	Beach City	812
	East Sparta	690
	Hartville	1,200
	Louisville	3,379
	Marlboro	255
	Paris	225
	Uniontown	600
	Wilmont	287
Summit	Peninsula Boston Heights	900
	Stow	2,500
Trumbull	Kinsman	600
Tuscarawas	Port Washington	493
Union	Milford Center	686
Vinton	Hamden	924
	McArthur	1,288
	Radcliffe	200
	Wilkesville	221
	Zaleski	374
Warren	Harveysburg	354
Washington	Barlow	195
Wayne	Dalton	774
	West Salem	700
Williams	Pioneer	762
	Runkle	236
	Williams Center	150
Wood	Bradner	836
	Cygnet	569
	Wayne	626
Wyandot	Nevada	741

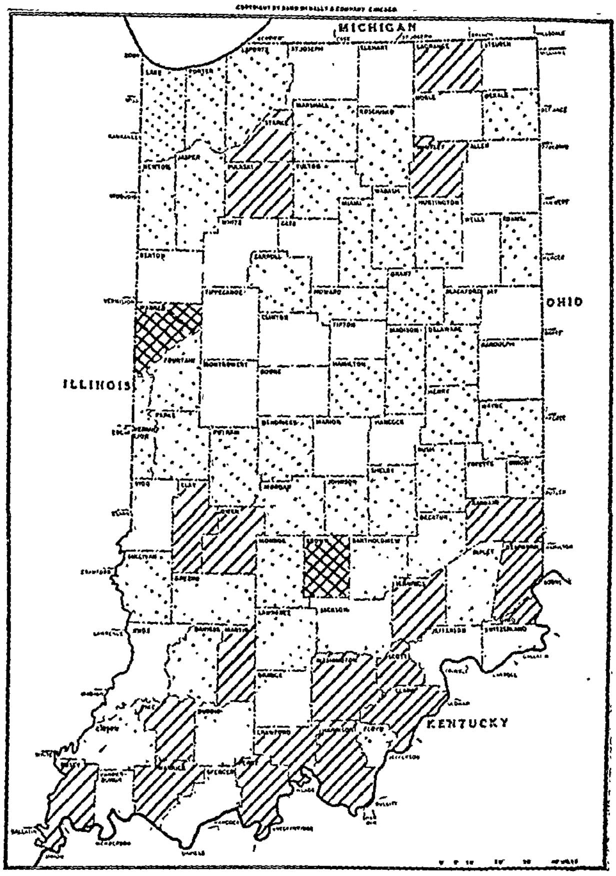
"Conditions in Ohio are still somewhat abnormal. A considerable number of men returning from the service who would ordinarily have gone into private practice are at present engaged in postgraduate work. During the past year we have been successful in a good many instances in locating men in certain communities; nevertheless, we still have a rather extensive list of small areas needing a physician or where the population would like to have a physician or another physician. We are doing our best to get this information in the hands of those seeking locations, including Ohio physicians as well as physicians in other states. In my opinion this is a problem which will not be corrected in the immediate future and perhaps will take years to work out. Efforts are being made by this association, in cooperation with Ohio's three medical schools, to impress on graduates the need for physicians in rural areas and the advantages offered by such areas. On the other hand, we are endeavoring to list the so-called disadvantages of rural practice so that efforts can be made in an organized way to correct situations which cause these disadvantages. Until some of these situations are corrected, we cannot expect a much larger percentage of new graduates to locate in outlying areas."

Mr. Charles S. Nelson, Executive Secretary,
Ohio State Medical Association,
1005 Hartman Theater Building,
Columbus 15, Ohio.

INDIANA—1946



INDIANA—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Indiana Requesting General Practitioners

County	Town	Population
Adams	Decatur	5,861
Bartholomew	Elizabethtown	319
	Hartsville	318
Carroll	Burlington	420
	Burrown	175
Clark	Borden	392
	New Washington	275
Clay		25,365
	Bowling Green	219
Clinton	Kirklin	712
	Mulberry	860
Daviess		26,163
	Plainville	619
Dearborn	Lawrenceburg	4,413
Decatur	Clarksburg	275
	Letts	200
	Millhousen	180
DeKalb	Spencerville	310
DuBois	Birdseye	370
Elkhart		72,634
	Elkhart	34,000
Floyd		35,061
Franklin	Laurel	533
Fulton	Kewanna	701
	Leiters Ford	200
Gibson		30,709
	Francisco	611
	Owensville	1,183
	Patoka	569
Harrison		17,106
	Palmyra	274
Hendricks	Amo	288
Huntington	Mt. Etna	139
Jackson	Crothersville	1,169
	Freetown	723
	Medora	722
Jennings		13,608
	Scipio	150
Knox	Bicknell	5,110
	Freelandville	695
Kosciusko	Mentone	731
	Warsaw	6,378
LaGrange		14,352
	Shipshewana	286
LaPorte	Westville	523
Martin		10,300
Miami	Bunker Hill	792
	Macy	275
Morgan	Martinsville	5,009
Newton	Brook	800
	Lake Village	250
	Morocco	1,151
Noble		22,776
Ohio		3,782
Perry	Bristow	102
Pike	Otwell	364
	Stendal	150
Posey	Griffin	386
	Mount Vernon	5,638
	Stewartsville	200
	Wadesville	200
Pulaski	Medaryville	703
Putnam	Cloverdale	657
Randolph	Winchester	5,303
Ripley		18,898
	Batesville	3,075
	Holton	300
Rush	Raleigh	150
Shelby	Marietta	150
	Morristown	605
Spencer		16,211
Steuben	Hamilton	395
Sullivan	Dugger	1,406
	Hymera	1,298
		1,606
Tippecanoe		500
Vermillion		500
Wabash		3,170
White	Wolcott	747
Whitely	Churnbusco	1,122
	Larwill	319
	South Whitely	1,118

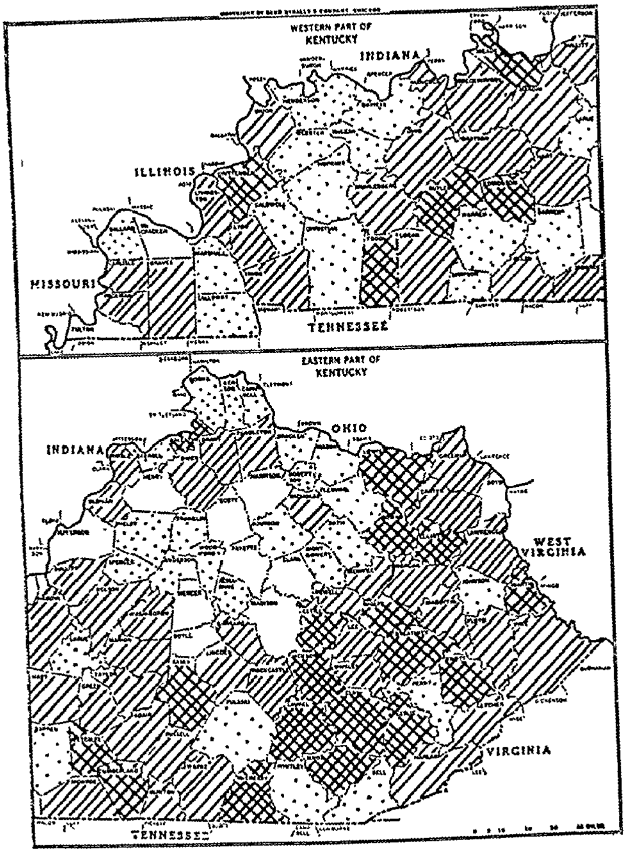
"With the exception of Lawrenceburg, a city of approximately 5,000 in the southeastern part of our state, all cities of any size in Indiana now have sufficient physicians. Lawrenceburg could use two doctors. The main industry is whisky distilling. Lawrenceburg does not have a hospital, but it is not more than 25 miles from Cincinnati. One of the problems a doctor would face in locating there would be to find a suitable place to live.

"We have approximately twenty-five towns under 1,000 population which could support a physician. Several, namely Moreland, Van Buren and Cayuga, have local committees endeavoring to induce a doctor to locate in their communities. Physicians could make a pretty good living in any of the aforementioned towns.

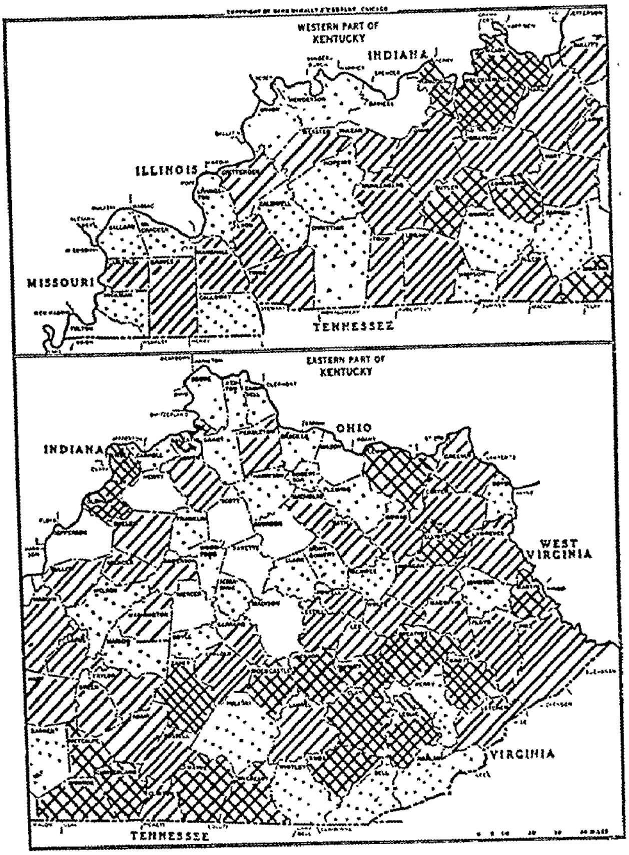
"I would say that our larger cities, including county seats, all have adequate medical service at the present time."

MR. RAY E. SMITH, Executive Secretary,
Indiana State Medical Association
1021 Hume Mansur Building
Indianapolis 4.

KENTUCKY—1946



KENTUCKY—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

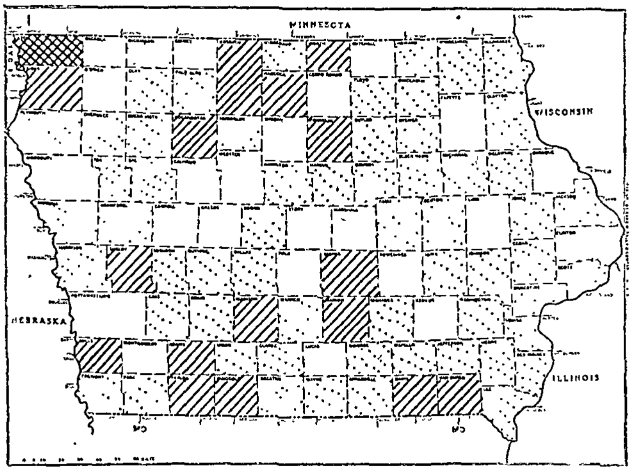
Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Kentucky Requesting General Practitioners

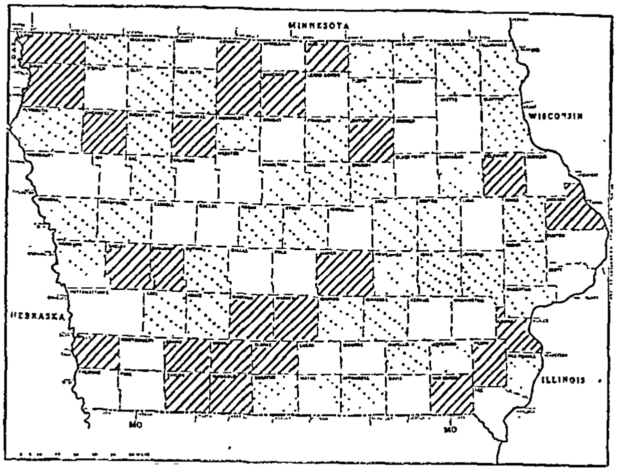
County	Town	Population
Adair	Pellyton	95
Bell	Middlesboro	11,777
Butler	Rochester	387
Caldwell		14,499
Carter		25,545
Edmonson		11,344
Elliott		8,713
Floyd	Martin	957
Garrard		11,910
Graves	Fancy Farm	417
	Folsomdale	100
	Sedalia	191
	Symsonia	200
	Water Valley	373
	Wingo	475
Greenup		24,917
	Fullerton	932
Hancock	Hawesville	896
Jackson		16,339
	McKee	190
Knott		20,007
Knox		31,029
Lawrence		17,275
	Webbville	200
Lewis		15,686
Lincoln	Hustonville	443
Livingston	Grand Rivers	499
Lyon		9,067
Marshall		16,602
Martin		10,970
McCreary	Stearns	1,548
Meade		8,827
Metcalfe		10,853
Nelson	Chaplin	187
Owen		10,942
	Gratz	139
Owsley		8,957
Powell	Clay City	627
Rockcastle		17,165
Webster		19,198
	Dixon	642
Wolfe		9,997

DR. P. E. BLACKERBY, Secretary,
Kentucky State Medical Association,
620 South Third Street, Louisville, Ky.

IOWA—1946



IOWA—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

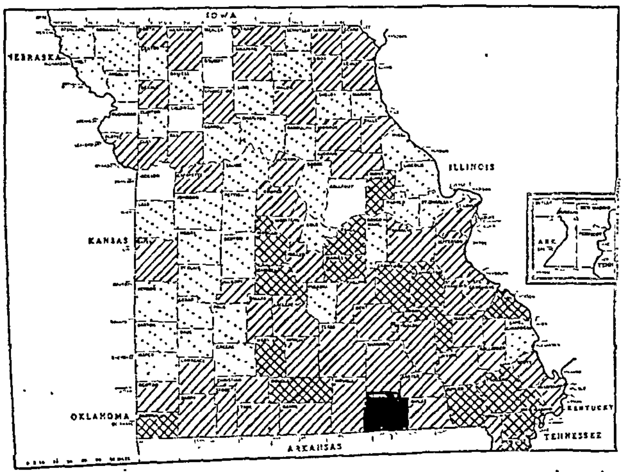
Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Iowa Requesting General Practitioners

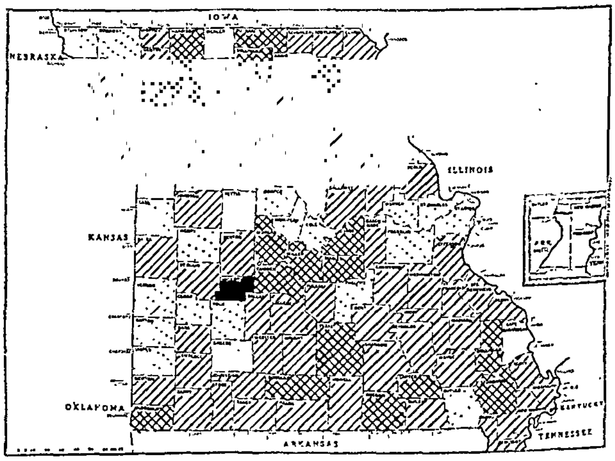
County	Town	Population
Bremer	Readlyn	426
	Tripoli	1,001
Calhoun	Lohrville	776
Clayton		24,334
Clinton	Charlotte	393
Decatur	Leon	2,307
Dickinson		12,185
Emmet	Ringstead	508
Franklin		16,379
Grundy		13,518
Guthrie	Bagley	427
	Menlo	441
	Yale	287
Hardin		22,530
Jackson		19,181
	Miles	314
Jasper	Baxter	623
	Kellogg	648
	Sully	402
Jefferson		15,762
Kossuth	Fenton	385
	Swea City	735
	Wesley	468
Linn	Fairfax	262
Madison		11,525
Marshall	Clemons	207
	Gilman	483
	Green Mountain	155
	Haverhill	100
	LeGrand	329
	Liscomb	340
	Rhodes	379
Palo Alto		16,170
	Graettinger	928
Pottawattamie	Carson	613
Poweshiek	Grinnell	5,210
	Montezuma	1,477
Ringgold		11,137
	Kellerton	563
Shelby		16,720
Sioux	Hospers	592
Tama		22,428
Taylor	Bedford	2,151
Warren		17,095
Winnebago		13,972
Winneshiek		22,263

Dr. John C. Parsons, Secretary,
Iowa State Medical Society,
505 Bankers Trust Building,
Des Moines 9.

MISSOURI—1946



MISSOURI—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Missouri Requesting General Practioners

County	Town	Population
Atchison		12,897
	Fairfax	813
	Westboro	368
Benton	Cole Camp	753
Callaway		23,094
Camden	Camdenton	893
Carter	Van Buren	500
Chariton		18,084
Clark	Kahoka	1,781
DeKalb	Maysville	1,026
Johnson	Holden	1,818
Lafayette	Corder	630
Lawrence	Marionville	1,127
	Pierce City	1,208
Lincoln	Winfield	481
Monroe		13,195
	Monroe City	1,978
Oregon	Alton	600
	Koshkonong	300
Reynolds	Ellington	849
St. Clair	Osceola	1,200
St. Genevieve	St. Marys	605
Scotland		8,557
Shelby	Shelbina	2,107
Stoddard	Puxico	800
Sullivan	Milan	2,016
Taney	Forsyth	290
Vernon	Moundville	247
Webster	Marshfield	1,764
	Seymour	751

"During the year 1946 approximately 150 physicians located in rural Missouri for the first time. However, there are still a number of counties in this state which are in need of more physicians. Also during the year 1946 a number of rural communities opened hospitals which were directly responsible for the location of a number of young physicians in those areas. This experience is convincing evidence that where hospital facilities are available the problem of securing physicians is greatly reduced. One or two communities in Missouri have taken the initiative in developing hospital facilities in their communities. They have assisted these physicians in finding suitable living quarters, office space and equipment, and automobile when needed, and through this procedure have obtained the services of needed physicians. During the year 1946 a number of rural communities after careful study voted bonds to provide community hospital facilities. The Missouri State Medical Association has been successful in cooperating with a number of communities in aiding these communities to secure physicians. The state association through its Committee on Rural Medical Service has surveyed the state from the standpoint of medical manpower and has thereby been made cognizant of where physicians are badly needed and has determined for the most part whether communities can or cannot support another physician."

MR. RAYMOND MCINTYRE, Field Secretary,
Missouri State Medical Association,
623 Missouri Building,
St. Louis 3.

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Aero Medical Association of the United States, Atlantic City, Ritz-Carlton Hotel, June 4-6. Dr. David S. Brachman, 1016 Dime Bldg., Detroit 26, Secretary.

American Association for the Surgery of Trauma, Atlantic City, Hotel Claridge, June 5-7. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston 15, Secretary.

American Association for Thoracic Surgery, St. Louis, May 28-30. Dr. Richard H. Meade Jr., 55 E. Washington St., Chicago 2, Secretary.

American Association of Genito-Urinary Surgeons, Absecon, N. J., June 4-6. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland 6, Secretary

American Association of the History of Medicine, Cleveland, May 25-26. Dr. Howard Dittrick, 2020 E. 93d St., Cleveland 6, Secretary.

American Association on Mental Deficiency, St. Paul, Minn., May 28-31. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American College of Allergists, Atlantic City, Hotel Senator, June 6-8. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 5-8. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7-8. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Dermatological Association, Murray Bay, Quebec, Can., June 1-5. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Wis., Secretary.

American Diabetes Association, Atlantic City, Chalfonte-Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Geriatrics Society, Atlantic City, Hotel Brighton, June 5-7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Heart Association, Atlantic City, Hotel President, June 6-7. Dr. Howard B. Sprague, 50 W. 50th St., New York, Secretary.

American Medical Women's Association, Atlantic City, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N. J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Marlborough-Blenheim Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Physiological Society, Chicago, May 18-22. Dr. Maurice Visscher, University of Minnesota, Minneapolis, Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E. Bacon, 2031 Locust St., Philadelphia 3, Secretary.

American Psychiatric Association, New York, Hotel Pennsylvania, May 19-23. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Rheumatism Association, Atlantic City, Ritz-Carlton Hotel, June 7. Dr. Richard H. Freyberg, 321 E. 42d St., New York 17, Secretary.

American Society for Experimental Pathology, Chicago, May 19-23. Dr. Frieda S. Robschlit-Robbins, 260 Crittenden Bldv., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Chicago, May 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Va., Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7-8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Biological Chemists, Chicago, May 18-22. Dr. Otto A. Bessey, Public Health Research Institute, New York 9, Secretary.

American Society of Clinical Pathologists, Atlantic City, June 4-8. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough-Blenheim Hotel, June 13-14. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Therapeutic Society, Atlantic City, Chalfonte Hotel, June 6-7. Dr. Oscar B. Hunter, 1835 I St., N. W., Washington 6, D. C., Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 6-7. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Federation of American Societies for Experimental Biology, Chicago, May 18-22. Dr. William H. Chambers, 1300 York Ave., New York 21, Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Massachusetts Medical Society, Boston, Hotel Statler, May 20-22. Mr. Robert St. B. Boyd, 8 Fenway, Boston 15, Executive Secretary.

Medical Library Association, Cleveland, Wade Park Manor, May 27-29. Miss Heath Babcock, New York State Medical Library, Albany 1, New York, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Gastroenterological Association, Atlantic City, Hotel Chelsea, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

New York State Association of Public Health Laboratories, Syracuse, May 27. Miss Mary B. Kirkbride, New Scotland Ave., Albany 1, Secretary.

North Dakota State Medical Association, Fargo, May 25-27. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Society of Surgeons of New Jersey, Atlantic City, Seaview Country Club, May 28. Dr. Walter B. Mount, 21 Plymouth St., Montclair, N. J., Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

Official Notes

TRAINS FROM PHILADELPHIA TO ATLANTIC CITY

For the information of persons attending the Centennial Session of the American Medical Association in Atlantic City, June 9-13, the Pennsylvania Railroad will run trains daily leaving Philadelphia for Atlantic City in the forenoon at 7:15, 8:30 and 9:30 Eastern Standard Time. The last train returning to Philadelphia from Atlantic City leaves at 9:30 p. m. Extra cars will be added to these trains during the period of the meeting if the need arises.

Medical Legislation

STATE LEGISLATION

California

Bills Passed.—A. 438, which passed the house April 28, proposes that **no blind person** shall be denied admission into any college or school of chiropractic or denied admission to examination and licensure because of such blindness. S. 1068, which passed the house May 2, proposes to prohibit any person other than a physician and surgeon from making a **postmortem examination** or performing an autopsy. S. 1265, which passed the senate April 28, proposes to exempt from the provisions of the **osteopathic practice act** persons holding drugless practitioner's certificates issued by the board of osteopathic examiners.

Bills Enacted.—A. 796, which has become chapter 125 of the Laws of 1947, amends the health and safety code by authorizing a person, by will, to direct that the whole or **any part of his remains** be given to a teaching institution, university, college or legally licensed hospital, or to the state director of public health. A. 797, which has become chapter 126 of the Laws of 1947, authorizes every person of sound mind over the age of 18 years to dispose, by will, of the whole or **any part of his or her body** to a teaching institution, university, college or legally licensed hospital, either for use as such institution, university, college or hospital may see fit or for use as expressly designated in the will.

Connecticut

Bill Passed.—H 922, which passed the senate April 29, proposes to suspend the operation of the provisions of **the naturopathic practice act** relating to licensure without examination until the adjournment of the 1947 session of the general assembly.

Florida

Bills Enacted.—H. 363 proposes to authorize a court to admit in evidence testimony relative to **the amount of alcohol** in a defendant's blood as shown by a chemical analysis of his breath, urine or other bodily substance whenever a defendant is indicted or tried for being under the influence of intoxicating liquor when he committed reckless homicide or when he drove a vehicle. H. 402 and S. 291 propose to authorize the several cities and towns of the state to levy **license taxes** for the purpose of regulation and revenue on professions H. 440 and S. 394 propose to make it unlawful for **tax collectors** in the several counties to issue state and county occupational licenses to any person applying for license to practice medicine in any of its branches unless and until proof of current qualification and competency, as established by certificate or license issued by the state boards duly constituted and legally authorized to determine qualification and competency, be exhibited at the time of making such application. H. 506 proposes the creation of the **University of Florida School of Medicine**, to be located some place in Hillsborough County. H. 507, *to amend the law relating to* massage, proposes to authorize licentiates thereof to use **electrical apparatus for** the purpose of body massaging, reducing or contouring but prohibits them from engaging in fever therapy. S. 359 proposes that drugs containing **barbituric acid**, declared by the bill to be dangerous, shall not be sold at retail except on written prescription signed by a member of the medical, dental, osteopathic or veterinary profession. Such prescriptions could not be refilled.

Bill Passed.—H. 253, which passed the house April 30, proposes to authorize persons to **donate and give their eyes** for eyesight restoration purposes by last will and testament and authorizes any state, county, district or other public hospital to purchase and provide the necessary facilities and equipment to establish and maintain an eye bank for restoration of sight purposes.

Maryland

Bills Enacted.—H. 256, which has become chapter 716 of the Laws of 1947, appoints the state board of health as an agency to administer a program of noninstitutional services for **mentally ill persons** and to develop a program for extending and improving services to such persons. H. 394, which has become chapter 739 of the Laws of 1947, repeals the existing law regulating the sale of **barbituric acid** and enacts a new law designed for the same purpose. H. 663, which has become chapter 810 of the Laws of 1947, designates the state board of health as the sole agency to represent the state of Maryland in obtaining benefits under the federal hospital survey and construction act and authorizes the governor to appoint an **advisory council on hospital construction.** H. 709, which has become chapter 824 of the Laws of 1947, authorizes the appointment of **a medical advisory board** to which would be referred all cases of persons applying for a driver's license when the granting of a license to such person would be inimical to public safety and welfare because of an existing or suspected mental or physical disability.

Michigan

Bills Introduced.—H. 451 proposes the enactment of a law requiring the licensing, regulation and inspection of hospitals and related institutions and the appointment of an **advisory institutional council.** H. 495 proposes to amend the penal code by making it a misdemeanor for any person to subject a cat, dog or bird or cause it to be subjected to **experimentation or mutilation** while alive or cause it to be sold for the purpose of being subjected to experimentation or mutilation.

New Hampshire

Bill Introduced.—H. 371 was previously reported as proposing the enactment of a **hospital licensing law.** This proposal was amended by house committee on April 29 in part as follows: "No such rules, regulations or standards shall be adopted or enforced which would have the effect of denying a license to a hospital or other institution required to be licensed hereunder, solely by reason of the school or system of practice employed or permitted to be employed by physicians therein; provided that such school or system of practice is recognized by the laws of this state."

New Jersey

Bill Introduced.—A. 314 proposes a licensing law for **nursing homes and hospitals.** An April 14 amendment provided, among other things, that a licensing authority or agency should have no authority "to require any hospital to practice or permit sterilization of human beings, euthanasia, birth control or any other similar practice contrary to the dogmatic or moral beliefs of any well established religious body or denomination."

Bills Enacted.—S. 66, which has become chapter 83 of the Laws of 1947, appoints the state department of institutions and agencies as the agency to receive federal funds to assist in a **state survey of hospitals** and the development of a state program for the construction of additional needed hospital facilities. S. 335, which has become chapter 88 of the Laws of 1947, provides an appropriation to the state department of health for the **purchase of smallpox vaccine** and the distribution thereof free on such terms as the state department of health shall determine.

Oregon

Bill Enacted.—S. 77, which has become chapter 488 of the Laws of 1947, repeals the existing laws requiring the licensing of **maternity hospitals** and certain other types of institutions and sanatoriums and provides a licensing, inspecting and regulating law for all hospitals and related institutions within the state.

Pennsylvania

Bills Introduced.—H. 982 was previously reported as redefining the **practice of chiropody.** A house amendment of April 30 further redefines chiropody as "the diagnosis and treatment of the ailments of the human foot. This shall not confer the right to amputate any part of foot leg or toes or the use of any anesthetic other than local or the treatment of any constitutional disease." H 1317 proposes the creation of a state **board of chiropractic examiners** and defines chiropractic as "a philosophy science and art of things natural a system of locating misaligned or displaced vertebrae of the human spine the procedure preparatory to and the adjustment by hand of such misaligned and misplaced vertebrae and other articulations and tissues of the human body together with the use of x-ray and other scientific instruments of analysis"

Bills Passed.—H. 905, which passed the senate April 28, to amend the law relating to the **practice of osteopathy,** proposes to extend until June 30, 1948 the requirement of a nine months internship prior to examination. H. 917, which passed the senate April 29, to amend the medical practice act, proposes to repeal the 1943 law which reduced for a limited period of time the training period of **medical internship in hospitals.** H. 921, which passed the senate April 29, to amend the medical practice act, proposes to repeal the 1943 law authorizing the issuance of **temporary permits to practice** medicine under certain conditions.

South Carolina

Bill Introduced.—S. 722 proposes to authorize the admissibility in evidence of **microphotographs** or films of any record to the same extent as the originals thereof would have been admitted.

Bill Passed.—H. 24, which passed the house May 1, to amend the marriage law, proposes to require each applicant for a **marriage license** to present a certificate signed by a duly licensed physician of his state certifying that such person is of sound mind and free from venereal disease. H. 761, which passed the senate April 30, appoints a commission to make a full investigation of the practices of the **board of naturopathic examiners** in the state in the matter of issuance of licenses, the examinations and personal qualifications required of applicants to practice naturopathy in the state and the propriety of granting licenses therefor.

Vermont

Bill Enacted.—H. 317, which was approved April 26, provides a **licensing law** for hospitals, sanatoriums, rest homes, nursing homes, homes for the reception of children and related institutions.

GOVERNMENT SERVICES

ARMY

ADDITIONAL TIME FOR MEDICAL PERSONNEL TO SEEK COMMISSIONS

The War Department announces that applications from certain types of medical personnel for Regular Army commissions would be received for an additional three months period beginning May 1 and ending July 31. The original deadline for applications under the Regular Army Integration Program of 1947 had passed on January 31.

Twelve classifications of medical officers and former medical officers will be affected by the new ruling. The classifications are those of bacteriologist, biochemist, parasitologist, serologist, clinical laboratory officer, entomologist, nutrition officer, toxicologist, industrial hygienist, sanitary engineer, clinical psychologist and psychiatric social worker.

The additional application period was announced in an effort to obtain more medical candidates for Regular Army commissions. The first increment of officers brought into the Army in 1947 contained far below the desired proportion of medical officers.

Applicants are limited to medical officers now on active duty and former medical officers of World War II who are or have been qualified in one of the aforenamed specialties. Persons interested were invited to forward applications to the Adjutant General, Attention AGSO-R, Washington 25, D. C., or (in the case of officers now on active duty) through military channels to the Adjutant General.

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. Physicians who are veterans have certain priorities in the purchase of this government property.

Regional Office, 1409 Second Avenue, Seattle. Sale of operating tables, instrument cabinets, specialists chairs (metal), instrument sterilizers, operating lamps. Sale closes May 26.

Regional Office, 37 Broadway, New York 6. Sale of drugs and pharmaceuticals. Sale closes May 19.

Regional Office, 412 West Market Street, Louisville 2, Ky. Sale of surgical sutures (catgut, braided silk and nylon). Sale closes May 22.

Regional Office, 404 South Wabash Avenue, Chicago 5. Sale of hospital and laboratory equipment and supplies, including rubber tubing (synthetic), instrument trays, instrument tables, hospital beds, perimeters, phorometers, anesthesia apparatus, invalid chairs, litters, chart holders, utensil sterilizers, bedside tables. Sale closes May 26.

Regional Office, 95th and Troost, Kansas City, Mo. Sale of hospital beds, cassettes, oxygen therapy apparatus, bandages, litters, stereoscope (x-ray, large), syringes, surgical instruments, forceps, curets, abdominal retractors, rubber gloves, hot water bags. Sale closes June 4.

Regional Office, 33 Berry Street, San Francisco 7. Sale of drugs and pharmaceuticals. Sale closes May 26.

NAVY

STUDENTS MAY APPLY FOR NAVY COMMISSIONS

The Bureau of Medicine and Surgery, Navy Department, Washington, D. C., announces that students and graduates of accredited medical schools may apply for appointment to commissioned rank in the Navy or the Navy Reserve in the following grades:

1. Assistant Surgeon, U. S. Naval Reserve: All fourth year male students of good scholastic standing enrolled in approved medical schools and male graduates of such schools engaged in intern training or civilian practice (after internship) who meet the prescribed requirements are eligible to apply for appointment to the grade of Assistant Surgeon with the rank of Lieutenant (jg) in the Medical Corps of the U. S. Naval Reserve. Appointment to this status carries no obligation for active naval service except on a purely voluntary basis notwithstanding the extent of any past V-12 training or affiliation. Those former V-12 students who graduated from medical school prior to July 1, 1946 are excluded from this provision and will be required to perform active duty on acceptance of their appointments. Doctors whose age, professional experience and academic seniority justify a more senior grade may make application for appointment to grades above that of Assistant Surgeon.

2. Acting Assistant Surgeon, U. S. Navy (Intern): All fourth year male students of good scholastic standing enrolled in approved medical schools in the United States and Canada who meet prescribed requirements are eligible to apply for appointment to the grade of Acting Assistant Surgeon with the rank of Lieutenant (junior grade) for intern training in a naval hospital. Selected candidates will be issued an appointment and orders to active duty for internship on receipt in the department of a certificate from the dean or registrar of their school to the effect that they have completed their medical school education. Acting Assistant Surgeons are under no obligation to continue in the naval service beyond completion of prescribed course of intern training. The grade of Acting Assistant Surgeon does not exist in the Naval Reserve, nor is intern training in the Navy extended to members of the Medical Corps of the Naval Reserve.

3. Assistant Surgeon, U. S. Navy: Graduates of approved medical schools who have completed intern training in an accredited hospital or who will complete such training within four months of a date set for examination and who meet prescribed requirements are eligible to apply for examination for appointment as Assistant Surgeon with the rank of Lieutenant (junior grade) in the Medical Corps of the Navy. Candidates for this grade are required to appear before boards of medical examiners and supervisory examining boards at a naval hospital on a prescribed date to establish their physical and professional qualifications for appointment. The acceptability of candidates will be finally determined by boards convened in the Navy Department from a review of reports of examination conducted in the field (the next examinations for Assistant Surgeon, U. S. Navy, are scheduled for June 23 to 27, 1947 and thereafter for Oct. 6 to 10, 1947). The grade of Assistant Surgeon represents the lowest permanent grade in the Medical Corps of the Navy and might be classed as the starting point of continuous active service for the physician who elects a career in naval medicine.

4. Ensign, HP (Med), U. S. Naval Reserve: Male students enrolled in or accepted for enrolment in the next convening class of an approved medical school who meet prescribed requirements are eligible for appointment to the probationary rank of Ensign, HP, in the Naval Reserve. Under the current program this appointment carries with it no obligations for active naval service notwithstanding previous V-12 training, nor is the appointee required to accept superseding appointment in the Medical Corps of the Navy or the Naval Reserve on graduation from medical school. This commission is subject to revocation by reason of scholastic failure or for other reason at the discretion of the Secretary of the Navy and in any event becomes subject to revocation on completion of medical school education whether or not the appointee accepts superseding appointment in the Medical Corps of the Navy or the Naval Reserve.

VETERANS ADMINISTRATION

MORE ACCURATE DISABILITY RATINGS

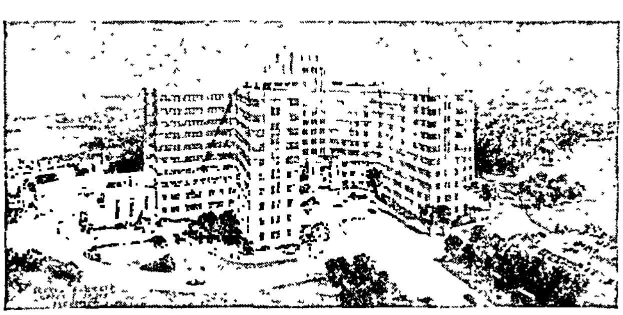
Of the 2,692,000 compensation and pension cases subject to review under the new disability rating schedule approved by the last Congress, the Veterans Administration reviewed 842,000 cases between Aug. 1, 1946 and March 1, 1947. This is 31 per cent of the total. All claims are reviewed automatically and may increas in compensation resulting from the review will be retroactive to April 1, 1946 under the law. The Veterans Administration therefore requests disabled veterans not to make inquiries about their cases while they are pending.

The new schedule, known as the Schedule for Rating Disabilities—1945 Edition, permits the Veterans Administration to make a more accurate evaluation of veterans' disabilities than preceding schedules did; it also provides for new types of combat wounds and tropical diseases encountered by members of the armed forces during World War II.

While the new schedule provides increased ratings for certain types of disabilities and decreases for other types, it does not make any blanket change in ratings. However, the increases far outnumber the decreases. Disability compensation for veterans of both world wars range from $13.80 a month for 10 per cent disability to $138 a month for total disability. Some awards are fixed by law for certain types of disabilities, such as blindness in both eyes, loss of two or more limbs or paraplegia (spinal cord injury). These awards may run as high as $360 a month.

VETERANS' HOSPITAL AT ALBANY, N. Y.

The site of the 1,000 bed veterans' hospital to be constructed at Albany, N. Y., comprises about 25 acres bordered on the southeast by Hackett Boulevard. The structure will be fireproof and ten stories high except for the small center portion, which will be fourteen stories. In addition to the main building there will be quarters for nurses and homes for hospital staff members. Construction of the hospital will be under the direction of the New York District Corps of Engineers, U. S. Army, and construction work is expected to begin this month.



Proposed Veterans' Hospital at Albany, N. Y.

BLINDED VETERANS

Fifteen of the 1,133 veterans who lost their sight in World War II are training to be social workers and eleven others are employed as counselors to the blind; three of the eleven have positions as placement agents, two as industrial counselors, two as supervisors of business enterprises, one as an executive director of the Veterans Administration, one as supervisor of adult visitation, one as an orientation officer and one as an employment interviewer.

The survey made by the Veterans Administration revealed that nearly half of the blind veterans discharged by the Army and Navy up to the end of 1946 were either working or in training; 28 per cent were employed, and of these 197 had full time jobs, 52 part time jobs and 72 were self employed. Another 20 per cent, or 231, were in vocational rehabilitation training, of whom 51 were taking on-the-job training and 180 were in schools and colleges.

Blinded veterans eligible for education and training under Public Law 16, receive in addition to tuition and fees a subsistence allowance from the Veterans Administration of $90 a month if they have dependents or $65 without dependents. Their disability compensation payments are not affected by these subsistence payments. If compensation and subsistence do not total at least $105 a month for a veteran with no dependents or $115 with one dependent, an additional sum is paid to make up the difference. The sum is further increased if there is more than one dependent.

HOSPITAL NEWSPAPERS

More than one hundred newspapers are published for patients in Veterans Administration hospitals and homes as a part of the program to aid in the medical rehabilitation of veterans. The papers are edited and staffed by patients and hospital employees, with the cooperation of officers who assign patients with certain disabilities to the newspaper staff as part of their treatment and vocational training. Patients with aptitudes for writing are encouraged to contribute to the papers for recreation. Most of these hospital newspapers are mimeographed; however, nine are printed on presses in the hospital's occupational therapy departments and four are multilithed.

Contests are being sponsored by the Advertising Club of Boston and the New York Advertising Club for the "best Veterans" Administration hospital newspaper in those sections of the country. When the contests close at the end of May plaques will be awarded to the winning paper in each area.

PLASTIC SURGERY CENTERS

The Veterans Administration has twenty-two plastic surgery centers for veterans in operation in Veterans Administration, army and navy hospitals over the country. These centers are manned by specialists skilled in plastic surgery and are provided with special equipment. They are in hospitals at West Roxbury, Mass.; Bronx, N. Y.; Washington, D. C.; Cleveland; Jefferson Barracks, Mo.; Fort Logan, Colorado; San Francisco; New Orleans; White River Junction, Vt.; Aspinwall, Pa.; Chamblee, Ga.; Hines, Ill.; McKinney, Texas; Los Angeles, and Van Nuys, Calif.

OPEN SUBREGIONAL OFFICE IN GARY, IND

Dr. Seymour R. Salberg has been appointed chief medical officer of the subregional office of the Veterans Administration in Gary, Ind. A graduate of the University of Illinois Medical School, Dr. Salberg formerly served also at a veterans' hospital in New York. The medical unit in this office when fully staffed will comprise twenty-seven persons, six of whom will be physicians, three dentists and several others technicians. There will also be x-ray and bacteriologic laboratories, hydrotherapy, physical therapy, a mental hygiene clinic and other services. The opening of this office will make it unnecessary for veterans in this vicinity to travel to the veterans' hospital at Hines, Ill., for examination and treatment.

VETERANS' HOSPITAL IN NEW YORK CITY

The 1,000 bed veterans' hospital to be constructed in New York City for general medical patients will be seventeen stories high with a penthouse and will cover a plot between 24th and 25th streets adjacent to the New York Medical School and Bellevue Hospital. The hospital will be of fireproof construction. The main structure will have, besides the hospital proper, a solarium on each floor and facilities for occupational therapy treatment, nurses' and staff quarters, chapel and auditorium. It will be constructed by the U. S. Army Corps of Engineers, the district office being in charge of Col. W. F. Heavey.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Course in Applications of Nuclear Physics.—A course in the applications of nuclear physics to the biologic and medical sciences will be given at the University of California Medical Center, San Francisco, June 30-July 18. The general subjects for the three weeks will be (1) an introduction to nuclear physics, (2) radioactive tracers in biology and medicine, (3) radioactive tracers, therapeutic and diagnostic applications of radio elements and health-physics. The instructors will be members of the various faculties of the University of California under the general direction of Dr. Stacy R. Mettier, associate professor of medicine, and under the general chairmanship of Dr. William J. Kerr, professor of medicine. The morning lecture periods will cover various phases of the subjects mentioned; in addition, special lectures and evening seminars will be given. The afternoons will be given over largely to laboratory work. Requests for registration should be addressed to Dr. Mettier, University of California Medical Center, San Francisco 22.

COLORADO

Studies of the Hypothalamic Region.—Two professors at the University of Colorado School of Medicine, Denver, received a grant totaling $24,000 from the Office of Navy Research. The grant was awarded to Robert M. Hill, Ph.D., professor of biochemistry, and Dr. Archibald R. Buchanan, professor of anatomy, for studies on the hypothalamic region of the brain in relation to the regulation of body temperature. Assisting Dr. Hill and Dr. Buchanan in their research are Dr. Enid K. Rutledge, associate professor of pathology, and Benjamin Robinson, James Roberts and Mrs. Alvey McChesney of the anatomy department.

Medical Research Club.—To stimulate correlation between basic sciences and clinical research, the faculty of the University of Colorado School of Medicine, Denver, and regional doctors have organized the Medical Research Club of Colorado. Membership is open to any one in the region interested in medical research or the allied sciences of physics, chemistry, biology and sociology. Monthly meetings will consist largely of reports on medical research in progress by club members. The club will meet in the clinical amphitheater of the University of Colorado School of Medicine, according to Dr. Abe Ravin, assistant professor of medicine and president of the club. The secretary is Dr. Dalton Jenkins, resident in medicine, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver.

Industrial Research.—To continue research in determining the effects of various heavy metals, particularly cadmium, on industrial workers, the National Institute of Health has renewed its grant for $28,512 to the division of industrial hygiene of the University of Colorado School of Medicine, Denver. The purpose of the research is to discover how much cadmium can be present in the air before it becomes harmful to workers in local smelters and also to determine how much cadmium can be present in body fluids before a toxic stage is reached and the workers must be removed from their jobs. Similar work has already been accomplished by the division of industrial hygiene in establishing safeguards for lead poisoning. The research is being carried on in the new research laboratory recently constructed in the division of industrial hygiene (THE JOURNAL, Dec. 21, 1946, p. 1019).

CONNECTICUT

State Medical Election.—At the annual meeting of the Connecticut State Medical Society April 29-30 Dr. James R. Miller, Hartford, assumed the office of president, succeeding Dr. Cole B. Gibson, Meriden, who was elected treasurer. Dr. Samuel C. Harvey, New Haven, was named president-elect, and Dr. Creighton Barker, New Haven, executive secretary. More than 1,000 physicians attended the meeting.

Appointment to Health Council.—Dr. W. Bradford Walker, Cornwall, was recently appointed by Governor James L. McConaughy as a member of the Connecticut Public Health Council for a term of six years, effective July 1. Formerly president of the Connecticut Public Health Association, Dr. Walker is a fellow of the American College of Physicians and attending senior physician at the Charlotte Hungerford Hospital, Torrington. He received his medical degree at the Yale University School of Medicine, New Haven, in 1920.

FLORIDA

Narcotic Violation.—Dr. Alfred E. O'Neil, 2554 South West Eighth Street, Miami, pleaded guilty to violation of the Federal Narcotic Law and on February 26 was sentenced to a term of eighteen months, which was suspended, and he was placed on probation for a period of three years.

Miami to Establish Medical School.—At a meeting April 16 the trustees of the University of Miami authorized the establishment of a school of medicine to be opened by October. The step was taken as the state legislature was debating bills to establish a medical and dental college as a branch of the University of Florida at Gainesville. Bowman F. Ashe, LL.D., president of the University of Miami, said that the decision of the trustees "has no connection" with the proposed state school. The city of Miami has offered 10 acres near the James M. Jackson Memorial Hospital as a site. The building is not needed to open the school, says Dr. Ashe, since first year's classes can be held in present classrooms.

ILLINOIS

Convicts Paroled Following Malarial Tests.—Seventy-six inmates of Statesville Prison, Joliet, who volunteered for wartime antimalarial experiments which yielded drugs helpful in the treatment and cure of malaria were paroled April 18. The prisoners had served an average of six years and fourteen days. A survey was conducted at the request of Governor Green by the correction division to determine what consideration should be given those who voluntarily submitted to the experiments. In a few cases in which factors unfavorable to parole predominated, the division entered "no change" orders.

Report on Disease Carriers.—A report from the Illinois Department of Public Health shows a reduction in the number of typhoid, paratyphoid and diphtheria cases and carriers in the last decade, as well as a comparison between the numbers in Chicago and downstate:

	State		Chicago		Downstate	
Year	Cases	Carriers	Cases	Carriers	Cases	Carriers
Typhoid and Paratyphoid						
1946	116	22	15	5	101	17
1937	540	54	75	10	465	44
Diphtheria						
1946	469	660	35	489	434	171
1937	1,671	1,918	655	1,802	1,016	116

From the ratio of cases to carriers reported in Illinois it can be seen, the report states, that Chicago has done a better job of discovering the year of carriers of virulent diphtheria organisms than the downstate communities.

Semicentennials.—Twelve eastern Illinois physicians who have had fifty or more years of practice received gold service buttons at the 8th District conference of the Illinois Medical Society in Mattoon April 17. They are Drs. Nicholas C. Iknayan, Charleston; Elijah G. Davis, Wakefield; Cyrus M. Harris, Casey; Dellie L. Wilhoit, Martinsville; Milton M. Brayshaw, Toledo; June J. Hinkley, Westfield; Alexis T. Telford and William E. Fritschle, Olney; John W. Kirk, Oblong; George E. Loesch, Palestine; Raymond C. Gillogly, Newman, and Edward H. Robinson, [illegible]akers were Dr. George A. Hellmuth [illegible] of Heart Disease"; Dr. James H. H[illegible], Chicago, "Common Endocrine Disturbances"; Dr. Charles E. Galloway, Evanston, "Early Diagnosis of Carcinoma of the Cervix"; Dr. Harry A. Oberhelman, Chicago, "Relationship of Chronic Cystic Mastitis to Cancer of the Breast"; Dr. G. Henry Mundt, Chicago, "Diagnosis and Management of Sinus Disease."

Chicago

Society of Internal Medicine.—The annual dinner of the Chicago Society of Internal Medicine will be held May 26 at the Drake Hotel at 7:30 for members only. Besides the annual business meeting Fay-Cooper Cole, Ph.D., professor and chairman of the department of anthropology, University of Chicago, will address the group on "Medicine Man."

The Mayo Lecture.—The Charles H. Mayo Lecture will be delivered May 21 at 4 p. m. in the Archibald Church Library of the Northwestern University Medical School by Dr. Herbert J. Seddons, Nuffield professor of orthopedic surgery, University of Oxford, and surgeon in chief, Winfield-Morris Orthopedic Hospital, London, on "Surgical Experiences in Peripheral Nerve Injuries."

Smoke Abatement Program.—During March Chicago's air was 27.5 per cent cleaner than in February, according to records obtained from twenty-two stations throughout the city. Newspaper publicity and an increase in rainfall in March over February is believed to account for the average of 57.99 tons of dust and smoke per square mile in March as compared to the citywide average of 80.38 tons in February.

Medical Editor Appointed.—Dr. Lee D. van Antwerp, Meriden, Conn., has been appointed to the newly created post of medical editor to G. D. Searle and Company, Chicago. Dr. van Antwerp, a graduate of the University of Michigan Medical School, Ann Arbor, in 1931, has served as editor of the *Centaur*, official publication of Alpha Kappa Kappa Medical Fraternity, since 1936. He served in the Army Medical Corps in the recent war and for many years has been connected with the Undercliff State Tuberculosis Sanatorium in Meriden, Conn., and as consultant in chest and medical diseases at the Meriden Hospital. He is a member of the American College of Physicians and of the American Medical Association.

Illinois Gets the Hertzler Manuscripts.—The University of Illinois College of Medicine has received manuscripts for four books, thirty-four unpublished addresses and miscellaneous writings by the late Dr. Arthur E. Hertzler, famed "horse and buggy doctor" of Halstead, Kan., from his widow, Dr. Irene A. Koeneke. The original manuscript of "The Horse and Buggy Doctor," first published in 1938, will be presented to the university by Dr. Koeneke in the near future. Publication of the addresses under the title "The Doctor Speaks His Mind" was halted by Dr. Hertzler's death on Sept. 12, 1946, at the age of 76. The manuscripts will be added to the 7,000 volume private medical library which Dr. Hertzler presented to the university in 1937. In addition to the gifts, Dr. Hertzler contributed $54,000 to the university three years ago to establish a foundation in visual education and medicine.

LOUISIANA

Decrease in Typhus Cases.—Since the resumption of an extensive rat control program in Louisiana during 1944 a substantial reduction in typhus cases in the state has been noted. The program consisted in rat poisoning, DDT dusting and rat proofing. During 1946 an intensified control program practically covered the state. The expenditure for 1946 was about $420,000. Typhus cases decreased from 423 in 1945 to 288 in 1946, a 32 per cent decline. The decline of cases in the state, exclusive of New Orleans, where the campaign is still not widespread, was from 306 in 1945 to 168 in 1946, a drop of 45 per cent.

MICHIGAN

Changes in Health Officers.—Dr. William C. Harrison, formerly of Minneapolis, will assume duties as director of the Delta-Menominee district health department at Powers, Mich., July 1. The two county health unit will be merged when he takes charge. Dr. Harrison, a graduate of the University of Minnesota Medical School, Minneapolis, practiced medicine in Minnesota until he entered military service and was discharged with the rank of lieutenant colonel. He is attending the school of public health, where he will receive his master's degree.——Dr. Russell E. Pleune has resigned as director, Northern Peninsula office, state department of health, and has accepted the position of chief, tuberculosis section, McCloskey Veterans' Hospital, Temple, Texas. Dr. Pleune is a graduate of Rush Medical School, University of Chicago, and completed his studies in public health work at Harvard Medical School, Boston.

Annual Alumni Clinic Day.—Wayne University College of Medicine (Detroit) alumni held their Annual Clinic Day May 14. Guest speakers included Drs. Emery A. Rovenstine, professor of anesthesia, New York University College of Medicine, New York, "Nerve Block Therapy"; W. Wayne Babcock, professor of surgery and clinical surgery, surgeon in chief, Samaritan Hospital, Philadelphia, "Complications of Abdominal Surgery"; John H. Couch, University of Toronto, Toronto, "Conservation of Function in Hand Amputations"; Kenneth F. Lowry, Ohio State University College of Medicine, Columbus, Ohio, "Application of Delayed Suture in the Management of Wounds"; Tom D. Spies, director of Nutrition Clinic, Hillman Hospital, Birmingham, Ala., "Recent Advances in Nutrition"; Louis H. Newburgh, professor of clinical investigation, University of Michigan Medical School, Ann Arbor, "Work of the Kidney Cells." Life membership in the association and "golden anniversary" certificates were awarded the sixteen surviving members of the graduating class of 1897 at the banquet.

MINNESOTA

Society News.—At a recent meeting of the Minneapolis Surgical Society, Dr. L. Haynes Fowler was elected president, succeeding Dr. Thomas J. Kinsella; Drs. Carl O. Rice vice president, Rudolph E. Hultkrans treasurer and Ernest R. Anderson secretary.

Regional Cancer Courses.—One day regional continuation courses for medical and lay workers in cancer education began in Worthington March 25, with similar regional monthly meetings scheduled for all sections of the state for the rest of the year except July and August. They are under a joint sponsorship of the Minnesota Department of Health, Minnesota Cancer Society, the University of Minnesota and the state medical association. Talks and demonstrations by cancer specialists from the university and by local physicians will provide the information about cancer. At the annual meeting of the Minnesota Cancer Society in March the society voted to change its official name to Minnesota Division, American Cancer Society, Inc. At the same time it presented the University of Minnesota with $75,000 toward a cancer research institute and, with the state department of health, set aside $15,000 for a cancer detection center.

MISSOURI

Personal.—Dr. Evarts A. Graham, professor of surgery, Washington University School of Medicine, St. Louis, has been made an honorary member of the Belgian Society of Surgery and of the French Academy of Surgery.

Society Elections.—Dr. W. Barry Wood, professor of medicine, Washington University School of Medicine, St. Louis, was elected president of the St. Louis Society of Medicine at a recent meeting.——Dr. Wendell G. Scott, associate professor of clinical radiology, Washington University School of Medicine, St. Louis, was reelected president of the St. Louis Radiological Society for the coming year.

St. Joseph Clinical Society.—At a meeting of this society in St. Joseph, April 23-24, the subjects discussed included diagnosis and treatment of pulmonary embolism, duodenal ulcer in children and cirrhosis of the liver. Among the guest speakers were Dr. Louis A. Brinsting, associate professor of dermatology and syphilology, Mayo Clinic, Rochester, Minn., "Recent Developments in the Treatment of Syphilis"; Dr. John M. Waugh, assistant professor of surgery, Mayo Clinic, "Carcinoma of the Rectosigmoidal Area," and Dr. Harold C. Lueth, dean and professor of medicine, University of Nebraska College of Medicine, Omaha, "Management of Coronary Thrombosis in the Younger Patient."

NEW YORK

Home for the Aged.—Mr. Isidore Greenspan, executive director of the Brooklyn Hebrew Home and Hospital for the Aged, celebrated his twenty-five year association with that institution on May 1. From a home of 109 beds the institution has grown to be a home and hospital for chronic seniors, with a capacity of 711. Plans are under way for a new 400 bed structure and modernization plans of the older properties.

Annual Reifenstein Lecture.—The annual Edward C. Reifenstein Lecture in medicine was given April 22 at the Syracuse University College of Medicine auditorium, Syracuse, by Dr. George W. Thorn, Hersey professor of the theory and practice of physic, Harvard Medical School, and physician in chief, Peter Bent Brigham Hospital, Boston, on "Diagnosis and Treatment of Adrenal Cortical Insufficiency."

Cancer Control in Wayne County.—A plan for the early detection and treatment of cancer has been charted by the recently organized Wayne County Branch, New York State Division, American Cancer Society, in collaboration with the county medical society. The plan includes a complete physical examination for every person in the county, medical records of patients in the Wayne County Laboratory and a speakers' bureau established by the medical society to assist in the educational program. Every town and local organization will conduct an educational cancer program during the year.

New York City

Eighth Harvey Lecture.—Dr. Samuel Z. Levine, New York, professor of pediatrics, Cornell University Medical College, New York, delivered the eighth Harvey Lecture of the current series at the New York Academy of Medicine May 15 on "Aromatic Amino Acid Metabolism in Human Nutrition and the Role of Vitamin C."

Postgraduate Course in Rheumatic Fever.—A postgraduate course in rheumatic fever and rheumatic heart disease will be conducted at St. Francis Sanatorium for Cardiac Children, Roslyn, L. I., July 14-25. Informal lectures and discussions supplemented by examination and study of patients, roentgenography and electrocardiography and their practical application will be given. For further information address Rev. Mother Superior, F.M.M., St. Francis Sanatorium for Cardiac Children, Roslyn, Long Island, N. Y.

Society Honors Seven and Forty-Nine Members.—The Richmond County Medical Society feted seven physicians who have been members for forty years on April 9 at the fifty-third annual dinner of the society in Staten Island. The physicians are Drs. Charles L. Allers, Frederick Coonley, Charles E. Pearson, H. MacDonald Peggs, Robert N. Severance, Richard M. MacRae and Myron B. Morris. A plaque engraved with the names of forty-nine members who served in the armed forces was presented to Dr. Stanley C. Pettit, who represented the veterans.

The Health Examination.—The Community Service Society, 105 East Twenty-Second Street, has just published a pamphlet entitled The Health Examination, for public health nurses to use as a guide in family health service and to help them prepare individuals and families for going to doctors for health examinations. The pamphlet contains illustrations of various phases of the health examination and quotations from authorities who have expressed opinions on health examinations; also a copy of the form which the physician may fill out when the examination is given. The pamphlet, which has been revised up to January 1 of this year, sells at 25 cents each for orders under 100 copies and 20 cents for orders above that number.

NORTH CAROLINA

Dr. Edward McGavran Appointed Dean.—Dr. Edward G. McGavran, professor of public health and preventive medicine, University of Kansas School of Medicine, Lawrence-Kansas City, Kan., has been appointed dean of the School of Public Health, University of North Carolina, Chapel Hill, effective September 1. Dr. McGavran received his medical degree from Harvard Medical School, 1928, and his M.P.H. from the Harvard School of Public Health. From 1934 to 1939 he was director of health and county health officer in Hillsdale, Mich., for the W. K. Kellogg Foundation, which he served the following year on a survey of health conditions in the sugar industry in Hawaii. He served as health commissioner of St. Louis County, Mo., 1941-1946.

PENNSYLVANIA

Diarrhea Epidemic in Infants.—Twenty-two babies in Pennsylvania have died since March 1 of gastroenteritis, 18 of them in Allentown, 4 in Philadelphia and 6 others in Somerville, N. J. At Temple University Hospital, Philadelphia, 32 children brought from Allentown and being cared for in an isolated ward were reported in "good condition." At Somerville 10 others are still ill in an isolated ward of Somerset Hospital but are not regarded as in a serious condition.

Philadelphia

Residents Banquet at Atlantic City.—The Association of Resident and Ex-Resident Physicians of the Philadelphia General Hospital will hold its first annual alumni reunion banquet at the Centennial Celebration of the A. M. A. in Atlantic City June 11 at 7 o'clock at Haddon Hall. Invitations have been issued to all members of the association; any who fail to receive them may make reservations through Dr. Robert C. McElroy, secretary-treasurer, 133 South 36th Street, Philadelphia 4.

Pittsburgh

Pittsburgh Surgical Society.—The Pittsburgh Surgical Society held a meeting at Mellon Institute Friday, May 16, to which all members of the Allegheny County and surrounding medical societies were invited. Dr. Edward M. Kent, St. Louis, spoke on "Bronchogenic Carcinoma," and Dr. Samuel P. Harbison, Sewickley, Pa., discussed "Reparative Surgery of Soft Part Wounds."

RHODE ISLAND

New County Society.—The house of delegates of the state medical association has issued a charter to the physicians of Bristol County to permit them to form a constituent association in that area. The action removes the Bristol delegation from the jurisdiction of the Providence Medical Association. Dr. Marcius H. Merchant is the first president of the new association.

TEXAS

Grant for Experimental Study.—A special grant of $10,000 has been approved by the U. S. Public Health Service for the support of a study of experimental vascular syphilis under the direction of Dr. Chester N. Frazier in the laboratories of the department of dermatology and syphilology of the University of Texas Medical Branch, Galveston.

University News.—Ardzroony Packchanian, Ph.D., associate professor of bacteriology and parasitology at the University of Texas Medical Branch, Galveston, left for Mexico April 21. He was a visiting professor of bacteriology and tropical medicine at the Escuela de Midicina de Nuevo León in Monterrey and lectured on leishmaniasis, trypanosomiasis, spirochetosis and tularemia. The Mexican government has also invited him to do field research. He was expected to return to Galveston about May 10.

Texas Medical Center.—A campaign is in progress to raise money needed to construct the $2,500,000 St. Luke's Hospital, which is to be built by the Episcopal Church as a part of the Texas Medical Center at Houston. Mr. and Mrs. R. H. Cullen, Houston, have given $1,000,000, and $500,000 has been received from the M. D. Anderson Foundation of Houston. A 6 acre site is a further gift from the Anderson Foundation. The hospital will have 250 beds. The Texas Medical Center is expected to include the Baylor Medical School, University of Texas Dental School, Hermann Hospital, a children's hospital, tuberculosis hospital, nurses' training school, x-ray laboratory and pathologic laboratory, and specialized study for pediatrics, geriatrics and numerous other phases of medicine.

WISCONSIN

Honored for Service to Community.—Drs. Jean A. Jackson and Edward F. Butler, Mosinee, were honored at a testimonial dinner in March sponsored by the Mosinee Chamber of Commerce and the Lions Club in recognition of the doctors' long and faithful service to their community. Dr. Butler has spent his entire medical career, thirty-six years, in Mosinee, and Dr. Jackson moved to the city thirty years ago.

GENERAL

State Postgraduate Committees Meeting.—The next meeting of the Associated States Postgraduate Committees will be held June 11, 12:30 p. m., at Chalfonte-Haddon Hall, Atlantic City. The subject will be the scope of postgraduate programs offered by a state medical society.

Diploma Stolen.—Dr. Frederick S. Spearman of Williams, Ariz., a graduate of McGill University Faculty of Medicine, Montreal, Canada, reports that his medical diploma has been stolen and suggests that state medical boards be on the watch in case some one should attempt to register by means of it.

Loyola Alumni Meeting in Atlantic City.—The Medical Chapter of the Loyola University Alumni Association will hold a dinner for 200 alumni and their wives at the Chelsea Hotel in Atlantic City June 11 at 6:30. The main speaker will be Dr. James J. Smith, dean of Loyola University School of Medicine, Chicago. The New Jersey club president is Dr. I. Jerome Sobel of Passaic, N. J.

Metropolitan Says Our Health Is Best Ever.—Health in the United States was better in the first quarter of 1947 than ever before in the same period, according to Metropolitan Life Insurance Company records. Mortality for the first three months was 7.7 deaths for each thousand policyholders, or 9.8 per cent below the rate for the like months of 1946 and 3.6 per cent below the previous low for the period registered in 1945. New lows in death rates were registered for tuberculosis, the four principal communicable diseases of childhood as a group, syphilis and appendicitis.

Special Society Elections.—The Southern Society of Clinical Surgeons at a recent meeting elected Dr. Emmett B. Frazer, Mobile, Ala., president, and Dr. James White, Fort Worth, Texas, vice president.——The National Academy of Sciences at its annual meeting in Washington April 28-30 elected the following officers: president for a four year term, Alfred N. Richards, Sc.D., Ph.D., vice president in charge of medical affairs, University of Pennsylvania, Philadelphia, and secretary for a further four year term, Frederick E. Wright, Sc.D., Carnegie Institution, Washington, D. C.

American Urological Association Meeting.—The twenty-third annual meeting of the western section of the American Urological Association will be May 21-23 at the Ahwahnee Hotel, Yosemite Valley, Calif. Among the subjects of many scientific papers to be presented are streptomycin and the urologist, surgical treatment of hypertension, urologic manifestations in early filariasis and the best method of removal for adenoma of the prostate. The president's address will be delivered May 22 at 1:30 by Dr. Dudley P. Fagerstrom, San Jose, Calif., on "Proliferative Tumors of the Ureter and Renal Pelvis, with Further Observations on the Significance of Epithelial Nests."

Institutes in Hospital Administration.—The American Hospital Association, 18 East Division Street, Chicago, will sponsor during the next six months a series of institutes of several days' duration on specialized phases of hospital administration. They will consist of talks, panel discussions and informal discussion of individual hospital contracts. The first institute, at the Continental Hotel, Chicago, May 19-23, on Hospital Pharmacy, will be co-sponsored by the American Pharmaceutical Association. The last of the series will be an institute for hospital trustees held in Chicago, December 1-5. Between these dates institutes will be held at various other cities on such subjects as public relations, personnel management, cost analysis and anesthetics.

Tuberculosis Physicians to Meet in Atlantic City.—The annual meeting of the American Academy of Tuberculosis Physicians will be held at the Hotel Dennis, Atlantic City, N. J., June 7. Under the leadership of Dr. Marcio M. Bueno, Rio de Janeiro, Brazil, a delegation from South America will attend. Included in the subjects of papers to be presented are Bagasse disease, case finding in the schools of Detroit, postoperative care following thoracic surgery, air embolism during pneumoperitoneum and safeguarding the undergraduate and graduate student of medicine against tuberculosis. Guest speakers will be Dr. Bueno, whose address will be "The Prevention of Tuberculosis," and Dr. Konrad Birkhaug, state department of health, Albany, N. Y., whose subject will be "Experimental and Clinical Basis for BCG Vaccination."

New Organization for Pathologists.—The College of American Pathologists, formed Dec. 13, 1946, has opened a temporary office at 203 North Wabash Avenue, Chicago. The objectives of the organization are (*a*) to foster the highest standards in education, research and the practice of pathology; (*b*) through study, education and improvement of the economic aspects of pathology to advance the science of pathology and to improve medical laboratory service; (*c*) to maintain the dignity, precision and efficiency of the specialty of pathology for the service of the common good. Membership is limited to pathologists certified by the American Board of Pathology. Junior membership is available to residents in pathology who have completed two years of their requirements for examination by the American Board of Pathology. Officers of the organization are Drs. Frank W. Hartman, Henry Ford Hospital, Detroit, president; Tracy B. Mallory, Massachusetts General Hospital, Boston, secretary-treasurer, and Melbourne G. Westmoreland, Chicago, executive secretary.

Gastroscopic Club to Meet at Atlantic City.—The third annual meeting of the American Gastroscopic Club is to be held at the Hotel Claridge, Atlantic City, June 8 at 9:30 a. m. Among the speakers will be Dr. Rudolf Schindler, Los Angeles, on "Differentiation of Benign and Malignant Gastric Ulcer"; Drs. Moses Paulson, Baltimore, and Eugene S. Gladsden, Washington, D. C., "Partial Gastrectomy: Clinical, Gastroscopic and Radiological Considerations"; Dr. Regis A. Wolff, Pittsburgh, "Gastroscopic Appearance of the Gastric Mucosa Before and After Vagus Resection"; Dr. Frank McGlone, Denver, "Observations on Gastritis Based on Experience in a General Hospital in the South Pacific"; Dr. I. Richard Schwartz, Brooklyn, "Gastroscopic Observations in Secondary Syphilis"; Dr. Cecil O. Patterson, Dallas, Texas, "Description of the Gastroscopic Appearance of Luetic Lesions in the Stomach," and Drs. Harry L. Segal and James S. Watson Jr., Rochester, N. Y., "Color Photography Through the Flexible Gastroscope." A business meeting and a luncheon will follow the scientific program with Dr. Henry L. Bockus, Philadelphia, the speaker.

Dr. Ross G. Harrison Receives Carti Medal.—Dr. Ross G. Harrison, professor emeritus, Osborn Zoological Laboratory, Yale University, New Haven, Conn., received the John J. Carti gold medal and award for 1947 at the annual dinner of the National Academy of Sciences, Washington, D. C., April 29. The award was conferred for the discovery that tissue cells may be grown outside the animal body and by the use of the discovery to demonstrate the manner of growth of nerve fibers, for long and distinguished service as investigator, teacher and councilor of students and for a statesmanly direction of the National Research Council. As a young man at Johns Hopkins University, Baltimore, he obtained striking experimental results in a study of the development of the nervous system. He first used the method of isolation of embryonic tissues in culture mediums and gave an ocular demonstration that the nerve fiber grows out from a single cell without the participation of accessory cells. This led to the procedure known as tissue culture, which has since been widely used in the differentiation, growth and behavior of cells under various conditions outside the body. Referring to Dr. Harrison's work on the nerve fiber, Dr. Florence R. Sabin, Denver, retired, has said "This epochal discovery, with all of the developments of the methods of studying living cells, is one of the most outstanding American contributions to scientific medicine and biology." Provision for the Carti Medal and Award was made by the American Telephone and Telegraph Company as a token of esteem on the occasion of the late John J. Carti's retirement from active service.

FOREIGN

Malaria Among the Moros.—The Associated Press reports that a malaria epidemic in Mindanao, Philippine Islands, is taking the lives of 800 to 1,000 Moros a month. Governor Louis R. Marohonbsar of Lanao province has appealed to the UNRRA and the Philippine government to help combat the spread of malaria among the 300,000 Moros inhabiting fertile uplands bordering the Lake Lanao region.

Reorganization of Japanese Medical Association.—The first issue of the *Journal of the Japanese Medical Association* to be published after its reorganization under democratic principles has come to this office and is printed in the Japanese language. The Japanese Medical Association previously had been a government agency for the control of the medical profession under which membership was compulsory by law and the government appointed the national and state (prefectural) presidents. The association has been reorganized under the guidance of the public health and welfare section, General Headquarters, Supreme Commander for the Allied Powers. It is now an association representing the medical association with voluntary membership which selects its own officers. Col. Crawford F. Sams, M. C., U. S. Army, chief of the public health and welfare section, writes that this process of turning an organization completely upside down has been a long and tedious one.

Palestine Society for Medical History.—The first conference of the Palestine Society for Medical History was held in Jerusalem April 7. On the following day lectures were continued at the Hebrew University. Among others, a paper presented by the late Dr. M. Meyerhof, Cairo, Egypt, entitled "Arabic Medicine Among Yemenite Jews," was read by Dr. D. A. Friedmann, editor, *Journal of the Palestine Medical Association*. The honorary president of this organization is Dr. Harry Friedenwald, Baltimore. The address of the organization is Street of Prophets, Baltinester House, Jerusalem. The object of the Palestine Society for Medical History is research into and propagation of knowledge in medical history and all its branches, particularly research in Jewish medical history. The society will have its own quarterly publication and a library with old manuscripts, especially photostats of manuscripts. It will support research workers and distribute a prize for the most important paper of the past year.

CORRECTIONS

Price of Book.—Under Book Notices in The Journal, April 26, page 1319, the price of the book "Pharmacy's Part in Society," by George Urdang, was given as $1.05. The price of the book is $5.

The Repair of Arteriovenous Fistulas.—In the paper by Heringman, Rives and Davis (The Journal, March 8, p. 663) the footnote under the title should read "From the Department of Surgery, Louisiana State University School of Medicine, and the Surgical Services of Charity Hospital of Louisiana and Touro Infirmary." On page 667 the last sentence of the legend for figure 8 should begin "Although this is not an arteriovenous aneurysm . . ."

Marriages

Mark Stiles Wellington, St. Petersburg, Fla., to Miss Patricia Anne Sampson of Plymouth, Mass., Dec. 10, 1946.

Charles E. Thompson, Omaha, to Miss Martha Jane Wheat of Belleville, Ill., Dec. 10, 1946.

Sidney Martin Samis to Miss Shirley Gladys Aronow, both of New York, March 16.

Samuel Sherman to Miss Constance Sara Sameth, both of New York, February 16.

Deaths

Isidore William Held ⊕ New York; born in Boryslav, Austria, May 15, 1876; Jefferson Medical College of Philadelphia, 1902; from 1935 to 1941 clinical professor of medicine at the New York University College of Medicine, where the I. W. Held Fellowship Fund had been established in his honor; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the National Gastroenterological Association, American Heart Association, American Association for the Advancement of Science, Association of Military Surgeons of the United States and others; consulting physician and from 1929 to 1945 attending physician at the Beth Israel Hospital, where the pathologic laboratory is named in his honor; consulting physician at the Nathan and Miriam Barnet Memorial Hospital, Paterson, N. J., Israel Zion, Beth Moses and Beth El hospitals in Brooklyn, Jewish Memorial Hospital and the Rockaway Beach (N. Y.) Hospital; major, medical reserve corps, not on active duty; co-author of "Peptic Ulcer—Its Diagnosis and Treatment"; died in the Mount Sinai Hospital March 2, aged 70, of cardiovascular disease and acute pyelonephritis.

Cornelius Albertus Hospers ⊕ Chicago; School of Medicine of the Division of the Biological Sciences, University of Chicago, 1932; interned at University of Chicago Clinics; specialist certified by the American Board of Pathology, Inc.; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; on the staffs of the Holy Cross and South Chicago Community hospitals; served as a lieutenant colonel in the medical corps, Army of the United States, during World War II; died February 20, aged 42, of coronary thrombosis.

Robert Brian Archibald ⊕ Bedford Hills, N. Y.; Dalhousie University Faculty of Medicine, Halifax, N. S., Canada, 1927; president, past vice president and secretary of the Westchester County Medical Society; at one time health officer of Covington County, Ala.; affiliated with the Northern Westchester Hospital in Mount Kisco; on the editorial board of the *Westchester Medical Bulletin*; died February 7, aged 46.

Herman Charney ⊕ Greeley, Colo.; St. Louis College of Physicians and Surgeons, 1926; died in the Montefiore Hospital in New York February 5, aged 45, of recurrent brain tumor.

Otto H. Duker, Baltimore; College of Physicians and Surgeons, Baltimore, 1904; died in St. Joseph's Hospital January 19, aged 79, of arteriosclerosis and thrombosis of femoral artery.

Harry Charles Durkee, Woodstock, Ill.; State University of Iowa College of Medicine, Iowa City, 1906; member of the American Medical Association; died February 16, aged 67, of cerebral hemorrhage.

George Spaulding Edwards, Santa Barbara, Calif.; University of Southern California School of Medicine, Los Angeles, 1943; interned at the Los Angeles County Hospital in Los Angeles; instructor in physiology at his alma mater; served during World War II; died in January, aged 29, of hemorrhagic consolidation of lungs due to pharyngeal hemorrhage during syncope of unknown etiology.

C. Bryant Elkins, Springfield, Mo.; Missouri Medical College, St. Louis, 1885; member of the American Medical Association; honorary member of the Missouri State Medical Association; died in St. John's Hospital February 25, aged 85, of coronary thrombosis.

Daniel James Ellison ⊕ Lowell, Mass.; Tufts College Medical School, Boston, 1908; member of the New England Obstetrical and Gynecological Society; served during World War I; past president of the Middlesex North District Medical Society; affiliated with the Lowell General, St. John's and St. Joseph's Hospitals; died February 14, aged 62, of cerebral hemorrhage.

Charles William Eustace ⊕ Buffalo; University of Buffalo School of Medicine, 1910; for many years chief examiner in the area for the Travelers Insurance Company of Hartford; awarded certificate of merit for service given Selective Service System; died February 9, aged 69, of coronary thrombosis.

Lee Thaddeus Ferrell, Albuquerque, N. M.; University of Nashville (Tenn.) Medical Department, 1911; served during World War I; for many years on the staff of the Veterans Administration Center, where he died February 3, aged 67, of coronary occlusion.

George Earl Fortmiller, Albany, Ore.; University of Oregon Medical School, Portland, 1918; formerly city and county health officer; on the staff of the Albany General Hospital, where he died February 19, aged 55, of heart disease.

Sanford Edwin Gaines ⊕ Sparta, Tenn.; University of Tennessee College of Medicine, Memphis, 1890; an Affiliate Fellow of the American Medical Association; for many years county health officer; past president of the Upper Cumberland Medical Society; on the staff of the White County Hospital; died February 19, aged 78, of myocarditis.

Edward Francis Garraghan ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; at one time on the faculty of Rush Medical College; on the staffs of the Columbus Memorial Hospital and St. Joseph's Hospital, where he died March 10, aged 73, of carcinoma of the pancreas.

John Aldridge Gibson ⊕ Leesburg, Va.; University of Maryland School of Medicine, Baltimore, 1901; served as vice president of the Medical Society of Virginia and as president of the Loudoun County Medical Society; affiliated with the Loudoun County Hospital, where he died March 10, aged 70, of carcinoma of the gallbladder.

Guy Aubrey Gowen, Chicago; Northwestern University Medical School, Chicago, 1896; member of the American Medical Association; died March 9, aged 77, of hypertension and cerebral hemorrhage.

John Denton Green, Brookville, Miss.; Loyola University School of Medicine, Chicago, 1918; member of the American Medical Association; served as president of the North East Mississippi Thirteen County Medical Association and as health officer of Noxubee County; died in the Methodist Hospital, Memphis, Tenn., February 4, aged 67, of carcinoma of the cecum.

Laborn James Harley, Atlanta, Ga.; University of Nashville (Tenn.) Medical Department, 1900; served during World War I; died in Veterans Hospital number 48, February 16, aged 72, of cerebral thrombosis and hypertensive heart disease.

Frank Crawford Hayes, Camden, Ill.; George Washington University School of Medicine, Washington, D. C., 1905; at one time connected with the Indian Service; died in the Blessing Hospital, Quincy, February 24, aged 76, following the removal of an infected kidney.

Hamilton Worth Hewit, Lincoln, Neb.; Rush Medical College, Chicago, 1877; died in the Lincoln General Hospital February 18, aged 96, of arteriosclerosis.

John Joseph Hill, Forest Hills, N. Y.; Fordham University School of Medicine, New York, 1912; medical officer of the New York Fire Department; served on the staffs of the Beekman Street, Bellevue and St. Joseph's hospitals, all in New York; died in the Bronx Hospital, New York, February 21, aged 62, of coronary thrombosis.

Richard Gordon Holcombe, Lake Charles, La.; Tulane University of Louisiana, New Orleans, 1906; member of the American Medical Association; on the staff of St. Patrick's Hospital; died February 5, aged 65, of cerebral hemorrhage.

Richard M. Howe, St. Petersburg, Fla.; Eclectic Medical Institute, Cincinnati, 1889; died in St. Anthony's Hospital March 3, aged 81, of myelogenous leukemia.

Jesse William Ingram, Walla Walla, Wash.; University of Nashville (Tenn.) Medical Department, 1902; member of the American Medical Association; past president of the Walla Walla Valley Medical Society; served as treasurer of the state board of medical examiners; for many years physician for the state penitentiary; served overseas during World War I; lieutenant colonel, medical reserve corps, not on active duty; formerly county health officer; died in the Veterans Hospital, American Lake, February 22, aged 71, of organic heart disease.

Gabriel Joseph Jack ⊕ North Haven, Conn.; Boston University School of Medicine, 1907; fellow of the American College of Surgeons; on the staff of the Grace Hospital in New Haven; died February 6, aged 63, of coronary occlusion.

John Greenwood Jennings ⊕ Boston; Tufts College Medical School, Boston, 1915; member of the New England Ophthalmological Society; flight surgeon during World War I; served on the staffs of the Massachusetts Eye and Ear Infirmary in Boston and the Waltham (Mass.) Hospital, where he died February 17, aged 58, of internal hemorrhages.

Griffith Smith Jones, Genesee Depot, Wis.; University of Pennsylvania School of Medicine, Philadelphia, 1917; member of the American Medical Association; at one time school health officer in Wauwatosa; died in the Wisconsin General Hospital in Madison February 7, aged 63, of postoperative pneumonitis.

Lewis J. Jones, Stanford, Ky.; Hospital College of Medicine, Louisville, 1902; member of the American Medical Association; secretary-treasurer of the Lincoln County Medical Society; veteran of the Spanish-American War; died February 13, aged 66, of heart disease.

Shelby Justus, Swifton, Ark. (licensed in Arkansas in 1909); member of the American Medical Association; died in Searcy February 16, aged 66, of coronary thrombosis and duodenal ulcer.

Roscoe Romeo Kahle ⊕ Columbus, Ohio; Starling Medical College, Columbus, 1904; on the staffs of the Grant and St. Anthony's hospitals; died February 7, aged 68, of coronary thrombosis.

Ira Nelson Kilburn, Springfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1911; member of the American Medical Association; member of the Springfield Academy of Medicine; on the staffs of the Wesson Memorial and Springfield hospitals; died February 2, aged 61, of cerebral hemorrhage and arteriosclerosis.

Ray Porter Kile, Rockford, Ill.; University of Illinois College of Medicine, Chicago, 1913; member of the American Medical Association and the American Urological Association; died in Tucson, Ariz., February 19, aged 62, of intestinal obstruction.

Harvey Thomas Little ⊕ Chicago; Loyola University School of Medicine, Chicago, 1916; member of the staffs of the Loretto and County hospitals; died in Hollywood, Calif.; March 10, aged 52, of coronary thrombosis.

Myrtle Ethel Spencer Lockwood, National City, Calif.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1900; member of the American Medical Association; on the staff of the Paradise Valley Sanitarium and Hospital, where she died February 5, aged 70, of carcinoma of the tongue.

Albert H. Macbeth, Fort Wayne, Ind.; University of Buffalo School of Medicine, 1892; member of the American Medical Association; veteran of the Spanish-American War; served as a staff member of St. Joseph's, Lutheran and Methodist hospitals; formerly health commissioner; died March 10, aged 83.

Oscar Hunter McClung, Lexington, Va.; University of Virginia Department of Medicine, Charlottesville, 1902; member of the American Medical Association; on the staff of the Jackson Memorial Hospital; died February 2, aged 67, of coronary thrombosis.

Alva Edgar McReynolds, El Paso, Ill.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1915; member of the American Medical Association; served overseas during World War I; during World War II received the Congressional Medal of Merit for work in civilian defense; died February 6, aged 70, of coronary occlusion.

U. Rial McReynolds, Knox City, Mo.; St. Louis University School of Medicine, 1904; member of the American Medical Association; died February 12, aged 66, of aortic stenosis.

John A. May, Manchester, Iowa; Chicago Homeopathic Medical College, 1890; died recently, aged 83, of coronary sclerosis.

Paul Mazzuri, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1897; veteran of the Spanish-American War; an associate of Walter Reed during the famous yellow fever experiments in Cuba in 1900; formerly assistant medical director of the New York Life Insurance Company; died in the Touro Infirmary March 9, aged 81, of arteriosclerosis and bronchopneumonia.

Benjamin Franklin Myers, Chambersburg, Pa.; Baltimore Medical College, 1892; member of the American Medical Association; past president of the Franklin County Medical Society; served as county jail physician; on the staff of the Chambersburg Hospital, where he died February 17, aged 78, of carcinoma of the stomach.

Mary Eva Gill Noble, Brookline, Mass.; Tufts College Medical School, Boston, 1902; member of the American Medical Association; specialist certified by the American Board of Psychiatry and Neurology; for many years on the staff of the Boston State Hospital; died in the New England Hospital, Boston, February 16, aged 75, of cerebral hemorrhage.

John T. O'Mara ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1903; secretary of the board of medical examiners of Maryland for twenty-two years; member of the Federation of State Medical Boards of the United States; fellow of the American College of Physicians; on the staff of the Bon Secours and St. Agnes hospitals; died February 3, aged 66, of cerebral hemorrhage.

Thomas Edward Phillips, Alligator, Miss.; Tulane University of Louisiana, New Orleans, 1910; member of the American Medical Association; served during World War I; died in the Clarksdale (Miss.) Hospital February 14, aged 59, of heart disease.

Joseph B. Potsdamer, Philadelphia; Jefferson Medical College of Philadelphia, 1879; member of the American Medical Association; served on the staff of the Jewish Hospital; died February 14, aged 89, of pneumonia.

Addison Webster Preston ⊕ Visalia, Calif.; University of Vermont College of Medicine, Burlington, 1907; for many years city and county health officer; director of the Bank of America; served as a member of the school board; died February 5, aged 63, of pyelonephritis.

Joseph Larcher Ravitts, Montezuma, Iowa; Chicago College of Medicine and Surgery, 1914; member of the American Medical Association; served during World War I; examining physician for the Poweshiek County Selective Service Board during World War II; died February 5, aged 62, of cerebral hemorrhage.

Maurice Joseph Reidy ⊕ Winsted, Conn.; Columbia University College of Physicians and Surgeons, New York, 1910; fellow of the American College of Surgeons; affiliated with the Litchfield County Hospital; died in St. Francis Hospital, Hartford, February 6, aged 62, of cerebral thrombosis.

Knight Reynolds ⊕ Cumberland, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; on the staff of the Memorial Hospital; died February 5, aged 47.

Abbott Satterthwait, Laguna Beach, Calif.; Hahnemann Medical College and Hospital, Philadelphia, 1897; died February 11, aged 73.

Charles Hamilton Schultz ⊕ Johnstown, Pa.; George Washington University School of Medicine, Washington, D. C., 1922; served during World War I; during World War II served as a medical examiner for a local selective service board; for many years affiliated with the Memorial and Mercy hospitals; died February 6, aged 52.

Frank Robert Sedgley, Redwood City, Calif.; Boston University School of Medicine, 1902; member of the American Medical Association and the Massachusetts Medical Society; fellow of the American College of Surgeons; formerly affiliated with the U. S. Public Health Service Reserve and on the staffs of various Veterans Administration hospitals; died February 13, aged 67, of coronary occlusion.

Monroe Shaul, Boonville, Ind.; Kentucky School of Medicine, Louisville, 1883; died February 15, aged 93, of senility.

William Mark Sherman, St. Louis; St. Louis University School of Medicine, 1904; for many years medical examiner for the John Hancock Mutual Life Insurance Company; died in the City Hospital February 7, aged 76, of arteriosclerosis and cerebral thrombosis.

George W. Sholler ⊕ Melrose Park, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; past president of the Philadelphia County Medical Society; affiliated with the Jewish Hospital and Germantown Hospital in Philadelphia, where he died February 3, aged 76, of coronary occlusion.

William Walter Slayden, Waverly, Tenn.; University of the South Medical Department, Sewanee, 1897; director and formerly vice president of the Citizens Bank of Waverly; died in St. Petersburg, Fla., February 10, aged 74, of leukemia and pneumonia.

Adela Jeanette Smith, New York; New York Homeopathic Medical College and Flower Hospital in New York in 1920; retired in 1943 after twenty-eight years as assistant director of health education in charge of the division of physically handicapped children in the city's public schools; died March 2, aged 74.

W. Edgar Smith, Dallas, Texas; Southern Methodist University Medical Department, Dallas, 1914; member of the American Medical Association; fellow of the American College of Surgeons; served during World War I; on the staff of St. Paul's Hospital; died February 2, aged 55, of coronary occlusion.

Albert L. Sparks, Springfield, Mo.; Ensworth Central Medical College, St. Joseph, 1906; also a druggist; died February 2, aged 69.

Paul Edward Spratlin, Washington, D. C.; Denver College of Medicine, 1892; died February 3, aged 85, of hypertensive heart disease.

Harry J. Stauffer, Jeannette, Pa.; Jefferson Medical College of Philadelphia, 1895; member of the American Medical Association; died February 2, aged 81, of cerebral hemorrhage.

Roy George Stevens ⊕ Sioux Falls, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; fellow of the American College of Surgeons; on the staffs of the McKennan and Sioux Valley hospitals; died February 20, aged 66.

Patrick Francis Strapp, Seymour, Conn.; Bellevue Hospital Medical College, New York, 1892; served as a member of the board of education; died February 5, aged 81.

Francis Leslie Sullivan ⊕ Scotia, N. Y.; Albany Medical College, 1924; fellow of the American College of Surgeons; *specialist certified* by the American Board of Surgery; member of the House of Delegates of the American Medical Association, 1944, 1945 and 1946; served on the staffs of the City, Ellis and the Eastern New York Orthopedic hospitals, all in Schenectady; died February 15, aged 50, of coronary thrombosis.

Gustavus Adolphus Sulzer, Columbus, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1892; died in Mount Vernon February 20, aged 78.

Charles Edward Taylor, Tacoma, Wash.; University of Oregon Medical School, Portland, 1897; formerly affiliated with the civilian conservation corps, Western State Hospital at Fort Steilacoom and the Eastern State Custodial School at Medical Lake; died in a local hospital February 5, aged 75.

William Girard Thompson, Enid, Miss.; Hospital College of Medicine, Louisville, Ky., 1894; member of the American Medical Association; died in the Grenada Hospital in Grenada, Miss, February 11, aged 74, of heart disease.

James Richard Tubman, Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1895; member of the American Medical Association; died February 17, aged 79.

Edgar Lee West ⊕ Trenton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; fellow of the American College of Surgeons; *served during* World War I; on the staff of St. Francis Hospital; died February 6, aged 67, of lymphosarcoma.

Walter Charles Wilhelmj ⊕ East St. Louis, Ill.; St. Louis University School of Medicine, 1904; past president of St. Clair County Medical Society; member of the American Urological Association; served as acting director of the East Side Health District; chief of staff, St. Mary's Hospital; affiliated with Christian Welfare Hospital; trustee and past president of the public library; died in Hot Springs, Ark, February 23, aged 65.

James Wallace Wilkes ⊕ Columbia, Tenn.; Cornell University Medical College, New York, 1900; past president of the Tennessee Otolaryngology Association; past vice president of the Tennessee State Medical Association; past president of the Maury County Medical Society; died February 19, aged 70, of heart disease.

Reuben Hamilton Williams, Moberly, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1916; member of the American Medical Association; served during World War I; *county coroner and city physician*; died February 6, aged 61, of coronary disease.

Howard Edwin Wright, Princeton, N. J.; University of *Pennsylvania Department of Medicine,* Philadelphia, 1893; medical inspector in the borough of Princeton public schools; member of the medical staff of Princeton University; medical adviser to private and parochial schools; on the staff of the Princeton Hospital, where he died February 18, aged 78.

COMDR. HAROLD E. STEDMAN
(MC), U. S. N. R., 1900-1945

CAPT EMMET ROBINSON SPICER
M. C., A. U. S., 1915-1945

LIEUT. (jg) JOSEPH A. MORTON
(MC), U. S. N. R., 1915-1944

KILLED IN ACTION

Harold Edwin Stedman, Garden City, N. Y.; University of Michigan Medical School, Ann Arbor, 1928; member of the American Medical Association and the American Urological Association; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; interned at the U. S. Naval Hospital in Brooklyn; served a residency at the Jersey City Hospital in Jersey City, N. J., and the New York Hospital in New York; on the staffs of the Meadowbrook Hospital in Hempstead and the Nassau Hospital in Mineola; at one time an officer in the regular U. S. Navy; entered the medical corps of the U. S. Naval Reserve in November 1940 as a lieutenant commander; promoted to commander; died on the U. S. S. *Pinckney* April 29, 1945, aged 45, of wounds received in action.

Emmet Robinson Spicer, Goldsboro, N. C.; Cornell University Medical College, New York, 1941; interned at the John T. Mather Memorial Hospital in Port Jefferson, N. Y., and the Bellevue Hospital in New York; captain, medical corps, Army of the United States; killed in action in Corregidor Feb. 16, 1945, aged 29.

Joseph Anselm Morton, Rochester, N. Y.; University of Rochester School of Medicine and Dentistry, Rochester, N. Y., 1942; interned at the Genesee Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on July 1, 1943; killed in an explosion of Kamikaze plane Nov. 1, 1944, aged 29, while ministering to wounded seamen on deck of U. S. destroyer *Anderson* during the battle of the Philippine Islands.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 5, 1947.

The Birth Rate Reaches Replacement Level

A rise in the birth rate during the war and subsequently has been reported in The Journal from time to time, but the rate was always below the level of replacement—a fact which caused much concern to writers on the subject. Now at last it is announced that the replacement level was reached, for the first time in twenty-four years, in the last quarter of 1946. The deaths registered in that quarter for England and Wales numbered 122,173, representing a death rate of 11.3 per thousand of population, compared with 11.4 for the corresponding quarter of 1945. Deaths of children under 1 year of age numbered 9,139, giving a provisional mortality rate of 44 per thousand of related live births. This is 7 per thousand below the average of the ten preceding years 1936-1945. The "natural increase of population" (the excess of births over deaths for the quarter) was 99,718.

The number of persons married during the quarter numbered 191,256, which was 20,187 more than the average of the corresponding quarters of the preceding five years, 1941-1945. The birth rate for the whole of 1946 was 19.1 per thousand, the highest since 1923.

The approximate reproduction rate for the year was 1,102, which was 10 per cent in excess of that required to maintain the population. This is the first time that the rate has reached the replacement level since 1922, when the corresponding figure was 1,013. Infant mortality was the lowest ever recorded in this country, 43 per thousand, being 2 per thousand below that of 1944, the previous lowest.

A Medical Service for Students

A remarkable free medical service for students has been maintained by Edinburgh University for seventeen years. They are entitled to medical examination on admission and at other times when they wish. They are also encouraged to engage in physical education. Lately x-rays of the chest have been included in the examination. During the present year 752 (about 60 per cent) of the male students have been examined, and about the same proportion of women. Among the males 8 cases of pulmonary tuberculosis were found, the subjects being unaware of the existence of the disease. In addition to medical examinations, consultations are held three times a week for students wanting advice, and those unfit to attend can obtain domiciliary treatment. The medical service works in cooperation with the students' social service. It is devised for the benefit of those whose homes are not in Edinburgh. Local students are encouraged to use their family physician rather than the university medical service. The principal Edinburgh hospital, the Royal Infirmary, has a special students' ward. There is also a dental service organized through the Dental Hospital. It is hoped to have a university sick dormitory in one of the university hospitals, and a scheme for the full care of students suffering from tuberculosis is being considered.

The Perennial Character of Hughlings Jackson's Teaching

Of all the great men whose work is commemorated by lectures periodically delivered, Hughlings Jackson has a peculiar claim. His pioneer work in laying the foundations of neurology still remains unique. It is curious that, while neurologists are unanimous in his praise, none of them have attempted any work in his peculiar vein, though so much has been accomplished on other lines. Is this because he completely worked out that vein or because, though there have been many great neurologists, none have had the peculiar cast of mind required for work on Jackson's lines? This was simply the application of Herbert Spencer's philosophy of evolution to neurology. In the whole of medicine there is nothing comparable. Great teachers often indulge in philosophic reflections, but that is a very different thing from applying to medicine a definite philosophical system.

Permanence of Concepts

At the Section of Neurology of the Royal Society of Medicine the tenth Hughlings Jackson lecture was delivered by Professor E. D. Adrian, F.R.S. He began with a reference to Herbert Spencer as a philosopher who was today forgotten but who molded the thought of his Mid-Victorian generation and whose influence was shown in the development of neurology by his great admirer Hughlings Jackson. The theories and predictions of Hughlings Jackson were based on Spencer, and the illumination which they gave to neurology was as brilliant today as ever. Hughlings Jackson was one of the great clinicians of all time, a scientific observer of the first rank, and his theses were still fresh and individual and none the worse for our advancing knowledge. His ideas were cast in terms so general that they applied whatever the detailed structure of the nervous system might prove to be. Many of his writings were published before the neuron theory had been properly formulated. Most of the data of clinical neurology were available then as now, but he had not got our great mass of knowledge of cell structure and physiology. We now had no Spencer to give us an accommodating framework and no Jackson to fill in the picture, but we ought to survey our knowledge from time to time in the light of Jackson's theories.

Jackson described the evolution of the nervous system as proceeding from the lowest well organized centers to the highest least organized, from the most simple to the most complex, from the most automatic to the most voluntary. An example of low level complexity and the highest degree of organization was the stretch reflex. A higher level of complexity was shown in the flexion reflex in response to pain, in which the synaptic delay was twice as long as in the stretch reflex. The motor discharge was no longer confined to one pathway.

Pasteur Exhibition to Be Held in London

A Pasteur exhibition is to be held at the Science Museum, South Kensington, London, from April 10 to May 26. It has been arranged with the assistance of the cultural relations department of the French foreign office by the Palais de la Découverte in Paris, where it has recently been on show. It will include a chronological account of the chemical and biologic work of Louis Pasteur on fermentation, putrefaction, the spontaneous generation of life and the germs of numerous diseases in men, animals and plants. A section will deal with the Pasteur institutes established throughout the world for the preparation of serums and vaccines for the combating of epidemics.

Sir Joseph Barcroft

The physiologist Sir Joseph Barcroft, F.R.S., has died at the age of 74 years. After a distinguished career as a student and lecturer he became professor of physiology at Cambridge in succession to Langley in 1926. His researches on oxygen carriage in the blood are classic, and every student learns about his blood-gas apparatus, his oxygen dissociation curves and his classification of the varieties of anoxia. In a long controversy with the physiologist J. S. Haldane he maintained that the passage of gases through the alveolar epithelium of the lungs is a simple physical process and that even under adverse conditions the lungs cannot take up oxygen unless its pressure in the air is higher than that in the blood. In 1937 he retired from the Cambridge chair of physiology and, though already famous all over the world, at the age of 69 he entered a new sphere becoming director of the unit of animal physiology for the Agricultural Research Association. He introduced new technics for observing developing embryos and took up the problem of the oxygen supply of the fetus in utero. The first volume of his Researches on Prenatal Life has only recently been published. Most of the work was done on fetal sheep. There are experiments showing the variation in fats and sugars as between the maternal and fetal blood.

PARIS

(From Our Regular Correspondent)

April 18, 1947.

Vitamins in Aerosols in Treatment of Tuberculosis

Professor Léon Binet and H. Bour have used oxygenosols of vitamin D_2 in the treatment of serious pulmonary tuberculosis. Of 10 patients treated in this way, 6 (among whom were 2 with miliary tuberculosis and 1 with chronic phthisis in its terminal stage) did not respond. Four were obviously transformed. In the 4 patients the return of temperature to normal has been observed and by 2 the return to normal of the sedimentation rate. Cholesterol, which had diminished, regularly increased up to almost normal figures. Sputum diminished and became more fluid. On the whole, the inhalations of aerosols of vitamin D_2 have a general action, which enables the lesions to die away and then cicatrize. A mechanical therapy which could not be attempted previously becomes applicable After a previous observation of eight days the patient receives the first day one to two inhalations of 5 mg. of vitamin D_2 and then three inhalations per day, which are continued up to a total dose of 700 to 750 mg. The treatment therefore lasts about fifty days. The authors have used vitamin D_2 in an alcoholic solution. Every week, during treatment, they controlled the weight, the urea content and the calcium in the blood and urine; they also made a blood cell count and a differential leukocyte count.

Vitamin D_2 in Large Doses and Calcium Therapy in Tuberculosis of Adults

At one of the latest meetings of the Société des hôpiteaux médicale de Paris H. Gounelle and M. Bachet reported their results in the treatment by vitamin D_2 orally administered in pulmonary tuberculosis without renal deficiency. To large doses of vitamin D_2 the authors have added calcium and a diet rich in milk and its products. In 3 cases the evolution was obviously modified and the general condition remarkably improved. In 2 patients, surgical intervention could be considered and in the third the important cavities have disappeared. On the first sign of hypervitaminosis, clinical as well as humoral, the treatment is to be interrupted; the authors confirm that the calcemia generally precedes azotemia; the intramuscular route is best tolerated, but its efficacy is still under study.

A New French Medical Society

A French medical society of pathology of the respiratory system has just been created at the suggestion of Dr. Ameuille of Paris. Its aim is the study of nontuberculous illness of the respiratory system. The organ of the society will be the *Journal français de médecine et de chirurgie thoraçique.*

The twenty-sixth Congress of Medicine will take place in Paris on the 16th, 17th and 18th of October under the presidency of Professor Lemierre. The program will include papers on genetics, antihistaminics and cysts of the lungs.

Death of Pierre Janet

Professor Pierre Janet, psychiatrist, has died at the age of 87. Together with Freud, he had been a disciple of Charcot. He was the author of classic works on psychiatric automatism, hysteria, neurosis and fixed ideas; we are indebted to him for our ideas concerning psychasthenia.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, April 12, 1947.

Immunity in American Trypanosomiasis

Drs. Julio Muniz and Gilberto de Freitas, from the Oswald Cruz Institute, Rio de Janeiro, reported results of serologic tests on samples of blood serum from 6 cases of acute trypanosomiasis (Chagas' disease) and from 211 chronic cases. With this material they undertook to advance the study of humoral immunity in the disease.

The serums from the 6 acute cases obtained at different times after onset of the infection (fifteen to forty days) strongly fixed the complement in titers varying from 1:40 to 1:160. The agglutinating strength of the serums from the acute cases varied between the titers of 1:2,560 and 1:20,000, and they all strongly reacted in the precipitation test (ring test) within ten minutes. The precipitation test proved positive every time the serums agglutinated at a titer higher than 1:640. About 80 per cent of the serums from the chronic cases were able to fix the complement at the dosage of 0.05 Gm. at varying intensity. Included in this total was a case in which the infection dated back more than thirty years. In 85 per cent of those cases an agglutinating strength was registered in titers varying from 1:160 to 1:2,560. The precipitin reaction (ring test) was positive in 18 per cent of the cases. The serum from the patient whose infection dated back more than thirty years agglutinated at the titer of 1:640.

Inhibitory Action of Phenol on Histamine

Dr. Celso Barroso, director, São Paulo Institute for Allergy, has published a report on his experimental and clinical study on the inhibitory action of phenol on muscle contraction induced by histamine injection. In 1943, when Barroso attempted, with the collaboration of Rocha e Silva, the passive transference of antibodies from man to guinea pig, as had been proved possible by others, he failed to obtain similar results. One explanation for failure was supposed to be the presence of phenol in the Coca's solution used. This fact led the author to perform studies which proved conclusively that phenol should be included among the substances with inhibitory action on the contraction of plain muscles induced by histamine. When previously added to Tyrode's solution that bathes isolated portions of guinea pig intestine, phenol inhibits the toxic effects of histamine. When added to the same solution in which there is a fragment of guinea pig ileus already contracted by the effect of histamine, phenol causes the immediate and total relaxation of the organ, comparable to a similar effect obtained by the use of epinephrine or atropine. An important point disclosed by Barroso's experiments is that phenol cannot inhibit vasodilatation caused by histamine. An intradermic injection of a mixture of histamine and phenol acts like an injection of a pure solution of histamine, causing the same vasodilatation. Barroso was able to verify that it is possible to increase the therapeutic action of epinephrine in relation to its power of dilating the brochioles in asthmatic patients by the addition of phenol to the drug.

Death of Afranio Peixoto

Dr. Afranio Peixoto, professor emeritus, University of Rio de Janeiro, died at the age of 67. After graduating from the Medical School of Salvador, state of Bahia, he moved to Rio de Janeiro, where he was to begin a remarkable career as professor of hygiene. He published many scientific essays and several novels, which were all best sellers. He was a member of the National Academy of Medicine and also one of the forty members of the Brazilian Literary Academy. His death was a great loss to medicine and to Brazilian letters as well.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, May 10, page 209.

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 24-26. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

Arizona: *Examination.* Phoenix, July 1-2. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

Arkansas: * *Medical. Examination.* June 5-6. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 5. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Written.* San Francisco, July 7-10. *Oral.* San Francisco, May 10-11. *Oral Clinical Examination for Foreign Medical Graduates.* San Francisco, June 21. Sec., Dr. Frederick N. Scatena, 1020 N. St., Sacramento 14.

Colorado: *Examination.* Denver, July 18. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

Connecticut: *Examination.* Hartford, July 8-9. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 8. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 8-10. *Endorsement.* Dover, July 15. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia: * *Reciprocity.* Washington, June 9. Sec., Commission on Licensure, Dr. George C. Ruhland, 6012 E. Municipal Bldg., Washington 1.

Florida: * *Examination.* Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

Georgia: Atlanta, Oct. 14-16. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

Hawaii: *Examination.* Honolulu, July 8-11. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

Idaho: Boise, July 14-16. Sec., Bureau of Occupational Licenses, Dr. S. M. Poindexter, Eastman Bldg., Boise.

Illinois: *Examination.* Chicago, June 24-26. Sec., Mr. Philip M. Harman, Supt. of Registration, State House, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 627 K. of P. Bldg., Indianapolis.

Kansas: *Endorsement.* Kansas City, June 26. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

Kentucky: *Examination.* Louisville, Sept. 22-24. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Augusta, July 1-2. Sec., Board of Registration in Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Medical Examination.* Baltimore, June 17-20. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 10-11. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

Massachusetts: *Examination.* Boston, July 8-11. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 E State House, Boston.

Michigan: * *Examination.* Detroit, June 9-11. Semi-Annual meeting, Lansing, June 24. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Minnesota: *Examination.* Minneapolis, June 17-19. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

Missouri: *Examination.* St. Louis, May 26-28 and June 9-11. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Building, Jefferson City.

Nebraska: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Capitol Bldg., Lincoln.

New Hampshire: *Examination.* Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: Trenton, June 17-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, June 23-26. Sec., Dr. Jacob L. Lochner Jr., State Education Bldg., Albany.

North Carolina: *Endorsement.* Raleigh, June 24. *Examination.* Raleigh, June 23-26. Acting Sec., Mrs. L. McNeill, 226 Hillsboro St., Raleigh.

North Dakota: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

Ohio: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma: *Examination.* Oklahoma City, June 3-4. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Pennsylvania: Philadelphia and Pittsburgh, July. Acting Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

South Carolina: Columbia, June 23-25. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * Pierre, July 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

Tennessee: Memphis and Nashville, June 11-12. Sec., Dr. Harley W. Qualls, 1635 Exchange Bldg., 130 Madison Ave., Memphis 3.

Texas: Austin, June 5-7. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Building, Dallas 2.

Virginia: Richmond, June 18-21. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., 30½ Franklin Rd., Roanoke.

West Virginia: *Examination.* Charleston, June 30, July 1-2. Commissioner, Public Health Council, Dr. Newman H. Dyer, State Capitol, Charleston 5.

Wyoming: *Examination.* Cheyenne, June 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: June 17. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Colorado: Denver, June 4-5. Sec., Dr. Esther B. Starks, 1459 Ogden Street, Denver.

Connecticut: June 14. Exec. Asst., State Board of Healing Arts, Mr. W. G. Reynolds, 250 Church St., New Haven 10.

Iowa: Des Moines, July 8. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Minnesota: Minneapolis, June 3-4. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Oregon: June 7. Final date for filing application is May 21. Sec., Mr. C. D. Byrne, University of Oregon, Eugene.

South Dakota: Vermillion, June 6-7. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Nashville and Memphis, June 13-14. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Medical Motion Pictures

NEW MOTION PICTURE ADDED TO A. M. A. FILM LIBRARY

A Stitch in Time. 16 mm., black and white, sound, 900 feet (one reel), showing time twenty-five minutes. Sponsored by the Sears-Roebuck Foundation and endorsed by the National Safety Council. Produced in 1944 by C. L. Venard, Peoria, Ill. Procurable on loan from Motion Picture Library, American Medical Association, 535 North Dearborn Street, Chicago 10.

Farming today is one of the most hazardous of all occupations. Many industries are compelled by law to provide safety devices for their employees and to provide care and compensation for any one who is injured. Generally the farmer is his own boss or employs only a few men. As a rule he does not carry compensation, hospital or accident insurance. He is, however, handling machinery that is just as powerful as many other industrial machines and handling the machinery over rough ground in contrast to many industries that can bolt the machine securely to a solid floor. The National Safety Council estimates that more than 1,500,000 rural people are injured annually. Safeguarding the health of rural people is of special importance not only to rural people themselves but also to the entire nation.

The motion picture "A Stitch in Time" is designed to make the American farm a safe place to work and live. It brings out vividly the peacefulness and beauty of the countryside and then awakens us to the many hazards that are lurking unseen in all this serenity. The picture stresses the importance of self protection through education and preventive methods. The country doctor whom the farmer summons to save his little girl from the venomous snake attack clearly shows the importance of a widespread safety program by every person. Farmers are not more careless than other people but from pioneer days they learned to be fearless and courageous and perhaps take many chances that could be easily avoided.

This film is highly recommended for showing before all rural groups as an educational project in extending better health to rural communities.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Right of Employees to Organize and Bargain Collectively.—The Laundry Workers, Dry Cleaners and Miscellaneous Workers of the Amalgamated Clothing Workers of America petitioned the labor relations commission for certification as the collective bargaining agency of certain nonprofessional employees of St. Luke's Hospital. The hospital filed a motion to dismiss on the ground that the commission had no jurisdiction to entertain the petition. Before the commission made a ruling on such motion, however, the hospital filed the present proceeding asking for a declaratory judgment that the commission had no jurisdiction to hear the petition for certification. In this action a preliminary injunction was issued restraining the commission from taking any further action in the certification proceedings, so the commission appealed to the Supreme Judicial Court of Massachusetts.

The hospital was incorporated in 1884 as a nonprofit, charitable corporation. It has more than 300 beds and maintains an outpatient department and various clinics. Its funds are obtained from fees, gifts, bequests and participation in a local community fund. It furnishes free services to patients who are unable to pay, and such service amounted in 1945 to 12 per cent of the total service rendered by the hospital. Treatment and care of recipients of city welfare are paid for by the city at a rate less than the regular charge. The federal government pays for services provided for federal patients. The union sought certification as the bargaining agent of 125 employees, including laundry workers, maids, porters, machinists, yard help, watchmen, storemen, waitresses, page girls, kitchen and cafeteria help and orderlies.

The only question of substantive law presented is whether or not the hospital comes within the sweep of the state labor relations act. The policy of that act, said the court, is the promotion of peace and the prevention of strikes in order that there may be no obstructions to the free flow of industry and trade. To come within the ambit of the authority of the commission, the selection of a bargaining representative must be connected with and related to industry and trade. A hospital like the plaintiff, whose doors are open to those needing medical and surgical treatment for which no charge is made to those unable to pay, which depends for its support and maintenance on fees, gifts and donations, which cares for recipients of public welfare at reduced rates and which is conducted in the interests of the general public and strictly as a nonprofit organization is a public charity. Such a hospital, said the court, is not conducting a business or commercial enterprise and is not engaged in industry and trade. Continuing, the court pointed out that the agreed facts showed that the sole activity of the plaintiff is the maintenance of its hospital and that the services of its nonprofessional employees, for whom the union seeks certification as their bargaining agency, are directed to that end.

It is urged by the commission, however, that a hospital comes within the definition of an "employer," because the word as defined in section 2 includes "any person acting in the interest of an employer, directly or indirectly, but shall not include the commonwealth or political subdivision thereof, or any labor organization," with certain exceptions. It is contended that, specific exceptions having been expressly mentioned, no others may be supplied by implication. This contention, said the court, rests on a familiar principle of statutory interpretation. But the entire chapter in which the definition appears must be construed as a whole, and the question is not whether a hospital is expressly exempted but whether a hospital comes within the sweep of the chapter in the light of its declared underlying and predominant aim and object. It is true, said the court, that the employees whom the union sought to represent were engaged in various kinds of manual labor, some of which were similar to those performed in hotels. It is also true, continued the court, that such services were essential to the maintenance of the hospital. Those rendering the services, however, can hardly be said to be engaged in industry or trade. The policy limits the scope of the act and clearly shows that a hospital which is organized and conducted as a public charitable institution is not covered by the act. Accordingly the order granting the preliminary injunction was affirmed and a final decree entered adjudging that the hospital and its nonprofessional employees engaged in duties necessary for the maintenance and operation of the hospital are not within the provisions of the state labor relations act.—*St. Luke's Hospital v. Labor Relations Commission, 70 N. E. (2d) 10 (Mass., 1946).*

Malpractice: Death Following Tonsillectomy—Application of Res Ipsa Loquitur.—The plaintiff sued for damages because of her daughter's death following a tonsillectomy, the death allegedly having been caused by the negligence of the defendant physician. From a directed verdict in favor of the defendant, the plaintiff appealed to the Supreme Court of Mississippi.

The defendant performed a tonsillectomy on the plaintiff's child. After the operation the child was returned to her hospital bed, at which time the defendant told the plaintiff to go out and get some lunch, "the baby is all right." The plaintiff returned about twenty minutes later and noticed that the child appeared abnormal. The defendant was immediately called. He felt her pulse and at once summoned other doctors and the nurses. Oxygen was administered without favorable results and the child died in a very short time. The only witness at the trial was the plaintiff. At the conclusion of her testimony the defendant physician moved the court "that there be a directed verdict in favor of Dr. Smith for the reason that there has been no proof offered of any lack of care and skill . . . all that has been introduced is the fact that he operated on the child, and the child died." The motion was sustained by the trial court in a brief statement that "our courts have held, in the *Berryhill v. Nichols* case, and in subsequent cases, that to establish liability for a wrongful death there must be a believable probability rather than a possibility; . . ." On appeal to the Supreme Court, the plaintiff contended that she was entitled to the benefits of the doctrine of "res ipsa loquitur," saying "It is a matter of common knowledge that death does not ordinarily result from a tonsillectomy. Yet, Evelyn Sanders died shortly after a tonsillectomy was performed on her. Why she did so, neither we nor [appellees] know. We submit that her parents are entitled to an explanation. And that the court erred in excusing [appellees] from making such explanation."

In a prior Mississippi case the Supreme Court said "Res ipsa loquitur means that the facts of the occurrence warrant the inference of negligence; not that they compel such an inference, but that they furnish circumstantial evidence of negligence where direct evidence of it may be lacking." After discussing a number of cases from other jurisdictions in which the principle of res ipsa loquitur was involved, the Supreme Court said that it had previously laid down the rule that the doctrine of res ipsa loquitur should be cautiously applied. An analysis of the cases, continued the court, leads to the conclusion that the test is not that the result of the operation was unusual and unexpected, or even fatal, alone and by itself. The real question is whether or not in the process of the operation any extraordinary incident or unusual event occurred outside of the routine of the action of its performance and beyond the regular scope of customary professional activity in such operations, which, if unexplained, would itself reasonably speak to the average man as the negligent cause or causes of the untoward consequence. If there were such extraneous interventions, then the doctrine of res ipsa loquitur would be applicable to call on the defendant to explain the matter by evidence of exculpation if he could. The jury would then decide the issue of fact in the case. In the case at bar, however, the court concluded, we are of the opinion that the maxim has no proper application and that the trial court was correct in entering a directed verdict for the defendant. The judgment of the trial court was accordingly affirmed.—*Sanders v. Smith, 27 So. (2d) 889 (Miss., 1946).*

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

16:221-252 (Jan.) 1947

Observation on Malaria in Mediterranean Theater of Operations, United States Army, 1943-1945. J. B. McLester.—p. 221.

Malaria in Pacific. E. G. Givhan.—p. 224.

Tuberculosis Control Program for State of Alabama, with Special Emphasis on Case Finding. A. H. Russakoff.—p. 227.

Penicillin in Treatment of Syphilis. P. G. Reque.—p. 232.

Evaluation of Fenestration Operation for Deafness. E. R. Nodine.—p. 236.

Annals of Surgery, Philadelphia

125:129-256 (Feb.) 1947

Use of Shunt or By-Pass Operations in Treatment of Certain Circulatory Disorders, Including Portal Hypertension and Pulmonic Stenosis. A. Blalock.—p. 129.

Thoracic Surgery in Hospital Center. L. Miscall and A. W. Harrison.—p. 142.

War Experiences with Nonsuture Technic of Anastomosis in Primary Arterial Injuries. C. F. Stewart.—p. 157.

*Phenylpropanolamine Hydrochloride: Vasopressor Drug, for Maintaining Blood Pressure During Spinal Anesthesia. P. H. Lorhan and D. Mosser.—p. 171.

Effect of Local Reduction of Temperature on Scald Burns in Rat. H. Baxter and R. H. More.—p. 177.

*Streptomycin in Surgical Infections: I. Laboratory Studies. E. J. Pulaski and H. Sprinz, with technical assistance of C. E. Heist and Helen B. Ehrhorn.—p. 194.

*Sympathectomy in Trench Foot. H. B. Shumacker Jr. and D. I. Abramson.—p. 203.

Congenital Dislocation of Hip. M. B. Howorth.—p. 216.

Autogenous Diced Cartilage Transplants to Bone: Experimental Study. S. D. Gordon and R. F. Warren.—p. 237.

Experimental Carcinoma of Gallbladder: Supplementary Data. N. N. Petrov and N. A. Krotkina.—p. 241.

Phenylpropanolamine Hydrochloride for Maintaining Blood Pressure During Spinal Anesthesia.—Phenylpropanolamine hydrochloride was used in 263 cases after the administration of a spinal anesthetic. Its ability to maintain blood pressure during the performance of a variety of surgical procedures has been established. The drug is an effective vasopressor agent with a moderately prolonged action—forty-five minutes—and has no apparent harmful side effects. The optimal effective dose of phenylpropanolamine hydrochloride was found to be 50 mg. administered intramuscularly. This dose maintained the blood pressure at preoperative levels in 90 per cent of the cases studied. Phenylpropanolamine hydrochloride has a vasopressor effect which compares favorably with the action of epinephrine, ephedrine and neosynephrine and offers certain advantages over them; namely, a more prolonged action and less frequent excitation.

Streptomycin in Surgical Infections.—One thousand cultures of bacteria were tested for their susceptibility to streptomycin by a broth-serial-dilution method. Pulaski and Sprinz present data on results of studies on absorption, distribution and excretion of streptomycin in the body following parenteral administration of the drug. The results of susceptibility tests and of assays of blood serum concentrations of streptomycin have been correlated, and on this basis a division is made between clinically sensitive and clinically refractory bacteria.

Sympathectomy in Trench Foot.—Shumacker and Abramson say that of 700 cases of trench foot at the vascular center at the Mayo General Hospital sympathectomy was done in 49. Sixty-six lower extremities were sympathectomized. The second and third lumbar sympathetic ganglions with the intervening chain were excised through an anterior extraperitoneal approach. In many cases the operation was preceded by a procaine lumbar sympathetic block. The chief indications for operation are (1) extensive gangrene, (2) excessive sympathetic tonus and (3) the complaint of pain on weight bearing. Sympathectomy accelerated healing in cases of extensive gangrene associated with vasospasm. It was also of aid in treating the maceration of the skin and the complicating secondary infection which result in the event of prolonged hyperhidrosis. The procedure reduced the severity of the symptoms in cases in which cold sensitivity was present. It produced variable results in the treatment of pain on weight bearing but had some therapeutic effect on the sensory disturbances. Sympathectomy has a definite but limited use in certain selected cases of trench foot. It appears to have no applicability in the majority of cases.

Archives of Internal Medicine, Chicago

79:129-252 (Feb.) 1947

*Bearing of General Nutritional State on Atherosclerosis. S. L. Wilens.—p. 129.

Necrosis of Renal Papillae and Acute Pyelonephritis in Diabetes Mellitus. H. A. Edmondson, Helen Eastman Martin and N. Evans.—p. 148.

Eosinophilic Granuloma of Bone: Report of Case with Multiple Lesions of Bone and Pulmonary Infiltration. A. Weinstein, H. C. Francis and B. F. Sprofkin.—p. 176.

*Induced Malaria of Foreign Origin. W. W. Engstrom, H. H. Gordon, A. Marble and H. A. Brunsting.—p. 185.

Actinomycotic Endocarditis: Report of 2 Cases, with Review of Literature. E. S. Wedding.—p. 203.

Cardiac Manifestations of Toxic Action of Emetine Hydrochloride in Amebic Dysentery. S. Dack and R. E. Moloshok.—p. 228.

Penicillin in Treatment of Keratosis Blennorrhagica with Polyarthritis. A. W. Freireich, S. Schwartz and O. Steinbrocker.—p. 239.

Nutritional State and Atherosclerosis.—In a comparison of the incidence of various degrees of general atherosclerosis and of atherosclerosis of the coronary arteries at necropsy of 395 obese persons, 372 persons of average nutrition and 483 poorly nourished persons 35 years of age and older, Wilens found that advanced atherosclerosis is about twice as common in the obese as in the poorly nourished group. The group with average nutrition has less severe atherosclerosis than the obese group but more than the poorly nourished one. The relationship demonstrated between the state of nutrition at necropsy and the degree of atherosclerosis is independent of age, sex, hypertension, heart weight and diabetes. Obesity appears to be a more striking factor in the development of atherosclerosis in men than in women. This is particularly true of atherosclerosis of the coronary arteries. Although the analysis is based on the state of nutrition as observed at necropsy, evidence is presented to show that if the analysis had been based on the probable state of nutrition prior to the onset of the final illness the relationship between atherosclerosis and nutrition would be even more striking.

Induced Malaria.—Engstrom and his associates made attempts to transmit Plasmodium vivax malaria in 195 patients with neurosyphilis by mosquito bites or by inoculation of blood. The strains transmitted were of Pacific and Mediterranean origin. The attempts to transfer P. vivax malaria by mosquito bites or by inoculation of blood were highly successful in white patients, whether they gave a past history of malaria or not, and relatively unsuccessful in Negro patients. A spontaneous remission of fever was observed more than three times as frequently in those who gave a past history of malaria as in those who did not. The prepatent and incubation periods averaged about two weeks when mosquitoes, and five days when blood, was used in the transmission of the infection. As the disease progressed the concentration of parasites in the blood at first rapidly increased but after the eleventh day began to fall. Sixty-five per cent of the patients inoculated by mosquitoes infected with Pacific strains of P. vivax had relapses, while no patients relapsed who had been inoculated intravenously with blood containing the same strains. Quartan malaria was transmitted to 48 patients (45 Negro and 3 white) by inoculation of blood containing P. malariae. Quartan malaria differed from tertian (*P. vivax*) malaria not only in the longer interval between paroxysms but also in the longer period of incubation, the slower response to quinacrine therapy and the tendency to cause serious renal complications.

Archives of Ophthalmology, Chicago

37:121-260 (Feb.) 1947

Surgical Methods of Treating Paralysis of Superior Oblique Muscle. W. E. Krewson.—p. 121.
Surgical Treatment of Primary Glaucoma. C. S. O'Brien.—p. 134.
Relapsing and Chronic Ocular Lesions Following Mustard Gas (Dichloroethyl Sulfide) Burns. R. O. Scholz and A. C. Woods.—p. 139.
A Squint Syndrome. K. C. Swan.—p. 149.
Dermatomyositis with Retinopathy: Report of Case. J. V. Lisman. —p. 155.
Pharmacologic Action of Some Ophthalmic Drugs. W. Modell.—p. 160.
Stability of Penicillin in Ophthalmic Solutions. E. E. Grossmann. —p. 167.
Marginal Myotomy: Analysis of 22 Cases. G. G. Gibson.—p. 175.
Capillary Sphincter in Human Retina. J. N. Evans.—p. 182.
*Removal of Deeply Embedded Foreign Bodies from Cornea. S. A. Fox. —p. 189.
New Modification of McReynolds Transplantation for Pterygium. J. Goldsmith.—p. 194.
*Arachnoiditis. D. Kravitz.—p. 199.
Exophthalmos and Associated Ocular Disturbances in Hyperthyroidism: I. Givner, M. Bruger and O. Lowenstein.—p. 211.
Cyclopia. S. Gartner.—p. 220.

Removal of Foreign Bodies from the Cornea.—Fox reports the results of observations on 6 deeply embedded corneal foreign bodies which required removal. The foreign bodies were all metallic. Three were found to be magnetic after removal. Even if the foreign body is magnetic, the magnet is useless in removal of these deeply embedded bodies from the cornea until they have been loosened from the surrounding stroma. In all 6 cases the cornea was healed within four days or less. Clean incision of the cornea, instead of "picking" at it, results in less mutilation of corneal stroma and consequently less corneal opacification. If the cornea should be penetrated, the flap is an efficient valve with which the anterior chamber can be sealed off instantly, and it heals in rapidly.

Arachnoiditis.—Kravitz points out that arachnoiditis is either adhesive or cystic in form. The cysts are collections of cerebrospinal fluid walled off by adhesions, and the fluid may at times be under great tension. The adhesive form is characterized by dense adhesions, which may bind the optic nerves and chiasm to any or all of the surrounding structures. The optic nerves and chiasm are usually involved in the opticochiasmic type of the disease. In this form of arachnoiditis sight is frequently jeopardized and the disks are rarely normal. There may be primary, secondary or a segmental type of atrophy of the optic nerve, or even extreme degrees of choked disk, or any combination or gradation of these signs. A central scotoma is common. Occasionally one sees typical bitemporal field defects, but more often they are bizarre. The most usual symptom in this form of arachnoiditis is the early, and usually rapid, loss of vision. The prognosis is good, especially as regards vision, if operation is resorted to early. If the condition has lasted too long, the loss of vision becomes irreparable. If conservative treatment fails, operative treatment is advisable. The author reports 9 cases and stresses that arachnoiditis is not as rare as is commonly thought. Opticochiasmic arachnoiditis presents a great threat to vision, but other forms of arachnoiditis can be as great a threat.

Illinois Medical Journal, Chicago

91:61-108 (Feb.) 1947

Positive Serologic Reaction Is Not a Diagnosis of Syphilis. J. R. Porter.—p. 71.
Refrigeration in Surgery of Extremities. W. J. Pickett.—p. 74.
Staphylococcus Pneumonia in Children: Roentgen Aspects. W. E. Anspach.—p. 75.
Marked Hyperproteinemia in Subacute Bacterial Endocarditis (and Simultaneous Hyperthyroidism and Subacute Bacterial Endocarditis). L. Cardon, D. Atlas and Regina Greenebaum.—p. 78.
Streptococcus Viridans Meningitis with Pneumonia. F. A. Kyser.—p. 81.
Reflections Based on Psychiatric Work in Army General Hospital in ETO. G. L. Perkins.—p. 83.
Diagnosis and Treatment of Blepharoptosis. S. J. Meyer.—p. 89.
Periodic Physical Examinations in Apparently Well Women. A. Webster.—p. 92.

Journal of Experimental Medicine, New York

85:141-216 (Feb.) 1947

Inactivation of Penicillins F, G, K and X by Human and Rabbit Serum. H. Eagle.—p. 141.
Varying Blood Levels Afforded by Penicillins F, G, K and X in Rabbits and Man. H. Eagle with technical assistance of Arlyne D. Musselman.—p. 163.
Therapeutic Activity of Penicillins F, G, K and X in Experimental Infections with Pneumococcus Type I and Streptococcus Pyogenes. H. Eagle with technical assistance of Arlyne D. Musselman.—p. 175.
Desoxycorticosterone Acetate: Potentiation of Its Activity by Sodium Chloride. A. I. Knowlton, Emily N. Loeb, H. C. Stoerk and Beatrice C. Seegal.—p. 187.
*Reactions of Monkeys to Experimental Mixed Influenza and Streptococcus Infections: Analysis of Relative Roles of Humoral and Cellular Immunity, with Description of Intercurrent Nephritic Syndrome. H. E. Wilson, S. Saslaw, C. A. Doan, O. C. Woolpert and J. L. Schwab. —p. 199.

Reactions of Monkeys to Mixed Influenza and Streptococcic Infections.—Wilson and his associates report studies on monkeys which were infected with influenza and streptococci either simultaneously or in varying sequence. They demonstrated the vital importance of the cellular defense forces in the resistance of the monkey to combined streptococcic and influenza virus infections. Some of the conditions prejudicial to the maintenance of an optimum cellular reserve in the infected animal were undernutrition, physical cold and the intratracheal route of infection. The potential threat exerted by latent foci of streptococci and the combined infection with virus have been demonstrated. Optimum nutrition, notably as concerns the vitamin B complex and folic acid, specifically plays an important part in the prevention of disastrous illness from these infectious agents. Simultaneous intranasal inoculation of influenza virus type A and Streptococcus hemolyticus group C in nutritionally normal Macaca mulatta failed to produce obvious signs of disease. In most of the animals a streptococcus induced leukocytosis developed followed by a delayed virus induced granulopenia. The development of signs of infection in previously healthy monkeys exposed to virus followed by streptococci confirms both clinical and laboratory experience of other observers that virus infection may predispose to secondary bacterial invasion and that the infection may become overwhelming.

Journal of Immunology, Baltimore

55:1-102 (Jan.) 1947

Study of Reliability of Complement Fixation as Method of Measuring Activities of Serums of High, Medium and Low Antibody Titer. Christine E. Rice.—p. 1.
Immunochemical Studies with Tagged Proteins. R. L. Libby and Caroline R. Madison.—p. 15.
Id.: II. Kinetics of Antibody Formation. D. J. Salley and R. L. Libby. —p. 27.
Quantitative Estimation of O Agglutinins in Typhoid Serums. J. Gurevitch and E. Ephrati.—p. 37.
Preparation and Properties of Purified Equine Encephalomyelitis Vaccine. R. Randall, J. W. Mills and L. L. Engel.—p. 41.
Observations on Specificity of Complement Fixation Test for Lymphogranuloma Venereum. Anna D. Dulaney and H. Packer, with technical assistance of Mary M. Smith, W. Hannah, R. Brett and B. Moore. —p. 53.
Virus of Ilhéus Encephalitis: Isolation, Serologic Specificity and Transmission. H. W. Laemmert Jr. and T. P. Hughes.—p. 61.
Purification and Characters of Newcastle Disease Virus (California Strain). R. Cunha, M. L. Weil, Dorothy Beard, A. R. Taylor, D. G. Sharp and J. W. Beard.—p. 69.
Simple Lyophilizing Apparatus for Laboratory Use. R. J. Heckly. —p. 91.
Preparation of Suspensions of Rickettsiae from Infected Yolk Sacs Without Use of Ether. C. C. Shepard and N. H. Topping.—p. 97.

Journal of Nervous and Mental Disease, New York

105:107-220 (Feb.) 1947

Pattern of Enzyme Distribution in Brain and Mental Function. W. Ashby.—p. 107.
Management of "Soldier's Stomach" Among Combat Infantrymen: Evaluation of Psychiatric and Physical Factors. J. A. Halsted. —p. 116.
Growth Concept of Nervous Integration. D. E. Schneider.—p. 124.
Problems of Disease of Cerebellopontine Angle. F. Kennedy, I. S. Ross and I. Galin.—p. 149.
Group Therapy from Viewpoint of Patient. B. Simon, J. D. Holzberg, S. Aaron and C. H. Saxe.—p. 156.
Ambulatory Electroconvulsive Therapy. F. Feldman, Evelyn Gombert and S. E. Barrera.—p. 171.

Journal of Pediatrics, St. Louis

30:113-228 (Feb.) 1947

*Rheumatic Pneumonia: Report of 2 Cases. J. I. Mossberger.—p. 113.

Histoplasmosis in Infancy: Report of Case in Infant, with Brief Clinicopathologic Review. A. M. Iams and H. M. Keith.—p. 123.

*Salicylate Intoxication in Infant and Young Child: Report of 13 Cases. Jane A. Erganian, G. B. Forbes and Dorothy M. Case.—p. 129.

Tuberculous Dactylitis in Childhood: Prognosis. Janet B. Hardy and J. R. Hartmann.—p. 146.

*Acute Glomerulonephritis: Review of 90 Cases. F. G. Burke and S. Ross.—p. 157.

Agglutinative Reaction for Hemophilus Pertussis Following Whooping Cough and Following Immunization. P. F. DeGara and Shirley A. Mayer.—p. 171.

Intraventricular Block in Malnutrition and Vitamin B Deficiency: Report of 2 Cases in Children. K. Braun, I. Roth and S. Suesskind.—p. 177.

Streptomycin Treatment of Salmonella Enteritis in Infants. E. Seligmann, L. Barash and S. Q. Cohlan.—p. 182.

Developmental Pediatrics. A. Gesell.—p. 188.

Tetanus. N. Silverthorne.—p. 195.

Rheumatic Pneumonia.—Mossberger thinks that since acute rheumatic fever is predominantly a childhood disease, and because most of the heart disease in children is rheumatic, the possibility must be considered that the pneumonia which occasionally develops in a child with endocarditis is also rheumatic in origin. Jensen has pointed out that probably many of the "primary atypical pneumonias" that have formerly been observed in cases of rheumatic fever were in reality rheumatic or poststreptococcic pneumonitis. Two cases of "atypical" pneumonia developing in the course of rheumatic fever are presented by Mossberger. Together, these 2 cases of lung disorder in children with rheumatic heart disease show most of the features of an exudative lesion resulting from injury to the capillary endothelium. Pulmonary histopathology parallels that seen in experimental and sulfonamide anaphylactic pneumonitis. The clinical histories of the 2 patients are consistent with the concept of an allergic mechanism in the production of pulmonary disease and stress that an exudative reaction such as pneumonitis may be delayed for some time after symptomatic subsidence of the initial endocarditis. This thought must be borne in mind in all cases of sulfonamide-penicillin resistant pneumonia occurring in children with histories of rheumatic fever.

Salicylate Intoxication in Young Children.—Most of the 13 patients with salicylate intoxication reviewed by Erganian and her associates were infants who received aspirin (acetylsalicylic acid) as treatment for a "cold." Studies on these 13 patients included salicylate concentration of the blood plasma and spinal fluid, p_H of the blood serum, carbon dioxide content of the serum, prothrombin time and urine examination. Other laboratory studies included serum chloride, glucose and nonprotein nitrogen determinations. The most severe type of reaction occurring in this group is a disturbance of the acid base equilibrium. At the time of hospitalization, all patients showed a metabolic acidosis with a lowered p_H and carbon dioxide content of the serum. Salicylates given experimentally to older children whose usual caloric and liquid intake were maintained produced less regular, if any, signs of toxicity. Salicyl compounds, when given in dosages from 0.066 Gm. per kilogram in twenty-four hours in six divided doses (approximately ½ grain per pound), tend to accumulate in the body, as shown by determinations of plasma levels. In view of the dangers and possibility of fatality in infants, it is suggested that aspirin be given not at all or very cautiously.

Acute Glomerulonephritis.—Burke and Ross review the salient clinical feature of 90 consecutive cases of acute glomerulonephritis observed at the Children's Hospital during the past three years. Eighty-four of the 90 patients recovered, 3 died during the acute attack and 3 developed chronic glomerulonephritis. The three deaths were associated with or were the direct result of acute nephritic congestive heart failure. Acute glomerulonephritis has been the most common cause of congestive heart failure at Children's Hospital for the past three years and was present in 35 of the 62 patients with acute nephritis who were examined for evidence of this complication. The treatment consisted largely of absolute bed rest and the management of symptoms as they appeared. The author stresses the advisability of administering digitalis in all cases of acute nephritis complicated by congestive heart failure.

Journal of Urology, Baltimore

57:203-426 (Feb.) 1947. Partial Index

Surgical Treatment of Polycystic Disease of Kidney: Case Reports. A. I. Dodson.—p. 209.

Further Observations on Nephrostomy. G. R. Livermore.—p. 213.

*Squamous Cell Carcinoma of Renal Fossa Following Nephrectomy for Stone. B. B. Madison.—p. 218.

*Hypertension Due to Unilateral Renal Disease. A. H. Crosbie and J. Fischmann.—p. 220.

Amicrobic Pyuria. F. C. Hamm.—p. 226.

Intubated Ureterotomy: Result After Four Years. D. M. Davis.—p. 233.

Recurrent Nontraumatic Intraperitoneal Rupture of Urinary Bladder; Recovery. G. D. Oppenheimer and L. J. Druckerman.—p. 238.

Effects of Blockade of Autonomic Ganglia on Urinary Bladder in Man. R. M. Nesbit, J. Lapides, W. W. Valk and others.—p. 242.

Leiomyosarcoma of Urinary Bladder: Report of Case. M. Lev and W. E. Bell.—p. 251.

Incomplete Reduplication of Bladder with Congenital Solitary Kidney: Report of Case. E. Burns, H. Cummins and J. Hyman.—p. 257.

Patent Urachus Associated with Urinary Tuberculosis. J. C. McClelland and K. F. Davis.—p. 270.

Spinal Cord Injuries: Urethrographic Study of Bladder Neck. G. C. Prather and B. Petroff.—p. 274.

Primary Tuberculosis of Prostate: Case Report. N. P. Rathbun.—p. 285.

*Hemorrhage Following Suprapubic Prostatectomy. S. F. Wilhelm and B. Levine.—p. 291.

Present Picture in Chemotherapy in Prostatic Carcinoma. W. P. Herbst.—p. 296.

Transurethral Resection and the Paraplegic. H. C. Bumpus Jr.—p. 300.

Congenital Cyst of Prostate Communicating with Right Vas and Rudimentary Right Ureter: Case Report. J. E. Dees.—p. 304.

Orchiopexy: New Modification of Bevan Technic. V. Vermooten.—p. 310.

Squamous Cell Carcinoma of Renal Fossa.—A man aged 38 had hematuria for fifteen years until January 1945. At that time the left kidney was removed for calculous disease. A large stone was found in the renal pelvis, but there was no microscopic study done on the kidney. In July 1945 the patient injured his left side and began having pain in that area. He became depressed and was transfered to a mental hospital for "shock treatments." He continued to complain of pain. Tentative diagnoses were made of retroperitoneal hematoma, retroperitoneal abscess and retroperitoneal sarcoma. Sections of tissue removed at operation led to the diagnosis of squamous cell carcinoma of the kidney. Madison says that Kretschmer pointed out in 1917 the influence of chronic infection and calculi on squamous cell carcinoma of the renal pelvis. The mental attitude of this patient was due to the toxic state, for even in the short period following drainage his attitude improved considerably.

Hypertension Due to Unilateral Renal Disease.—A woman aged 48 was taken sick suddenly with symptoms and signs of severe hypertension. She had impairment of vision in both eyes. Urologic examination revealed a very small right kidney lacking any degree of function. Nephrectomy resulted in a complete cure, including return of vision and decrease of blood pressure to normal. The patient's condition continued normal until ten months after operation, when very stormy symptoms and signs of acute cardiorenal failure developed. Death occurred eighteen days later of uremia. Crosbie and Fischmann believe that this case is worthy of being reported as another disappointing trial of surgical treatment for hypertension caused by renal disease.

Hemorrhage Following Suprapubic Prostatectomy.—According to Wilhelm and Levine, suprapubic prostatectomy is still widely practiced for the relief of the larger benign hypertrophies. In 400 consecutive suprapubic prostatectomies for nonmalignant hypertrophy carried out at the Beth Israel Hospital there were 20 postoperative hemorrhages severe enough to require surgical intervention (5 per cent). When packing with gauze strips was done the incidence was 3.5 per cent, as compared with 13.1 per cent in the patients in whom a Foley catheter was used. Patients with a Foley catheter bled most frequently immediately after operation, whereas hemorrhage occurred most often in the early secondary period when gauze packing was used within twenty-four hours after removal of the packing. Delayed secondary bleeding occurred in 5 cases, on from the sixth to the seventeenth postoperative day and was caused by straining at stool, coughing, alkaline cystitis and residual prostatic tissue. The mortality rate of the patients suffering from hemorrhage was 15 per cent, as compared to the general rate of 2.75 per cent. None of these patients died of exsanguination. Postoperative hemorrhage and infection were the chief complications contributing to the mortality rate.

Medical Annals of District of Columbia, Washington

16:57-118 (Feb.) 1947

Recent Advances in Pediatrics. S. Ross and J. S. Wall.—p. 57.
Future of Venereal Disease Control. E. A. Gillis.—p. 76.
Psychosomatic Approach to Peptic Ulcer. E. Weiss.—p. 81.
*Benadryl for Ivy Poisoning: Preliminary Report on Its Use in 14 Cases. L. S. Blumenthal and M. H. Rosenberg.—p. 86.

Benadryl for Ivy Poisoning.—Blumenthal and Rosenberg employed benadryl in treating 14 patients with ivy dermatitis. Most of the patients received local therapy for several days before the institution of benadryl treatment. Four of the patients continued to use the local medication after onset of benadryl treatment. Twelve of the 14 patients experienced great relief from the associated pruritus from four to eight hours after each dose. These patients could be maintained symptom free on 50 mg. doses of benadryl orally every four to six hours. Two patients received moderate relief. The lesions stopped spreading soon after the beginning of treatment in 3 patients and entirely cleared within seventy-two hours. The treatment did not alter the usual course of the rash in the other 11 patients even though the pruritus was controlled. The action of benadryl in these cases lends support to the theory that a histamine-like substance is liberated at the site of skin irritations.

Military Surgeon, Washington, D. C.

100:105-204 (Feb.) 1947

Surgeon's Role in War and Peace. R. T. McIntire.—p. 105.
Future Role of Psychiatry in Army. W. C. Menninger.—p. 108.
Current Problems in Naval Psychiatry. G. N. Raines.—p. 113.
Neuropsychiatric Casualties and Program of Veterans Administration. P. Bailey.—p. 119.
Research in Aero Medicine. M. C. Grow.—p. 123.
Protection of Human Body from Impact Forces of Fatal Magnitude. H. R. Bierman.—p. 125.
Naples Post Office Explosion. E. E. Hume.—p. 142.
Rehabilitation of the Blinded Soldier. J. N. Greear Jr.—p. 150.
Study of Acute Otitis Externa, with Special Reference to Secondary Myringitis and Otitis Media. K. M. Simonton.—p. 156.
"A Snake Bit Me!" L. M. Thompson.—p. 164.
Nursing in Air Evacuation. Emily G. Purvis.—p. 165.
Statistical Follow-Up of Effectiveness of Treatment of Combat Induced Psychiatric Casualties: II. Evacuations to Base. A. O. Ludwig and S. W. Ranson.—p. 169.

New York State Journal of Medicine, New York

47:209-320 (Feb. 1) 1947

Operative Treatment of Club Feet. J. C. McCauley Jr.—p. 255.
Public Health Aspects of Rheumatic Fever. A. D. Kaiser.—p. 259.
Plan for Statewide Distribution of Blood and Blood Derivatives. I. J. Brightman.—p. 264.
Premature Closure of Sutures of Cranial Vault: Plea for Early Recognition and Early Operation. L. A. Mount.—p. 270.
Keystones in Psychologic Thinking About Young Children. Nina Ridenour.—p. 277.
Program for Control of Tropical and Parasitic Diseases in New York City. E. L. Stebbens.—p. 282.

47:321-432 (Feb. 15) 1947

Radiologist in Navy. E. F. Merrill.—p. 368.
Acute Perforation of Peptic Ulcer, Early and Late Results. H. A. Kingsbury and J. A. Schilling.—p. 372.
Cancer of Prostate: General Considerations. R. M. Nesbit.—p. 376.
Interpretation of Phosphatase Findings in Carcinoma of Prostate. Helen Quincy Woodard.—p. 379.
Protein Nutrition in Surgery. R. Elman.—p. 382.

North Carolina Medical Journal, Winston-Salem

8:63-114 (Feb.) 1947

Treatment of Acute Nasal and Sinus Infection. O. E. van Alyea.—p. 63.
Treatment of Peptic Ulcer, with Special Reference to Acute Massive Hemorrhage. D. Hart and W. W. Shingleton.—p. 67.
Neuropsychiatric Aspects of Mental Deficiency: Clinicopathologic Study Based on 200 Autopsies. C. E. Benda.—p. 72.
Report of Patient Tolerating Crystalline Penicillin Without Reaction After Repeated Cutaneous Reactions to Crude Penicillin. S. W. Barefoot and S. Olansky.—p. 82.
Use of Rectal Pentothal Sodium in Obstetrics. E. W. Furgurson.—p. 84.
Demerol-Scopolamine Analgesia in Labor. J. C. Taylor.—p. 86.
"Small Unrecognized Strokes." E. S. Marks.—p. 88.
Intestinal Obstruction. C. A. Woodard.—p. 90.

Physiological Reviews, Baltimore

27:1-166 (Jan.) 1947

Regulation of Respiratory Movements by Peripheral Chemoreceptors. A. Pi-Suñer.—p. 1.
Action of Insulin. J. P. Bouckaert and C. de Duve.—p. 39.
Optimal Growth of Rat. M. S. Dunn, E. A. Murphy and L. B. Rockland.—p. 72.
Development of Graafian Follicle and Ovulation. F. L. Hisaw.—p. 95.
Renal Origin of Hypertension. H. Goldblatt.—p. 120.

Public Health Reports, Washington, D. C.

62:185-224 (Feb. 7) 1947

Standardization of Tuberculin. J. Holm and P. Lind.—p. 188.
Inherent Efficiency of X-Ray Methods Used in Detection of Tuberculosis. R. H. Morgan, H. E. Hilleboe and I. Lewis.—p. 201.

62:225-260 (Feb. 14) 1947

Progress Toward World Health Organization. From the Office of International Health Relations, United States Public Health Service.—p. 225.

62:261-292 (Feb. 21) 1947

*Restaurant Sanitation Program of United States Public Health Service. A. W. Fuchs.—p. 261.
Sickness Absenteeism Among Industrial Workers, Second and Third Quarters of 1946. W. M. Gafafer.—p. 272.

Restaurant Sanitation.—Fuchs discusses the importance of restaurant sanitation, pointing out that the Public Health Service acts solely in an advisory and stimulative capacity. It leaves enforcement to state and local health authorities. In a previous report the author outlined the development of the ordinance and code regulating eating and drinking establishments recommended by the United States Public Health Service. The current edition of the ordinance and code was printed in 1943 as Public Health Bulletin number 280. It is the culmination of nine years' effort, representing five different drafts. It is subject to change as improvements are developed. For the past three years the Public Health Service has devoted major attention to the portion of its restaurant sanitation program concerned with the education of food handlers. Sanitarians interested in organizing food handler schools in their communities may apply to their state health department and to the district office of the Public Health Service for assistance.

Southern Surgeon, Atlanta, Ga.

13:61-166 (Feb.) 1947. **Partial Index**

*Malignant Melanoma in Negro, with Report of 6 Cases. A. E. Imler and J. W. Underwood.—p. 61.
Uterine Bleeding: Puberty, Maturity, Post Climacteric. G. F. Douglas.—p. 72.
Primary Neoplasms of Trachea. G. E. Fisher.—p. 78.
Carcinoma of Prostate Gland. B. Barelare.—p. 85.
Problem for Anesthesiologist in Dealing with Malnourished Patient. Alice McNeal.—p. 99.
Fundamentals in Surgical Preparation of Thyrotoxic Patients: Use of Thiouracil. R. F. Guthrie.—p. 111.
Parenteral Fluids. H. Linder.—p. 121.
Lipoma of Colon: Treated by Primary Resection, with End to End Anastomosis. J. M. Mason III and J. Linn.—p. 128.
*Repair of Inguinal Hernia with Whole Skin Grafts. R. G. Goodall and R. F. Guthrie.—p. 135.
Intracranial Aneurysms: Considerations in Surgical Management. J. G. Galbraith.—p. 139.
Carotid Body Tumor. R. H. Smoot.—p. 159.

Malignant Melanoma in Negro.—A total of 73 cases of malignant melanoma in the Negro have been recorded, and these with the 6 cases presented by the authors make a total of 79 cases. One of the 6 reported cases is the second instance of a primary lesion developing in the nose, 1 is the third reported case of a malignant melanoma occurring in the mouth and another is the first instance of a primary lesion in the rectum. In 2 other cases the primary sites were the plantar surface of the great toe and the skin of the back. In 1 case it was impossible to determine the site of the primary lesion.

Whole Skin Grafts for Inguinal Hernia.—Goodall and Guthrie describe the successful repair of 6 inguinal hernias by the use of whole thickness skin grafts. The grafts were excised from the abdominal wall over the hernia site and implanted over the floor of the inguinal canal. The types of inguinal hernias repaired included 3 indirect inguinal hernias, 1 direct inguinal hernia, 1 sliding hernia of an indirect type and 1 recurrent saddle bag type hernia following a previous modified Bassini repair three and one-half years previously.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

31:65-128 (Feb.) 1947

Production of Filtering Cicatrix in Glaucoma. R. Cruise.—p. 65.
Flap Sclerotomy in Treatment of Glaucoma. W. M. de C. Boxill.—p. 72.
Ophthalmoneurologic Symptoms in Connection with Malignant Nasopharyngeal Tumors. E. Godtfredsen.—p. 78.
Some Researches on Respiration of Cornea in Albino Rats. A. Bakker. —p. 100.
Contributions to Total Blepharoplasty. Ida Czukrasz.—p. 108.

British Journal of Surgery, Bristol

34:109-224 (Oct.) 1946

Endometriosis: Surgical Problem. D. Macleod.—p. 109.
Some Recent Advances in Pancreatic and Biliary Tract Surgery, Including Some Case Reports. T. M. J. d'Offay.—p. 116.
Excision and Repair of Deep Thermal Necrosis. O. T. Mansfield. —p. 128.
Reconstructive Surgery of Hand, with Special Reference to Digital Transplantation. A. R. Murray.—p. 131.
Myelography in Lumbar Intervertebral Disk Lesions: Correlation with Operative Findings. A. C. Begg, M. A. Falconer and M. McGeorge. —p. 141.
*Concept of Paralytic Ileus: Clinical Study. J. Devine.—p. 158.
Reconstruction of Biceps Brachii by Pectoral Muscle Transplantation. J. M. P. Clark.—p. 180.
Triplicate Ureter. I. Smith.—p. 182.
Surgical Anatomy of Parotid Gland. F. R. Hurford.—p. 186.
Simple Papilloma of Ureter. H. E. Harding, J. L. A. Grout and H. B. Yates.—p. 187.
Cystoscopy in Diagnosis and Treatment of Bilharzia Hematobium Infection. W. H. Kirkaldy-Willis.—p. 189.
Thyrotoxicosis as Surgical Problem. J. D. Robertson.—p. 194.

Paralytic Ileus.—Devine presents the results of a clinical study of a number of cases of paralytic ileus, of 43 cases in which intestinal intubation with the Miller-Abbott tube was performed, of a number of observations on patients with ileostomies and jejunostomies and of x-ray observations. True or idiopathic postoperative paralytic ileus is rare. It is a dangerous diagnosis to make, for it often prevents recognition of the real cause till it is too late for appropriate treatment. It was found that heat or turpentine stupes on the abdomen had no effect on bowel movements. Barbiturates decreased peristalsis and tone. Penicillin and sulfonamides did not materially affect peristaltic movements. Overdistention of the stomach caused loss of tone and decreased movement of the small bowel. Stimulation of the large intestine by enemas also stimulated the small intestine, even when this was completely isolated from the colon. By far the most frequent cause of a postoperative ileus is a postoperative intra-abdominal infection. From a study of Miller-Abbott recordings and abdominal sounds with regard to the return of intestinal movements after operation, and the return of these movements during recovery from paralytic ileus, the author deduces that there are three phases of ileus: stage 1, in which the movements are active, coordinated, responsive to stimulation and effective; stage 2, when they become irregular, incoordinated and are ineffective, and stage 3, fully developed paralytic ileus, when the intestinal movements disappear and completely fail. Stimulation in the second stage will often precipitate a paralytic ileus.

Lancet, London

1:165-200 (Feb. 1) 1947

Medical Aspects of Marriage Guidance. E. F. Griffith.—p. 165.
Fenestration Operation for Otosclerosis: Interim Report of 136 Cases. E. R. G. Passe.—p. 171.
*Liver Extract, Folic Acid and Thymine in Pernicious Anemia and Subacute Combined Degeneration. T. D. Spies and R. E. Stone.—p. 174.
Adrenal Apoplexy Associated with Hypertension. R. L. MacMillan. —p. 177.
Placental Hormones After Death of Fetus with Viable Placenta. B. Zondek.—p. 178.

Liver Extract, Folic Acid and Thymine in Anemia.—Spies and Stone gave folic acid to 9 patients with subacute combined degeneration and synthetic thymine to 4 patients with pernicious anemia. The effect of refined liver extract is also illustrated on the basis of a case report. The authors conclude that synthetic folic acid (Lactobacillus casei factor) and synthetic thymine (5-methyl uracil) will neither prevent the development of subacute combined degeneration in addisonian pernicious anemia nor relieve it once it has developed. Frequent parenteral injections of a potent liver extract are useful in the prevention of subacute combined degeneration and beneficial in relieving it once it has developed.

Schweizerische medizinische Wochenschrift, Basel

77:133-156 (Jan. 25) 1947

*Efficacy of Sulfonamides in Prophylaxis and Treatment of Severe Acute Inflammation of Middle Ear, of Mastoiditis and of Intracranial Complications. E. Lüscher and H. Iselin.—p. 133.
Placental Circulation in Enzygotic Twins. R. Wenner.—p. 140.
Medical Experiences in a Camp of Repatriated Swiss Citizens. W. Knoll and H. Ruckstuhl.—p. 141.
Aspect and Early Course of Tuberculosis in Patients from Concentration Camps. A. Zuppinger and A. Labhart.—p. 144.
Tonsillectomy in Tuberculous Children. E. Martens.—p. 146.

Sulfonamides in Acute Inflammation of the Middle Ear.—According to Lüscher and Iselin 606 patients with acute inflammation of the middle ear and its complications were admitted to the ear, nose and throat clinic of the University of Basle during the period of 1937 to 1940, when systematic sulfonamide treatment was not yet instituted. Five hundred and five patients with acute inflammation of the middle ear, acute recurrence mastoiditis and otogenous intracranial complications were admitted during the period of 1941 to 1944, when systematic sulfonamide treatment was practiced. The frequency of surgical intervention in the clinic decreased by 32 per cent during the second period as compared with the first; in the majority of the cases prevention of mastoiditis accounted for this decrease. There was a decrease in intracranial complications of the acute ostitis from 10.5 per cent during the first period to 4.2 per cent during the second period, but this applies almost exclusively to epidural abscess. There was a decrease of only 3.5 per cent to 3.3 per cent in the severe complications, including leptomeningitis. Mastoiditis proved chemoresistant in almost all the cases. Chemotherapy appears to be contraindicated in the presence of symptoms of mastoiditis. Mortality of acute otitis media has been reduced from 2.1 per cent to 0.79 per cent, and that of chronic suppurative otitis media from 2.6 per cent to 1.5 per cent. The total mortality of otitis media has been reduced from 2.2 per cent to 0.9 per cent. Systematic treatment with sulfonamides in home practice is suggested for all grave cases of acute inflammation of the middle ear.

Nordisk Medicin, Gothenburg

32:2675-2740 (Nov. 22) 1946. Partial Index

Penicillin in Venereology. S. Hellerström and G. Hagerman.—p. 2675.
Penicillin in Dermatology. G. Hagerman.—p. 2679.
Phenedrin as Stimulant for Sucking Ability in Weak Infants. O. Elgenmark.—p. 2681.
Ray Dosage for Patients in Roentgen Fluoroscopy and Photography. C. Wegelius.—p. 2684.

Hygiea

Case of Deciduosis Appendicis. N. B. Nordlander.—p. 2697.

Svenska Läkaresällskapets Förhandlingar

*Problem of Generator Gas Intoxication: I. Theoretical Points of View. S. Forssman.—p. 2717.
Problem of Generator Gas Intoxication: II. Experimental Investigations on Some Carbon Monoxide Problems. B. Gullberg and A. Svensson. —p. 2722.
Problem of Generator Gas Intoxication: III. Differential Diagnostic Points of View Regarding Acute and Chronic Carbon Monoxide (Generator Gas) Intoxication. G. Wohlfahrt, B. Gullberg and A. Svensson. —p. 2726.

Generator Gas Intoxication.—Forssman says that generator gas contains from 20 to 30 per cent of carbon monoxide, which is the toxically active constituent in generator gas. The generator gas problem is thus from the medical and hygienic points of view identical with the carbon monoxide gas problem. Chronic intoxication, the existence of which is questioned by some, may be mainly a sequel of repeated slight acute intoxication. Experiments in animals seem to confirm this theory. The sensitivity to carbon monoxide is variable in normal persons. It may be changed either to hypersensitivity or to tolerance by exposure to the gas.

Book Notices

Crippled Children in American Education, 1939-1942. By Romaine Prior Mackie, Ph.D. Teachers College, Columbia University Contributions to Education, No. 913. Cloth. Price, $2.10. Pp. 144. Bureau of Publications, Teachers College, Columbia University, 525 W. 120th St., New York 27, 1945.

This volume collects facts and figures which of themselves can be of little value to one interested in the education of the handicapped. The figures cover a small area of the country. About 25,784 out of a possible "more than 100,000" (p. 3) children are being educated according to figures found in the introduction; this survey covers only 16,696 children of a few schools, mostly in New York, New Jersey, Maryland, Michigan and Ohio. Little mention is made of Chicago, where education of the crippled child occupies an important place in the special school system. Early diagnosis and emergency treatment of poliomyelitis, once the disease which led all others in crippling effects, today rates about third on the list, both spastic paralysis and cardiac cases ranking first and second. The survey demonstrates the great differences of opinion among educators of the East as to where and how the handicapped shall be educated. This difference will always exist as long as each city or state selects its own plan of education rather than following the same plan as for physically fit children. The high school situation and the advantages offered by state rehabilitation funds for college or advanced educational work seem to be neglected, though in Chicago a definite setup for this educational phase has been in vogue for many years. Chapter IV gives to the layman a short concise description of each of the so-called crippling causes. Table IV of this chapter presents a picture which one could not visualize without the statement of facts contained therein. The table on distribution according to race cannot be considered too seriously, since the Southern states have most Negroes, and specialization in the care of handicapped in those regions is neglected. Statements to the effect that "most crippled children have mediocre intelligence" are decidedly debatable, and statistics are not supplied to satisfy this broad view.

Developmental Anatomy: A Textbook and Laboratory Manual of Embryology. By Leslie Brainerd Arey, Ph.D., Sc.D., LL.D., Robert Laughlin Rea Professor of Anatomy, Northwestern University, Chicago. Fifth edition. Cloth. Price, $7. Pp. 616, with 590 illustrations. W. B. Saunders Company, W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury, London, W. C. 2, 1946.

This well known and much used textbook, while retaining its former fundamental structure, appears in a much improved form. The main divisions general embryology, special development and a laboratory manual of embryology have all been modified to some extent, and attractive new illustrations added, but it is the first part that has been the more widely modified with much rewriting, addition of materials and new illustrations. Noteworthy improvements include chapters on reproductive cycles and their hormonal control, embodying discussions of estrous cycles, menstrual cycles and their relations to one another as well as to other cyclic phenomena in the uterus, vagina and mammary glands. The hormonal control of these phenomena involves pituitary, ovarian and placental hormones as well as some brief discussion of testis hormones. Although of necessity somewhat brief, they include basic essentials and permit the student to glimpse these important aspects bearing on the process and biology of reproduction. The chapter on experimental embryology introduces the approach to the analysis of development by experiment and points out some of the methods of attack. Problems associated with the initiation of development, cleavage and gastrulation, early localization, potency, embryonic determination and induction present some of the dynamic aspects of development to enliven the more static phases of descriptive development. The treatment of gastrulation has conspicuously included more modern concepts, especially in the bird (although one outdated illustration is inadvertently retained in part 3). The inclusion of recent knowledge on early human development, placentation and a unification on embryonic membranes is commendable. Improvements are also noted on treatment of growth and of histogenesis. The new edition will be heartily welcomed

Penicillin: Its Properties, Uses and Preparations. Published by Direction of the Council of The Pharmaceutical Society of Great Britain. Cloth. Price, 10s. 6d. Pp. 199, with illustrations. Pharmaceutical Press, 17 Bloomsbury Square, London, W. C. 1, 1946.

This compact volume is the most recent of several monographs on penicillin. Its purpose is to present to pharmacists and general practitioners the methods of preparing and using penicillin. In the usual fashion there is an introductory summary of the history of this remarkable antibiotic, followed by chapters on the methods of manufacturing and the chemistry and properties of penicillin. Methods of assaying penicillin are detailed, and the pharmacology is described. These informative phases embrace over one third of the contents. Thirty-three pages are devoted to the clinical use of penicillin. Then forty-nine pages are given to a description of pharmaceutic preparations. The volume concludes with legal considerations relative to penicillin regulations in Great Britain and patent rights. Obviously detailed and pertinent information covering the many phases of infections is lacking for the general practitioner. Sir Alexander Fleming's monograph is more practical and valuable for the doctor. The volume has an excellent index and is documented with 331 key references to the overwhelming literature on penicillin.

An Atlas of the Commoner Skin Diseases. By Henry C. G. Semon, M.A., D.M., F.R.C.P., Physician for Diseases of the Skin, Royal Northern Hospital, London. Third edition. Cloth. Price, $12. Pp. 343, with 139 plates reproduced by direct colour photography from the living subject under the direction of Arnold Moritz, B.A., M.B., B.C. William Wood & Co., Mount Royal and Guilford Aves., Baltimore 2, 1946.

The author prefaces this book with the statement that it is not meant to take the place of the standard textbook but "as an atlas it is designed to illustrate and its chief function is to assist the visual memory." The book represents an admirable and ambitious project, and many of the illustrations are excellent pictures of the lesions as they occur on patients. Unfortunately, many more are only fair, and in several instances the illustrations are useless and ineffective because in the process of reproduction either overexposure or underexposure prevented accuracy. The value of the book might have been enhanced too had greater care been used in the selection of the material to be illustrated. The brief clinical descriptions that accompany the illustrations are excellent and are made more interesting in that they are in the form of condensed case reports with consideration given to differential diagnosis and treatment. The layout is also excellent, with the text arranged in accessible position to each plate in order to afford help in diagnosis and as an aid to memory. The book should be useful to the practitioner, but it will be of little help to the medical student because, despite the claim that "the color values are superior to any as yet produced by other processes," too many of the illustrations fail to serve their purpose as models for diagnosis and visual study.

Phases in the Drinking History of Alcoholics: Analysis of a Survey Conducted by the Grapevine, Official Organ of Alcoholics Anonymous. By *E. M. Jellinek, Sc.D., Director*, Section of Studies on Alcohol, Yale University. Memoirs of the Section of Studies on Alcohol, Laboratory of Applied Physiology, Yale University, No. 5. [Distributed by Quarterly Journal of Studies on Alcohol.] Paper. Price, $1. Pp. 88, with 4 illustrations. Hillhouse Press, 432 Temple St., New Haven, Connecticut, 1946.

This attempts through a questionnaire approach to survey within the admittedly limited scope of having been able to use only 98 completed questionnaires out of 1,600 circulated copies to members of lay alcoholic groups phases in the drinking history of alcoholic addicts with the resulting "main implications" contained in "most significant" and other "suggestions," which are presented as differing from, and do definitely differ from, present day medical psychologic thinking.

Water Supplies, Hepatitis, Associated Diseases and Fungi Infested Water in Assam. By Arnold John Teal, M.B., B.S., D.P.H., Medical and Sanitary Officer, The Mariani Medical Association, Assam. Paper. Price, Rs. 2 / 8 / —. Pp. 18. Doss & Co., Jorhat, Assam, 1945.

This is a conglomerate group of data, most of which do not lend themselves to scientific evaluation. Many of the recorded observations are of considerable interest but many must necessarily be considered as purely speculative and the conclusions drawn from them as empirical.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SUNBURN AND INTERMITTENT CLAUDICATION—BUERGER'S EXERCISES

To the Editor:—Is there any reason why an extremely severe sunburn of the lower part of the legs would cause intermittent claudication to develop? *Please outline the most satisfactory treatment for intermittent claudication.* Also kindly outline Buerger's exercises for this condition.

H. O. Pope, M.D., Niantic, Ill.

Answer.—To establish any connection between a severe sunburn and the development of intermittent claudication one would have to know the patient's general cardiovascular status, the time interval between the exposure and the development of symptoms and the extent of hemoconcentration as a result of the sunburn, as shown by an elevated red cell count or hemoglobin. Thermal burns may produce venous thrombosis and infrequently arterial thrombosis; this occurs in patients who show severe hemoconcentration. This factor, together with the action of broken down tissue products, does increase the clotting tendency. It is not likely, however, that a normal vascular tree would respond with occlusion to a sunburn and a vascular lesion; possibly a latent form must have been present before the burn.

Intermittent claudication is simply a symptom of vascular insufficiency on effort, and its treatment varies according to the cause of the vascular disease. When due to Buerger's disease, the active process must be brought to a quiescent stage before collateral circulation can be stimulated. If due to an embolus, the source of the blood clot must be looked for, which is usually in the heart. In peripheral vascular sclerosis, factors such as diabetes, hypertension and lipemia may be controlled to a certain extent. After the nature of the underlying disease is understood, treatment may be directed toward increasing blood flow to the affected extremity. This may be done with drug therapy, although none of the drugs used at present have any but temporary effect. Heat can be used, never to the affected limb, but to the root of the limb or the trunk in the form of heat cradles, electric pads or short wave diathermy. Sympathectomy in the properly selected case may increase walking ability and is a protective measure against gangrene.

Buerger's exercises, as modified by Allen, are carried out as follows: The patient lies on his back and elevates his legs to an angle of 30 to 45 degrees, resting it on a support until his feet blanch; this may take from one to three minutes. In the second position the patient sits with his legs hanging over the edge of the bed, and the feet and toes are put through a series of motions; this is continued until maximal rubor occurs. This hyperemia may take a few minutes to develop. In the third position the patient rests horizontally wrapped in a woolen blanket for five minutes. These cycles are repeated for a period of an hour and may be done several times daily. It is doubtful that such exercises are of much value; they act by an alternate filling and emptying of the venocapillary bed, which can be accomplished more effectively with much less effort and for longer periods of time by an automatically operated rhythmic constrictor. Both Buerger's exercises and the alternate hot and cold baths are being widely used without impressive evidence of their usefulness.

ROUTINE ANTEPARTUM Rh TESTS

To the Editor:—What are the advantages and disadvantages of Rh factor determinations in expectant parents? Should this be as routine as the serologic test for syphilis?

Herman Goodman, M.D., New York.

Answer.—Antepartum tests for the Rh factor may disclose the possibility of fetal erythroblastosis in the baby to be born by finding Rh antibodies in the Rh-negative wife of an Rh-positive man. Occasionally Rh antibodies may even be found in an Rh-positive woman whose Rh type differs from her husband's. Such finding will warn the obstetrician to be on his guard at the time of the child's birth. If any evidence of fetal erythroblastosis is found, especially anemia, immediate therapy with Rh-negative blood transfusion may be instituted without any loss of time. Experience has shown that the speed with which therapy is instituted is frequently a deciding factor in the success.

It is essential to know the Rh factor of any woman, especially if pregnant, in order to have available suitable blood in case a transfusion is needed.

There is no possible disadvantage in Rh testing. It is good to keep in mind that finding of an Rh-negative factor in the mother and an Rh-positive factor in the father does not mean that the child will necessarily be afflicted with the disease. Only in a relatively small number of such marriages are the children afflicted. Furthermore, the first child is almost always well, unless the mother had a transfusion of Rh-positive blood prior to pregnancy.

The present consensus is that Rh testing should be a routine antepartum test.

INFECTIOUS LYMPHOCYTOSIS AND LYMPHOCYTIC LEUKEMIA

To the Editor:—Please discuss the differential diagnosis between acute infectious lymphocytosis and chronic lymphocytic leukemia, with emphasis on hematologic differences and findings on physical examination.

Lieutenant, M. C., A. U. S.

Answer.—Acute infectious lymphocytosis is mainly a disease of children, although a few cases have been observed in young adults. The clinical symptoms are extremely mild and there is usually no adenopathy or splenomegaly. The white blood cell count rises rapidly sometimes to as high as 100,000, with a high percentage of mature lymphocytes. The red cells and platelets are unaffected. After a few weeks the white blood cell count begins to go down and the blood picture returns to normal within three to seven weeks.

Chronic lymphatic leukemia is practically unknown in children. There is a slow and progressive rise in the white cells, which are predominantly mature lymphocytes. Slight anemia and thrombopenia are common. The bone marrow shows a greater degree of lymphopoiesis than is present in infectious lymphocytosis. As the leukemia progresses, the lymph glands and spleen enlarge.

It is not possible to distinguish chronic lymphatic leukemia from infectious lymphocytosis by the examination of a single blood film. However, the clinical course readily differentiates these two conditions.

DERMATITIS AND FIVE CENT COIN

To the Editor:—A patient has a dermatitis around the hairline of both temples. The allegation has been advanced that this dermatitis is a dermatitis venenata due to a new substance or metal added to the five cent coin during the war. It is further rumored that the government *tried to recall all these coins because of this factor. Is this true?*

M.D., Michigan.

Answer.—The regular composition of the five cent coin before the war was 25 per cent nickel and 75 per cent of copper. During the war the composition was changed to 35 per cent silver, 9 per cent manganese and 56 per cent copper. Since Jan. 1, 1946 the composition has been the same as it was before the war, namely 25 per cent nickel and 75 per cent copper.

In answer to a direct inquiry, the Department of the Mint stated that there were no cases of dermatitis caused by the wartime nickel, nor were any nickels recalled.

In a case of dermatitis around the hairline of both temples, spectacle frames made either of alloys or of plastics are to be suspected. The most common metal in an alloy causing sensitization dermatitis is nickel. Any incompletely cured or polymerized plastic is capable of causing sensitization dermatitis.

VITAMIN K DOSAGES

To the Editor:—In Queries and Minor Notes (The Journal, Dec. 7, 1946, p. 893) there was a discussion of the dosage of vitamin K in the prevention of hemorrhagic disease in the newborn. A pertinent fact which was not mentioned prompts me to write that the various vitamin K preparations available on the market do not exhibit the same vitamin K activity. *To illustrate, 1 mg. of menadione, according to the definition of the* methyl-naphthoquinone (MeNQ) unit, is equivalent to 1,000 such units. *However, 1 mg. of Hykinone (menadione sodium bisulfite)* contains only 625 MeNQ units (Gutman: Modern Drug Encyclopedia, ed. 3, p 365) and an equal weight of Synkayvite (2-methyl-1, 4-naphthohydroquinone diphosphoricester tetrasodium salt) yields even less, namely 490 MeNQ units (Almquist, H. J.: *Physiol. Rev.* 21: 194 [Jan.] 1941). The Journal quotes 2 mg. of menadione as a dosage level. This is equivalent to 4.08 mg. of Synkayvite. The activity of the particular preparation being *used should be known. In converting vitamin K compounds* from insoluble to water soluble forms, the molecular weight is increased. All vitamin K compounds should be *compared with menadione on a molecular* and not on a weight basis, and for uniformity and simplicity it is suggested on the basis of biologic vitamin K units.

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The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 4 | Chicago, Illinois | May 24, 1947

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THE CLINICAL USE OF ANTICOAGULANTS

Report of Treatment with Dicumarol in 1,686 Postoperative Cases

Chairman's Address

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If blood did not possess the quality of coagulation, injuries would allow it to leak from the body as freely as water leaks through a sieve. This knowledge, which is possessed by every physician, has dominated medical thinking about coagulation of the blood. A vast proportion of the efforts of physicians interested in coagulation has been devoted to making blood clot better, because of observation of the consequences of blood which clots poorly. There are few physicians who have not wished for an efficient method by which they might stop [illegible] quite clear now that thoughts of the [illegible] must be directed in the reverse direction as well; in some circumstances there are great benefits if the property of coagulation of blood is impaired. When the vascular system of the blood is intact, coagulability of the blood may be reduced substantially without harm, and indeed with benefit. It is doubtless true that hemorrhage causes far fewer deaths than intravascular thrombosis. The problem of intravascular thrombosis is, therefore, more important than the problem of hemorrhage.

It may be well to remark parenthetically that nature provides in abundance, even in excess. Thus, although one of each of the organs named is adequate for normal life, there are two ovaries, two eyes, two testes, two kidneys and two suprarenal glands; although only one spermatozoon is necessary to fertilize an ovum, large numbers ordinarily make the attempt. Gastric secretions, bile and intestinal secretions are produced in superabundance. It is timely to consider that blood may normally clot too well to serve the best interests of the health of man. The protective device provided by nature is actually harmful as well as protective. Nature has provided not wisely but too well. This conception requires acceptance of two verities: man and animals may live normally (in the absence of injury) if coagulation of the blood is substantially impaired, and thrombosis of blood vessels occurs less readily when blood clots less well than normally.

The importance of diseases of blood vessels would be greatly lessened if vascular disease did not provoke thrombosis and if blood would not clot inside living blood vessels. Phlebitis would be a benign disease if it did not cause venous thrombosis. Arteriosclerosis would have lesser importance if it did not cause coronary and cerebral thrombosis. The two chronic occlusive arterial diseases of the extremities, arteriosclerosis obliterans and thrombo-angiitis obliterans, would not cause any great impairment of the arterial circulation to the extremities if thrombosis were not a part of them. The curse of cardiac irregularities, coronary thrombosis and congestive heart failure would be substantially smaller if mural thrombosis and embolism were not associated with them. There would be no pulmonary embolism or phlebothrombosis if blood would not clot inside blood vessels; the gangrene of trench foot and immersion foot would be avoided in many instances. These observations emphasize that the health of man would be greatly improved if intravascular thrombosis did not occur. That which is desired is a method of impairing coagulation so that intravascular coagulation will not occur while the protective mechanism of coagulation, which prevents bleeding, remains. The use of anticoagulants is a step in the direction of achieving the prevention of intravascular thrombosis.

Currently, there are two preparations clinical use of which impairs the coagulation of the blood: heparin and Dicumarol (3,3′-Methylene-bis-[4-hydroxycoumarin]). The advantages and disadvantages of the use of them are outlined in table 1.

Both anticoagulants have the disadvantage that hemorrhage may result from the use of them. Every physician who uses anticoagulants must steer a course between the Scylla of too little and the Charybdis of too much. Advantageous as both heparin and Dicumarol are, use of them represents only the first step in the direction of securing satisfactory anticoagulants for clinical use.

Viewed in the light of present day knowledge, the requisites for an entirely satisfactory anticoagulant for clinical use are: (1) lack of harmful side effects when used for short periods or for months or years; (2) a predictable effect on coagulation of a specified amount of the drug (possibly based on estimation of blood volume); (3) prompt control of its effect by a "counter" drug in order to prevent and control bleeding; (4) a method of calculating the effect on blood which is simple and rapid, which will give consistent results and which can be performed satisfactorily by relatively unskilled technicians or physicians; (5) effective oral administration, and (6) cheapness. The spread between ideal and practical may be great, and for the time being the members of the medical profession must be satisfied with less than that which is desired. Indeed, the two anticoagulants now available for clinical use have been administered with advantage, although neither is an ideal preparation.

Read in a Symposium on "Treatment" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

There are many misconceptions about intravascular thrombosis. Fatal pulmonary embolism is thought to be almost solely the lot of the patient who has had a major surgical operation; yet as great a proportion of patients who are sick with "medical" conditions die from pulmonary embolism as of those who have had operations.[1] Even in lobar pneumonia, thromboembolism occurs in about 2 per cent of cases.[2] It is thought that venous thrombosis is relatively uncommon; yet studies show that about half of all middle-aged and older patients who have died after being in bed for varying periods had thrombosis of the deep veins of the legs.[1] Most physicians consider that most patients who died from pulmonary embolism died suddenly; yet evidence shows that about two thirds of them lived more than an hour, a period which permits treatment.[3] Experimental studies on animals have indicated the nature of this treatment. A report of recovery of 35 of 45 patients who had pulmonary embolism may indicate that this treatment is beneficial.[3] Aside from the clinical syndrome of classic thrombophlebitis, many physicians have believed that venous thrombosis cannot be recognized ordinarily. There is increasing evidence that bland venous thrombosis produces signs and symptoms which may be recognized easily by the experienced physician.[3] Until recently intravascular thrombosis and its consequences have been considered largely inevitable. Pulmonary embolism has, for example, been considered a catastrophe which was unavoidable. These and other observations emphasize the need for wide dissemination of current knowledge of thrombosis and embolism of blood vessels.

Table 1.—*Comparison of Anticoagulants*

- I. Heparin
  - *A.* Advantages
    - 1. Quick effect on the blood
    - 2. Quick disappearance of the effect on the blood
    - 3. Can be administered without laboratory control
  - *B.* Disadvantages
    - 1. Expensive *
    - 2. Need for parenteral administration
- II. Dicumarol
  - *A.* Advantages
    - 1. Inexpensive *
    - 2. Effective orally
  - *B.* Disadvantages
    - 1. Effect on the blood is delayed
    - 2. Effect on the blood persists for days after the cessation of administration
    - 3. Daily determination of prothrombin time necessary for efficient and safe administration

* Heparin injected intravenously in amounts of 50 mg. every four hours currently costs about $9 a day. Enough Dicumarol to produce the desired effect on the blood costs only a few cents each day.

THE HISTORY OF HEPARIN AND DICUMAROL

In 1918 Howell and Holt[4] devised the word "heparin" to indicate the hepatic origin of a heparphosphatide described by MacLean in 1916. Since that time there have been numerous reports on the chemistry of heparin, its effect on blood both in vivo and in vitro and its use under experimental conditions and in clinical practice. The most recent of the clinical reports is that of Bauer,[5] who reported its use in 209 cases of acute thrombosis of the veins of the legs.

I have reviewed the history of Dicumarol in a previous publication.[6] In brief, Dicumarol is the substance which Link and his collaborators determined to be the cause of spoiled sweet clover disease of animals, a hemorrhagic disease leading to the death of many animals which ate spoiled sweet clover. Its identification, the determination of its chemical formula, its synthesis and other studies mark an epoch in research which is admirably presented in the Harvey lecture for 1943-1944.[7] My associates and I secured some of the material from Link in 1941, and the first report on its clinical use was published in June 1941.[8] However, Meyer and his associates at Wisconsin General Hospital had administered Dicumarol to man before we first gave it to a patient in May 1941. Since that time my associates and I have published a number of clinical reports.[9] Other students of the drug have made substantial contributions.[10] One of the most extensive of these is the report of Bruzelius, who administered Dicumarol to 1,658 patients. Prophylactic use in 1,448 postoperative cases caused a two-thirds reduction in the incidence of venous thrombosis and pulmonary embolism; there were but 19 cases of thromboembolism in the treated group. Treatment of 113 patients with thromboembolism caused a reduction of three fourths in the incidence of subsequent thromboembolism and a decrease in duration of fever and in the number of days of confinement of patients to bed. Later in this presentation I shall discuss experiences with Dicumarol in the treatment of 1,686 patients who have been operated on. This has been a cooperative study which has been participated in by internists and surgeons, chief among whom are Drs. N. W. Barker, E. A. Hines Jr., Walter F. Kvale and John M. Waugh, with the technical assistance of Miss Margaret Hurn. The story of the evolution of the clinical use of this anticoagulant Dicumarol has been aptly described by a newspaper reporter under the heading "From the haystack to the human."

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[1] Hunter, W. C.; Krygier, J. J.; Kennedy, J. C., and Sneeden, V. D.: Etiology and Prevention of Thrombosis of Deep Leg Veins: Study of Four Hundred Cases, Surgery **17:** 178-190 (Feb.) 1945.

[2] Ask-Upmark, E.: Occurrence of Thrombosis and Pulmonary Embolism in Pneumonia, Acta med. Scandinav. **113:** 286, 1943.

[3] de Takats, G., and Fowler, E. F.: Problem of Thrombo-Embolism, Surgery **17:** 153-177 (Feb.) 1945.

[4] Howell, W. H., and Holt, E.: Two New Factors in Blood Coagulation: Heparin and Pro-Antithrombin, Am. J. Physiol. **47:** 328-341 (Dec. 1) 1918.

[5] Bauer, G.: Heparin Therapy in Acute Deep Venous Thrombosis, J. A. M. A. **131:** 196-203 (May 18) 1946.

[6] Allen, E. V.: The Challenge of Thrombosis and Embolism of Blood Vessels, and the Clinical Use of Anticoagulants, Quart. Bull., Northwestern Univ. M. School **20:** 1-7, 1946.

[7] Link, K. P.: The Anticoagulant from Spoiled Sweet Clover Hay, in Harvey Lectures (1943-1944), Lancaster, Pa., Science Press Printing Company, 1944, vol. 39, pp. 162-216.

[8] Butt, H. R.; Allen, E. V., and Bollman, J. L.: A Preparation from Spoiled Sweet Clover [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Which Prolongs Coagulation and Prothrombin Time of the Blood: Preliminary Report of Experimental and Clinical Studies, Proc. Staff Meet., Mayo Clin. **16:** 388-395 (June 18) 1941.

[9] Barker, N. W.; Butt, H. R.; Allen, E. V., and Bollman, J. L.: The Effect of 3,3'-Methylenebis (4-Hydroxycoumarin) on Blood Coagulation Factors, J. A. M. A. **118:** 1003-1004 (March 21) 1942. Allen, E. V.; Barker, N. W., and Waugh, J. M.: A Preparation from Spoiled Sweet Clover [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Which Prolongs Coagulation and Prothrombin Time of the Blood: A Clinical Study, ibid. **120:** 1009-1015 (Nov. 28) 1942. Barker, N. W.; Cromer, H. E.; Hurn, M., and Waugh, J. M.: Use of Dicumarol in Prevention of Postoperative Thrombosis and Embolism with Special Reference to Dosage and Safe Administration, Surgery **17:** 207-217 (Feb.) 1945.

[10] (*a*) Townshend, W. H., Jr., and Honigman, A. H.: Clinical Use of Dicumarol, with an Analysis of Forty Cases, Bull. School Med. Univ. Maryland **29:** 61-78 (Oct.) 1944. Shapiro, S., and Sherwin, B.: Studies in Thrombo-Embolization: II. Observations on the Use of Dicumarol [3,3' Methylenebis (4-Hydroxycoumarin)] in Embolization; Report of Five Cases, New York State J. Med. **43:** 45-52 (Jan. 1) 1943. Evans, J. A.: Dicumarol Therapy in Thrombotic Emergencies, New England J. Med. **230:** 131-135 (Feb. 3) 1944. Pfeiffer, D. B., and Sain, F. D.: Heparin and Dicumarol: Collective Review, Internat. Abstr. Surg. **78:** 109-119, 1944; in Surg., Gynec. & Obst., February 1944. LeFevre, F. A.: The Effect of 3,3'-Methylene-*Bis*-(4-Hydroxycoumarin) (Dicumarol) on the Prothrombin and Coagulation Times of Blood: Three Year Summary, Cleveland Clin. Quart. **12:** 68-72 (April) 1945. Zucker, H. D.: Clinical Experiences with Dicumarol: Report of Eighteen Cases, J. A. M. A. **124:** 217-220 (Jan. 22) 1944. Bruzelius, S.: Dicoumarin in Clinical Use: Studies on Its Prophylactic and Therapeutic Value in the Treatment of Thrombo-Embolism, Acta chir. Scandinav. (supp. 100) **92:** 1-219, 1945. Eckstam, E. E.: The Clinical Use of Dicumarol, Minnesota Med. **27:** 455-458 (June) 1944. (*b*) Lehmann, J.: Thrombosis: Treatment and Prevention with Methylene-Bis-(Hydroxycoumarin), Lancet **1:** 611-613 (May 15) 1943. (*c*) Yahr, M. D.; Reich, C., and Eggers, C.: Treatment of Thrombophlebitis, Surg., Gynec. & Obst. **80:** 615-619 (June) 1945. Wright, I. S., and Prandoni, A.: The Dicoumarin 3,3'-Methylene-Bis-(4-Hydroxycoumarin): Its Pharmacologic and Therapeutic Action in Man, J. A. M. A. **120:** 1015-1021 (Nov. 28) 1942.

THE ACTION OF HEPARIN AND DICUMAROL

The mode of action by which heparin interferes with coagulation of the blood has not been definitely determined. The product of heparin and heparin complement may be antiprothrombin or it may serve to activate a precursor to antithrombin. It appears to inhibit the conversion of prothrombin to thrombin and to prevent the clotting of fibrinogen by thrombin.[11] There is considerable evidence that heparin is the normal circulating anticoagulant, assisting in, or necessary to, the maintenance of the fluid state of the blood in man.

Dicumarol affects the blood by depressing the values for prothrombin. There is indirect evidence that it accomplishes this by suppressing the formation of prothrombin, but the exact mechanism of its action is unknown.

THE SIMULTANEOUS USE OF HEPARIN AND DICUMAROL

Because the effect of Dicumarol is delayed after oral administration, heparin must be used when an effect on coagulation of the blood is desired quickly. Heparin is effective within a few minutes, but Dicumarol may not be effective for twenty-four to forty-eight hours or longer. The usual program when an effect is needed quickly in the treatment of adults with anticoagulants is to inject 50 mg.[12] of undiluted solution of heparin intravenously and to administer 300 mg. of Dicumarol by mouth. Treatment with the latter is continued as indicated in the following paragraph, and heparin in amounts of 50 mg. is injected intravenously every four hours, until studies of the prothrombin indicate reduction to a satisfactory value (about 20 per cent). Although in theory heparin should be administered by continuous intravenous injection, the intermittent injection of it produces satisfactory results in clinical use. During treatment with heparin, blood should be drawn for determination of the value for prothrombin at least three hours after the last intravenous injection of heparin to avoid the effect of heparin itself on the prothrombin time.

THE DOSAGE OF DICUMAROL

It cannot be too strongly emphasized that the administration of Dicumarol must be based on the value for prothrombin in the blood. Any other program may lead to disaster from hemorrhage or to inadequate control of coagulation. Identical amounts may produce widely dissimilar effects on prothrombin when administered to different persons. Indeed, the prothrombin of the blood of the same person may be affected dissimilarly by the same amount of Dicumarol given on one or more than one occasion. The *sine qua non* of treatment with this preparation is an experienced and absolutely reliable laboratory service. At the Mayo Clinic the Magath modification of the Quick method of calculating the value of prothrombin has been found to be entirely reliable.[13] With this method normal values for prothrombin give a prothrombin time of 19 to 21 seconds. A prothrombin time of 27 seconds indicates 30 per cent prothrombin, 35 seconds indicates 20 per cent prothrombin and 60 seconds indicates 10 per cent prothrombin in the blood. I make a plea for discontinuation of reporting prothrombin time. Since thromboplastins vary in potency, the time reported by a group of investigators cannot be interpreted by other investigators using another thromboplastin. In the interest of uniformity every laboratory should report the prothrombin not in seconds but in percentage of normal. At the very least, every publication should contain the prothrombin time for three critical values of prothrombin, 30 per cent, 20 per cent and 10 per cent.

Attention must be given to the thromboplastic substances used, for they vary in potency. Identical prothrombin times for two lots of thromboplastin may indicate entirely different values for prothrombin (percentage of normal). When the Quick test for prothrombin time is performed repeatedly during treatment with Dicumarol, either each batch of thromboplastin must be proved to have the same potency as the former or a new dilution curve should be plotted for each new batch. The problem has been simplified by the observation that the critical figures in treatment with Dicumarol are those representing 10 per cent, 20 per cent and 30 per cent of normal prothrombin. One may administer the drug adequately knowing only these figures, for clinical experience has indicated that intravascular thrombosis rarely occurs when the percentage prothrombin in the blood is less than 30, and bleeding rarely occurs when the percentage prothrombin is 10 or more.

Three hundred milligrams of Dicumarol is given on the first day, and 200 mg. is given on the second day. On each subsequent day of therapy the percentage prothrombin is determined and reported. If the value is more than 20 per cent, 200 mg. of the drug is given; if it is less than 20 per cent none is given. There are minor exceptions to this program. If the patient's blood is sensitive to the effect of Dicumarol, only 100 mg. may be given instead of 200 mg. If the patient's blood is insensitive to the effect of the drug, 300 mg. may be given instead of 200 mg. If the percentage prothrombin is decreasing rapidly but is more than 20, no Dicumarol is given. If it is rising rapidly but has not yet reached 20 per cent, the drug is given on that day. Ordinarily the postoperative treatment of patients with Dicumarol is begun on the second or third postoperative day, when used prophylactically, or when signs of venous thrombosis or embolism occur. Its administration is continued until the patient has been ambulatory for three to seven days. The effect of Dicumarol ordinarily continues for a few days after the discontinuation of treatment. In many of these cases heparin is used for a short time at first.

CONTROL OF EXCESSIVE PROTHROMBIN DEFICIENCY AND INDUCED HEMORRHAGE

It was originally believed that vitamin K was ineffective in correcting prothrombin deficiency induced by Dicumarol. It is now known that the amounts of vitamin K which were used were entirely inadequate.[14] It is of some historical interest that Butt and I gave 30 mg. of synthetic vitamin K intravenously to the first patient to whom we gave Dicumarol. There was a prompt increase in the value for prothrombin in the blood. We misinterpreted this as a natural event, not due to the intravenous injection of vitamin K. We did not recognize our error until a considerable time after others had shown that large amounts of vitamin K would correct the hypoprothrombinemia induced by Dicumarol. Cromer and Barker[15] showed that 64 mg. of menadione bisulfite, injected intravenously, corrected excessive prothrombin deficiencies in 35 of 37 cases, and bleeding ceased. Transfusion of 500 cc. of fresh blood is also effective; blood may need to be given until bleeding stops and the anemia is corrected.

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[11] Chargaff, E.; Ziff, M., and Moore, D. H.: Studies on the Chemistry of Blood Coagulation: XII. An Electrophoretic Study of the Effect of Anticoagulants on Human Plasma Proteins, with Remarks on the Separation of the Heparin Complement, J. Biol. Chem. **139**: 383-405 (May) 1941.

[12] Bauer[5] reported use of 100 to 150 mg. injected intravenously at intervals not smaller than every four hours. I doubt that such large amounts are necessary.

[13] Magath, T. B.: Technic of Prothrombin Time Determination, Am. J. Clin. Path. (Tech. Supp.) **3**: 187-189 (Sept.) 1939.

The appearance of excessive prothrombin deficiency (less than 10 per cent) is a signal to discontinue Dicumarol therapy temporarily and to resume with smaller doses. If an emergency operation must be performed on a patient who is receiving heparin, discontinuation for two hours or so will permit the blood to return to a normal state of coagulability. If an emergency operation must be performed on a patient receiving Dicumarol, transfusions and large amounts of vitamin K may be given to return the percentage of prothrombin toward normal values.

INDICATIONS FOR ANTICOAGULANT THERAPY

The indications for anticoagulant therapy are as follows: (1) after nonfatal pulmonary embolism to prevent further embolism which may be fatal; (2) for thrombophlebitis and phlebothrombosis, to prevent further venous thrombosis and pulmonary embolism and to lessen the possibilities of resultant chronic venous insufficiency (edema, varices, ulcers and indurative cellulitis); (3) for sudden arterial occlusion (embolism and thrombosis) to prevent arterial thrombosis which results from ischemia of the intima (distal to the area of occlusion) and to prevent thrombosis of an artery at the site of embolectomy, if a surgeon removes the embolus;[16] (4) to avoid thrombosis in cases of traumatic injury to blood vessels; (5) as prophylaxis against postoperative venous thrombosis in cases of previous thrombosis or embolism, because of the increased probability of further venous thrombosis or embolism, and (6) after abdominal hysterectomy because 4 per cent of patients who undergo this operation have postoperative venous thrombosis or embolism and 0.7 per cent die of fatal embolism.[17] Anticoagulant therapy may be used prophylactically after other operations.

POSSIBLE INDICATIONS FOR USE OF ANTICOAGULANTS

The possible value of the use of anticoagulants in acute myocardial infarction, congestive heart failure and irregularities of the heart beat, particularly auricular fibrillation, is being studied by a number of investigators. The recent reports of reduction of the mortality rate in acute myocardial infarction and of embolic phenomena are most exciting.[18] Further studies are necessary before there can be a final opinion. The usefulness of anticoagulant therapy in the chronic occlusive arterial diseases has not been satisfactorily evaluated. Anticoagulants seem to have no value in the treatment of subacute bacterial endocarditis.

CONDITIONS IN WHICH ANTICOAGULANTS ARE TO BE USED CAUTIOUSLY OR NOT AT ALL

In the following conditions anticoagulants are to be used cautiously or not at all: (1) ascorbic acid and vitamin K deficiencies or hepatic disease, because anticoagulants probably are not needed and use of them may magnify the tendency to bleed, with disastrous results; (2) renal insufficiency, because the effect of Dicumarol is greatly enhanced and prolonged; (3) blood dyscrasias with impairment of normal mechanism for the prevention of bleeding, because anticoagulants magnify the tendency to bleed; (4) recent surgical operations on the brain or spinal cord, because even a small amount of bleeding in these regions may be disastrous, and (5) ulcerative lesions or open wounds, because of magnification of the tendency to bleed.

THE DANGER OF BLEEDING AS A RESULT OF THE USE OF ANTICOAGULANTS

The sole danger from the judicious use of anticoagulants is hemorrhage. That this danger is minimal when heparin is used is supported by my own observations and well substantiated by the report of Bauer,[5] who stated: "Puerperal bleeding was not influenced, and existing traumatic hematomas were not enlarged. We were not afraid of heparinizing even patients bleeding from gastric ulcers; nevertheless, some caution should probably be exercised in cases of that kind." Murray and Best[19] reported that heparin may be administered one to three hours after operation with little danger from hemorrhage if thorough hemostasis is practiced. It is well to emphasize that if anticoagulants are to be used, heparin should be used in preference to Dicumarol whenever the physician is not well informed about the use of the latter or when reliable laboratory facilities are not available.

Inasmuch as its effect on the coagulation of the blood disappears about two to three hours after discontinuation of the injection of heparin, there is usually no need to attempt to reduce the artificially induced prolongation of the coagulation time which results from the intravenous injection of this preparation. Two of my associates, Drs. Parkero and Koole, have had considerable experience with protamine, which has been found to counteract promptly the effect of heparin.

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[14] (a) Overman, R. S.; Stahlmann, M. A., and Link, K. P.: Studies on the Hemorrhagic Sweet Clover Disease: VIII. The Effect of 2-Methyl-1,4-Naphthoquinone and l-Ascorbic Acid upon the Action of 3,3'-Methylene-[illegible] on the Prothrombin Time of Rabbits, J. Biol. [illegible] 1942. Shapiro, S.; Redish, M. H., and [illegible] Studies: III. Effect of Vitamin K upon Hypoprothrombinemia Induced by Dicumarol in Man, Proc. Soc. Exper. Biol. & Med. **52:** 12-15 (Jan.) 1943. Davidson, C. S., and MacDonald, H.: The Effect of Vitamin K Oxide on Hypoprothrombinemia Induced by Dicumarol, New England J. Med. **229:** 353-355 (Aug. 26) 1943. (b) Lehmann.[10b]

[15] Cromer, H. E., Jr., and Barker, N. W.: The Effect of Large Doses of Menadione Bisulfite (Synthetic Vitamin K) on Excessive Hypoprothrombinemia Induced by Dicumarol, Proc. Staff Meet., Mayo Clin. **19:** 217-223 (May 3) 1944.

[16] Barker, N. W.; Hines, E. A., Jr., and Kvale, W. F.: The Treatment of Acute Arterial Occlusion of the Extremities with Special Reference to Anticoagulant Therapy, Minnesota Med. **29:** 250-252 (March) 1946.

[17] Barker, N. W.; Nygaard, K. K.; Walters, W., and Priestley, J. T.: A Statistical Study of Postoperative Venous Thrombosis and Pulmonary Embolism: III. Time of Occurrence During the Postoperative Period, Proc. Staff Meet., Mayo Clin. **16:** 17-21 (Jan. 8) 1941; I. Incidence in Various Types of Operations, ibid. **15:** 769-773 (Dec. 4) 1940.

[18] Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130:** 398-403 (Feb. 16) 1946. Nichol, E. S., and Page, S. W., Jr.: Dicumarol Therapy in Acute Coronary Thrombosis; Results in Fifty Attacks, with Review of Data on Embolic Complications [illegible] Infarction, J. Florida M. A. **32** [illegible] Experiences with Dicumarol (3,3'-[illegible] Treatment of Coronary Thrombosis with Myocardial Infarction, Am. Heart J. **32:** 20-31 (July) 1946.

[19] *Murray, D. W. G., and Best, C. H.: Heparin and Thrombosis:* The Present Situation, J. A. M. A. **110:** 118-119 (Jan. 8) 1938; The Use of Heparin in Thrombosis, Ann. Surg. **108:** 163-177 (Aug.) 1938.

It is deplorable that serious and fatal bleeding has been reported to follow the uncontrolled use of Dicumarol. This production of hemorrhagic sweet clover disease of animals in man is a reflection not on Dicumarol but on the method of its use. It is not enough that the drug be used; it must be used expertly and only when determination of the prothrombin time, at daily intervals, is wholly reliable. Our own experiences in the use of Dicumarol in 1,686 postoperative cases have indicated that minor hemorrhage (epistaxis, hematuria, petechiae and ecchymoses) occurs in 3.1 per cent. When these complications occur in minor degree, vitamin K in amounts of 30 to 60 mg. is injected intravenously, provided studies of prothrombin indicate that the values for prothrombin are approximately 10 per cent or less. In these instances it is not desired to return the prothrombin value to normal but only to return it to values somewhat less than 30 per cent. Treatment with Dicumarol may be resumed cautiously. If the complications are serious, and this is seldom true, it may be necessary to give enough vitamin K to return the values for prothrombin to normal. If desired, treatment with Dicumarol may be resumed cautiously when bleeding has ceased. In our series of 1,686 postoperative cases major bleeding (usually from operative wounds) occurred in 1.9 per cent of the patients treated. Two patients of this entire group died as a result of hemorrhage.

REPORT OF CASES

Case 1.—Resection of the duodenum of a woman aged 41 was performed because of carcinoma of the duodenum. Dicumarol was administered over a period of fifteen postoperative days. The highest prothrombin time was 36 seconds, representing about 20 per cent of normal prothrombin. On the day before fatal hemorrhage into the gastrointestinal tract and from the stab wound in the abdomen, the prothrombin time was 28 seconds, representing about 30 per cent of normal prothrombin. Necropsy was not performed. Examination of the specimen removed at operation showed carcinomatous involvement of the peritoneum and lymph nodes.

Fatal hemorrhage occurred in spite of adequate control of administration of Dicumarol. Unfortunately, necropsy was not performed; the source of the bleeding was not determined; bleeding may have been unrelated to treatment with the drug. This experience emphasized the need for caution in administering Dicumarol to patients who have had surgical operations on the gastrointestinal tract.

Case 2.—A man aged 46 was operated on in February 1946 for excision of an area of gastrojejunitis with jejunal ulcer and gastrocolic fistula. A gastroduodenostomy was performed (von Haberer-Finney modification), and the opening in the colon was closed. The patient was dismissed from the hospital on the fifteenth postoperative day, but that same day he noted soreness in the left calf. Three days later he was readmitted to the hospital for venous thrombosis of the left calf; ulcer-like symptoms were observed. Treatment with Dicumarol was begun. Two days later the prothrombin time was 58 seconds, and the following day it was 72 seconds. Synthetic vitamin K was given. The following day the prothrombin time was 29 seconds. One day later there was evidence of hemorrhage into the gastrointestinal tract. Synthetic vitamin K and transfusion of blood were given. A diagnosis of recurrent hemorrhagic duodenal ulcer was made. The prothrombin times for successive days were 44, 32, 28, 24, 23, 21 and 23 seconds. Bleeding into the gastrointestinal tract continued in spite of repeated transfusions of blood and injections of vitamin K and the maintenance of essentially normal prothrombin times. Death from hemorrhage occurred on the tenth day of bleeding. At necropsy a recent duodenal ulcer was found, which had eroded an artery; there was evidence of hemorrhage into the duodenum.

It seems improbable that Dicumarol was responsible for the fatal outcome in this case. The bleeding was caused by a new ulcer in the duodenum, which had eroded into an artery in the duodenum. Bleeding had continued in spite of the administration of large amounts of vitamin K and large and repeated transfusions of blood, which had corrected essentially the prothrombin deficiency. Nonetheless this experience emphasized the need for caution in the administration of Dicumarol to patients who have gastrointestinal lesions.

It has been our custom to inject 30 to 60 mg. of a preparation of synthetic vitamin K intravenously and to transfuse the patient if serious bleeding occurs; the injection of vitamin K may be repeated at four to six hour intervals, two to three times as necessary. If bleeding is minimal, vitamin K only is given. When bleeding stops, treatment with Dicumarol may be resumed cautiously if the need for anticoagulants still exists.

THE EVIDENCE THAT HEPARIN AND DICUMAROL PREVENT INTRAVASCULAR THROMBOSIS

Murray and Janes [20] have shown that when heparin was not used glass tubes bridging the gaps in arteries of dogs became plugged in twenty minutes on the average. When heparin was used these cannulas remained patent for periods up to seventy-six hours in most cases. Murray and Best [19] concluded that "experimentally, heparin will prevent thromboses in blood vessels." Murray used heparin after operations on 444 patients. Postoperative pulmonary embolism did not occur. Twenty-nine patients who had pulmonary embolism were treated; all survived.[21] Similar results were reported by McClure and Lam.[22] Crafoord and Jorpes [23] treated 325 patients postoperatively with heparin. Thromboembolic phenomena did not occur, although such complications occurred in 9 per cent of a control series of 1,111 similar cases. Bauer reported a study of 209 cases of acute thrombosis of deep veins of the leg in which heparin was used in treatment. The mortality rate was reduced to a tenth, the length of stay in bed was reduced from about forty days to less than five days and the incapacitating after-effects apparently did not occur in the majority of cases.[5] These studies emphasize that interference with the normal mechanism of coagulation of the blood by the administration of heparin will prevent or decidedly inhibit intravascular thrombosis of blood.

Studies on the thrombus-producing effect of monoethanolamine when injected into veins have indicated that the use of Dicumarol reduces the incidence of such

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20. Murray, G., and Janes, J. M.: Prevention of Acute Failure of Circulation Following Injuries to Large Arteries: Experiments with Glass Cannulae Kept Patent by Administration of Heparin, Brit. M. J. **2:** 6-7 (July 6) 1940.

21. Murray, G.: Heparin in Surgical Treatment of Blood Vessels, Arch. Surg. **40:** 307-325 (Feb.) 1940.

22. McClure, R. D., and Lam, C. R.: Experiences in Heparin Administration, J. A. M. A. **114:** 2085-2089 (May 25) 1940.

23. Crafoord, C., and Jorpes, E.: Heparin as a Prophylactic Against Thrombosis, J. A. M. A. **116:** 2831-2835 (June 28) 1941.

thrombosis from 50 per cent to 6.6 per cent.[24] Bollman and Preston[25] showed that the tendency toward thrombosis in glass or metal cannulas interposed in arteries was greatly reduced when animals were given Dicumarol. Dale and Jaques[26] found that the administration of Dicumarol inhibited thrombosis in extracorporeal glass chambers connected with segments of the veins of dogs. Richards and Cortell[27] found that venous thrombosis produced experimentally by intravenous injection of a sclerosing soap solution was inhibited by the administration of Dicumarol.

There are a number of reports on prevention of venous thrombosis or prevention of extension of existing venous thrombosis of man as a result of treatment with Dicumarol.[28] The number of cases of my associates and me has increased gradually, and more recent experience supports the conclusion presented in earlier reports.[29] These indicate that administration of Dicumarol to man will prevent venous thrombosis or will limit its extension and prevent pulmonary embolism in most cases.

RESULTS OF CLINICAL STUDIES WITH DICUMAROL AT THE MAYO CLINIC

My associates and I have used Dicumarol in 1,686 surgical cases. The results are summarized in tables 2 to 4.

Table 2.—*Two Hundred and Eighty Cases of Postoperative Thrombophlebitis*

	Cases	
	Expected if Anticoagulants Were Not Used *	Occurred
Subsequent venous thrombosis or pulmonary embolism	68	8†
Fatal pulmonary embolism	16	0

* In this table and in tables 3 and 4 the expected cases are calculated on the basis of the rates given in the reports of Barker, Nygaard, Walters and Priestley.[17]

† One case of minor pulmonary infarction and 7 cases of thrombophlebitis; in 3 cases the percentage of prothrombin in the blood was more than 30.

In addition to the cases summarized in tables 2 to 4, 114 patients were treated with Dicumarol after surgical intervention because they had had venous thrombosis or pulmonary embolism previously. In 284 more operative cases the drug was used prophylactically. In no case did venous thrombosis or pulmonary embolism result. We have no figures to indicate the expected incidence of these events before the anticoagulants were used.

Our own studies indicate that treatment with Dicumarol is effective in preventing venous thrombosis or in preventing its extension once it has occurred. According to previous studies and this one, the lives of 73 patients have been saved by the prevention of fatal pulmonary embolism. Two hundred and eleven patients were spared from venous thrombosis and pulmonary embolism. No complete accuracy is claimed for these figures, inasmuch as they are derived from study of two groups of patients, with all the inaccuracies inherent in this method of contrasting results. Nonetheless, the results are striking and indicative of a beneficial effect.

Table 3.—*Seven Hundred and Sixteen Cases of Abdominal Hysterectomy*

	Cases	
	Expected if Anticoagulants Were Not Used	Occurred
Venous thrombosis or pulmonary embolism	29	2*
Fatal pulmonary embolism	5	0

* Both minor thrombophlebitis only.

This report does not indicate that Dicumarol is wholly and entirely effective in preventing venous thrombosis or the extension of already existing venous thrombosis. A perfect record would be almost too good to believe. It is recognized that venous thrombosis represents the summation of contrary effects of two processes: the stimulus to intravascular thrombosis and the thrombosis-deterring effect of an anticoagulant. When the stimulus to intravascular thrombosis is great, the countereffect of Dicumarol may not be sufficiently great to prevent intravascular thrombosis. Indeed, it has been noted that superficial phlebitis may occasionally provoke venous thrombosis in the presence of a satisfactory effect of Dicumarol. A similar experience has been noted in studies on animals.[24]

Some physicians have objected to the use of Dicumarol on the basis that it may not profoundly alter the coagulation time and should not therefore prevent intravascular coagulation. It must be remembered that studies of extravascular coagulation do not simulate the process of intravascular coagulation. Indeed, the various methods for determining extravascular coagulation time give widely divergent results, not because the property of coagulation of blood has been inherently modified but because the intravascular environment differs from that in the glass tubes used to determine coagulation time. Also it is well to remember that coagulation time, per se, may be a crude method for measuring the tendency of blood to clot. It seems apparent to me that the experimental and clinical studies show beyond the shadow of doubt that heparin and Dicumarol are effective in the prevention of intravascular thrombosis.

Table 4.—*Two Hundred and Ninety-Two Cases of Pulmonary Embolism in Which Anticoagulant Therapy Was Used*

	Cases	
	Expected if Anticoagulants Were Not Used	Occurred
Subsequent venous thrombosis or pulmonary embolism	127	3
Fatal pulmonary embolism	53	1*

* Occurred after prothrombin time had returned to normal.

ANTICOAGULANTS VERSUS LIGATION OF VEINS

When venous thrombosis has occurred treatment is required for two purposes: to prevent further thrombosis and to prevent pulmonary embolism. There are two currently competitive programs of treatment: ligation of veins and the use of the anticoagulants, heparin and Dicumarol. Neither program of treatment is generally considered superior to the other, although each has its proponents who see a little virtue in the other. The proponents of venous ligation believe that this simple method of interrupting the continuity of a vein prevents the transportation of a clot by the blood. That is true for the single vein which is ligated. Those who see less virtue in the ligation of veins believe that thrombi may originate in other veins and thus cause pulmonary embolism; indeed the figures on venous ligation indicate that this is true. There is a report of ligation of peripheral veins in 39 cases. After ligation pulmonary embolism occurred in 9 cases and 3 patients died of pulmonary embolism. In 5 of the 9 cases, the emboli in a pulmonary artery originated from the leg opposite the one in which the vein was ligated.[30] An earlier report indicated that 11 cases of pulmonary embolism followed ligation of femoral veins of 202 patients.[31] Nevertheless this operative procedure has definite value: However, ligation of veins does not stop venous thrombosis; it simply prevents pulmonary embolism from originating in the distal part of the ligated vein. Ligation of the inferior vena cava is admittedly an effective measure, but the question relative to the advisability and necessity of such a "major" procedure has not been satisfactorily answered. Disaster may even follow ligation of a femoral vein for venous thrombosis.[32] Evans [33] has reviewed objections to the ligation of veins.

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[24] Thill, C. J.; Stafford, W. T.; Spooner, M., and Meyer, O. O.: Hemorrhagic Agent 3,3'-Methylenebis [illegible] Its Effect in Prevention of Experimental Throm[illegible] [illegible] Biol. & Med. **54:** 333-334 (Dec.) 1943.

[25] Bollman, J. L., and Preston, F. W.: The Effects of Experimental Administration of Dicoumarin: 3,3'-Methylene-Bis-(4-Hydroxycoumarin), J. A. M. A. **120:** 1021-1024 (Nov. 28) 1942.

[26] Dale, D. U., and Jaques, L. B.: The Prevention of Experimental Thrombosis by Dicoumarin, Canad. M. A. J. **46:** 546-548 (June) 1942.

[27] Richards, R. K., and Cortell, R.: Studies on Anticoagulant 3,3'-Methylene-Bis-(4-Hydroxycoumarin), Proc. Soc. Exper. Biol. & Med. **50:** 237-242 (June) 1942.

[28] Footnotes 8, 9 and 10.

[29] Footnotes 8 and 9.

My associates and I have had little experience with ligation of veins for the prevention of pulmonary embolism. My experience does not permit evaluation of this procedure. However, a study of published reports indicates that the judicious and expert use of anticoagulants is at least as effective in preventing pulmonary embolism as is ligation of veins Moreover, the use of anticoagulants usually prevents further venous thrombosis throughout the body, while ligation of veins is aimed chiefly at preventing pulmonary embolism.

It is my current opinion that the expert use of anticoagulants produces results which are better than those which follow ligation of veins. There is one exception to this statement. When venous thrombosis and pulmonary embolism occur repeatedly over a considerable period, weeks or months for example, ligation of a vein may be superior to anticoagulant therapy because of the difficulty of administering anticoagulants over a long period.

It is not the purpose of this presentation to assess finally the respective merits of ligation of veins and anticoagulants; that can be accomplished only after further experience. The use of both measures has brought interest in venous thrombosis to a place of desirable prominence. It is safe to predict that medicine stands on the threshold of new and satisfying experiences in this field. Sometime in the future there may be no valid reason why the coagulability of the blood in man may not be maintained indefinitely and safely at a level which will not permit intravascular thrombosis. Then medicine may look backward with pleasure instead of forward with anticipation.

CONCLUSIONS

1. Students of coagulation of the blood must give more attention to the desirability of impairing the ability of blood to clot within blood vessels. This statement is emphasized by the observation that hemorrhage causes many fewer deaths than intravascular coagulation of the blood.

2. Experimental and clinical studies indicate that coagulation of blood may be impaired by anticoagulants with the result that intravascular thrombosis usually can be prevented; hemorrhage occurs infrequently when anticoagulants are used expertly.

3. Heparin and Dicumarol (3,3′-methylene-bis-[4-hydroxycoumarin]) are fairly satisfactory anticoagulants, but they have deficiencies which make desirable a continued search for an ideal anticoagulant for clinical use.

4. Hemorrhage is the sole danger from the expert administration of these drugs. Minor hemorrhage occurred in 3.1 per cent and major hemorrhage in 1.9 per cent of 1,686 postoperative cases. Two deaths occurred from hemorrhage, but in 1 case bleeding was obviously not caused by Dicumarol, and there was doubt that the drug was responsible for bleeding in the other case.

5. In 280 cases of postoperative venous thrombosis there were but 8 cases of subsequent venous thrombosis (68 cases would have been expected without Dicumarol therapy) and no cases of fatal embolism (16 cases would have been expected without such treatment).

6. In 716 cases of abdominal hysterectomy there were but 2 cases of venous thrombosis (29 cases would have been expected without the use of Dicumarol) and no cases of fatal pulmonary embolism (5 would have been expected without the use of this drug).

7. In 292 cases of postoperative pulmonary embolism 3 cases of subsequent venous thrombosis occurred (127 cases would have been expected without Dicumarol therapy). Fatal pulmonary embolism occurred once (53 cases of fatal pulmonary embolism would have been expected without the administration of this anticoagulant).

8. The overall experience in this group of 1,686 cases indicates that approximately 73 lives were saved by the use of Dicumarol and that 211 patients were spared the experience of venous thrombosis and pulmonary embolism.

9. The respective virtues of venous ligation and anticoagulant therapy have not been determined in a manner which is wholly satisfactory. With one minor exception it appears that the expert use of anticoagulants produces results which exceed those which follow ligation of veins.

10. Medicine is on the threshold of new and satisfying experiences with methods for the prevention and treatment of intravascular thrombosis.

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[30] Veal, J. R., and Hussey, H H. Surgery of Deep Venous Thrombosis of Lower Extremity, Surgery **17:** 218 231 (Feb) 1945

[31] Allen, A W , Linton, R. R , and Donaldson, G A Thrombosis and Embolism Review of Two Hundred and Two Patients Treated by Femoral Vein Interruption, Ann Surg **118:** 728 740 (Oct) 1943

[32] Dennis, C : Disaster Following Femoral Vein Ligation for Thrombophlebitis Relief of Fasciotomy; Clinical Case of Renal Impairment Following Crush Injury, Surgery **17:** 264 269 (Feb) 1945

[33] Evans, J. A.. Anticoagulation Therapy of Postoperative Venous Thrombosis and Pulmonary Embolism, S Clin North America **24:** 534 537 (June) 1944

SPONTANEOUS REGENERATION OF SEVERED NERVES

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It has long been known by physiologists and anatomists that it is more difficult to prevent regeneration of a severed nerve or one from which a large segment may have been removed than to obtain regeneration of the severed nerve after suture. This has been found to be true whatever measures may have been taken to prevent regeneration.

This is also well known to physicians who have attempted to prevent regeneration of the trifacial nerve when, after section of its peripheral branches, the proximal end may have been injected with alcohol or the nerve avulsed from its bony canal and the canal filled with bone plugs.

The failure to prevent regeneration of the distal segment of a severed nerve led some authors to attempt to refute the wallerian doctrine. Among the first were Philipeaux and Vulpian.[1] They performed experiments on young mammals, dogs, guinea pigs and chicks. They excised large portions of the sciatic, median, hypoglossal and other nerves. Months later on exposure of the distal segment of the nerve they found evidence of regeneration, although grossly the ends of the nerve seemed separated. When such a distal segment was stimulated by electrical currents, motor reactions of the muscles supplied by it were observed. On histologic examination numerous newly formed myelinated fibers were found. Finally, when this distal stump was itself resected, it again degenerated. They supposed that the fibers of the peripheral ends of severed nerves in young animals are able to regenerate without connection with their cells of origin. This strange method of regeneration they called "autogenous regeneration."

A number of other investigators repeated these experiments and, having come to the same conclusion, constituted a school of polygenists. Bethe[2] was a particularly strong advocate of this theory. He attempted to prevent regeneration of severed nerves by many devices and found that after "autoregeneration" the muscles of an extremity would contract when the peripheral segment of the nerve was stimulated by electrical currents but not when the proximal segment was so stimulated.

This characteristic was frequently observed during World War I and led a number of observers to espouse the theory of "autoregeneration." Perthes[3] in particular held this characteristic as proof of autoregeneration. Although Foerster[4] stated that he had repeatedly observed that a totally separated peripheral segment of a nerve could promptly be stimulated by electrical current despite the fact that the injury may have occurred as long as one or two years before, Platt[5] observed this in only 6 cases.

Although many others have found evidence of regeneration of the distal segment of an injured nerve when the ends seem to be separated by a gap, the theory of autoregeneration has been amply refuted by anatomists and physiologists. Among these may be mentioned Langley and Anderson, Halliburton, Howell, Huber, Lugaro, Ranson and many others. Ranson[6] has pointed out that nothing short of the complete removal of the entire lumbosacral spinal cord with the associated spinal ganglions can be regarded as effectively preventing actual regeneration from the proximal segment.

Cajal[7] well expressed the generally accepted opinion when he said: "Today no one can doubt that the newly-formed axons in a peripheral stump that has been violently separated from the central stump, cut over great distances, hidden in collodion tubes or folded back between muscles, really proceed from the proximal stump although the difficulties put in their way retard for a few months the arrival of fibers."

The question as to whether in every instance in which there is regeneration in the distal segment the fibers have found their way from the proximal segment or whether in some instances fibers may have broken through from adjacent uninjured nerves cannot be answered.

In some cases, as in 1 described by Perthes, in which the biceps and triceps muscles became innervated through outgrowths from the ulnar and median nerves, respectively, this may be a possibility.

In this study we propose to show that, far from being the exception, regeneration of a distal segment of an injured nerve, the segments of which are separated by gaps, is almost the rule provided a sufficient length of time has elapsed after injury. Proof that regeneration of the distal segment has occurred may be adduced by the recovery of voluntary motion exclusive of supplementary movement, recovery of sensation in the isolated supply of a nerve, histologic evidence of fibers in the distal segment, response of muscles to direct electrical stimulation of the nerve and such characteristics of response of muscle to electrical stimuli as exclude the state of complete denervation. These are: a chronaxia of less than 15 milliseconds or response of the muscle to faradic stimulation and, particularly, a galvanic tetanus ratio of more than 1.0. We[8] have previously shown that when some time after section of a nerve the muscles which it supplies are completely denervated and from the functional point of view consist of muscle alone the galvanic tetanus ratio is 1.0. As may be remembered, the galvanic tetanus ratio is the ratio between the threshold in milliamperes for the liminal response to galvanic stimulus of infinite duration and the threshold for sustained tetanus throughout the duration of the flow of a con-

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Aided by a grant from the National Foundation for Infantile Paralysis, Inc.

Read before the Section on Nervous and Mental Diseases at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

From the Department of Nervous and Mental Diseases, Northwestern University Medical School (Drs. Pollock, Golseth, Mayfield, Arieff and Liebert), and the Percy Jones General Hospital (Captain Oester).

The work described in this paper was carried on under a contract which had initially the Office of Scientific Research and Development and subsequently the Office of the Surgeon General, United States Army, as financial sponsors.

[1] Philipeaux, J. M., and Vulpian, A.: Compt. rend. Soc. de biol. **11**: 343, 1859.

[2] Bethe, A.: Neurol. Centralbl. **22**: 60, 1903.

[3] Perthes, G.: Deutsche med. Wchnschr. **45**: 897, 1919.

[4] Foerster, O., in *Bumke, O., and Foerster, O.: Handbuch der Neurologie*, Berlin, Julius Springer, 1929, supp., vol. 2, no. 2, p. 1164.

[5] Platt, H.: The Surgery of the Peripheral Nerve Injuries of Warfare, Bristol, John Wright & Sons, Ltd., 1921.

[6] Ranson, S. W.: J. Comp. Neurol. **22**: 487, 1912.

[7] Ramón y Cajal, S.: Degeneration and Regeneration of the Nervous System, London, Oxford University Press, 1928.

[8] Pollock, L. J.; Golseth, J. G., and Arieff, A. J.: Surg., Gynec. & Obst. **81**: 660-666 (Dec.) 1945.

stant current. In instances in which we were successful in preventing neural regeneration the galvanic tetanus ratio remained 1.0 for as long as a year; hence, it is our opinion that a muscle whose galvanic tetanus ratio is above 1.0 is not completely denervated. If one assumes that a galvanic tetanus ratio above 1.0 is indicative of some regeneration, then it should follow that in such a case when the ends of the segments of nerves separated by a gap are resected and sutured, the muscle should after a suitable time denervate and the galvanic tetanus ratio become 1.0. Inasmuch as regeneration and degeneration proceed simultaneously, there are instances in which the galvanic tetanus ratio may never be found to be 1.0. In this study we shall nevertheless restrict ourselves to cases in which the galvanic tetanus ratio became 1.0 after suture although it was above 1.0—often as high as 5.0—before suture. When, because of evidence previously described, it was considered that neurotization of the distal segment had occurred despite the presence of a gap, we were able in many instances to confirm this opinion by histologic study.

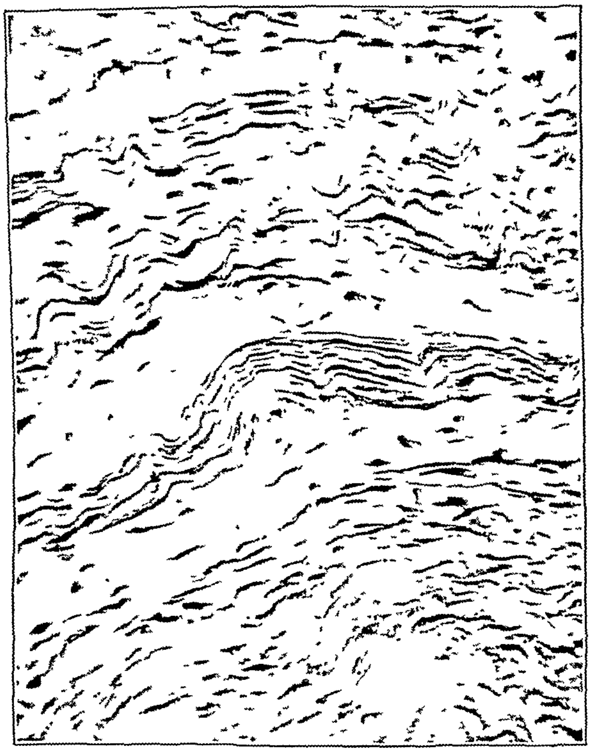

Fig. 1.—Radial nerve showing small neurofibrils along the periphery of the Schwann sheath cells

In most previous investigations myelin sheath stains and the Bielschowsky method were used to identify nerve structures in the peripheral segment. In our series the Bodian-Silver impregnation method was chosen for the study of neurofibrils because of the uniform results obtained with this method and because uniform sections may be cut from the paraffin-embedded material. The Bodian preparations were counterstained with Van Gieson fuchsin, which allows a good differentiation between the red-stained connective tissue and the darkly stained fibrillary structures.

In the majority of cases thin, fine, fibrillary structures could be seen lying closely adjacent to the Schwann sheath cells. They were darkly stained, and, in spite of their close relationship to the elongated, often swollen and sometimes vacuolated Schwann cells, these structures could easily be identified as being separated from the cellular structures. Because of their position and their staining qualities it seemed reasonable to assume that these fibrillary structures were newly-formed neurofibrils. They were finer and thinner than those found in the proximal stump and they usually had a rather irregular course, so that often only small segments of these fibrils could be seen without moving the focus of the microscope.

EVIDENCE FOR SPONTANEOUS REGENERATION

Among the cases selected for a study of the kinetics of stimulus at the Percy Jones General Hospital were 84 instances in which at operative intervention the ends of severed nerves were separated by gaps up to 9 cm. in length. Only in 1 case, that of an injury to the median nerve, was stimulation of the distal segment effective in producing motion in some of the muscles supplied by the nerve.

In 12 cases the chronaxia was less than 15 milliseconds. Of these, 3 were cases of injury to the peroneal nerve; 4 radial; 1 tibial, and 4 ulnar.

In 1 such case of injury to the radial nerve, many Schwann sheath cells arranged pole to pole were seen and a large amount of scar tissue with many lymphocytes was observed. The section showed axon tubes formed by Schwann sheath cells, most of which appeared empty. However, in many places fine, black, thin fibrils could be seen in the structures. They were adjacent to the Schwann cells but definitely separated from them. Especially in the lower end of the nerve structures such fine neurofibrils could be found crisscrossing and invading the surrounding structures (fig. 1). In another case no definite neurofibrils were seen, and in still another a few rudimentary fibers could be seen on cross section as well as extensive formation of Schwann sheath cells.

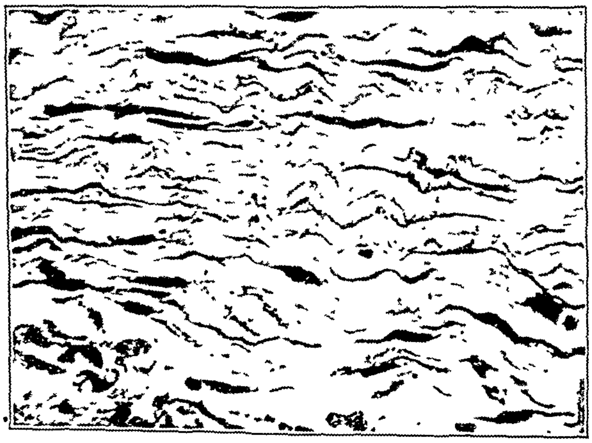

Fig. 2.—Ulnar nerve, with small neurofibrils streaming longitudinally along the Schwann sheath cells (Bodian fuchsin stain).

In 6 cases the muscle supplied by the severed nerve responded to faradic stimulation. Of these, 1 was a case of injury to the median nerve, 3 ulnar, 1 peroneal and 1 radial.

Unfortunately, material was available for histologic study in but 1 instance of injury to the ulnar nerve. In this case pain to deep pressure on the tip of the little finger had also returned. The distal segment was composed of innumerable Schwann sheath cells arranged pole to pole. Many fine fibrils could be seen streaming through the tissue along the Schwann sheath cells (fig. 2).

Of all 69 cases, in only 3 was the galvanic tetanus ratio 1.0. In the other cases the galvanic tetanus ratio was above 1.0, and in some as high as 29.0. In 46 cases examinations of response to electrical stimuli were made at various intervals after resection of the ends of the nerve and suture. In many of these we were unable to show a fall in the galvanic tetanus ratio to 1.0, although in most a considerable fall from the higher preoperative ratio was seen. However, in 18 cases in which the galvanic tetanus ratio had been above 1.0 before operative intervention, after some time it fell to 1.0. In these 18 cases the range of the galvanic tetanus ratio before operation was from 1.6 to 5.8 with a median of 2.5 (fig. 3). There were 4 cases of injury to the median nerve, 4 ulnar, 4 peroneal, 4 radial and 2 tibial. On later examination after regeneration had occurred, the galvanic tetanus ratio again rose, as had been expected. This evolution of changes in the galvanic tetanus ratio (from that characteristic for muscle with varying degrees of innervation to that characteristic of complete denervation, followed by a high galvanic tetanus ratio characteristic of regeneration and ending in many cases with return of motion and sensation) seems to us to constitute proof that severed nerves with separated ends spontaneously regenerate to varying degrees. *Histologic* material was available in 6 of these cases, in all of which varying degrees of development of neurofibrils could be seen in the distal segment. In 1 instance of injury to the median nerve the distal end showed a great amount of scar formation; innumerable elongated Schwann cell elements were present. Along these cells a large number of small fibrils, darkly stained, could be seen. These fibers were *exceptionally fine* and were attached to the Schwann cells but definitely distinct from them (fig. 4).

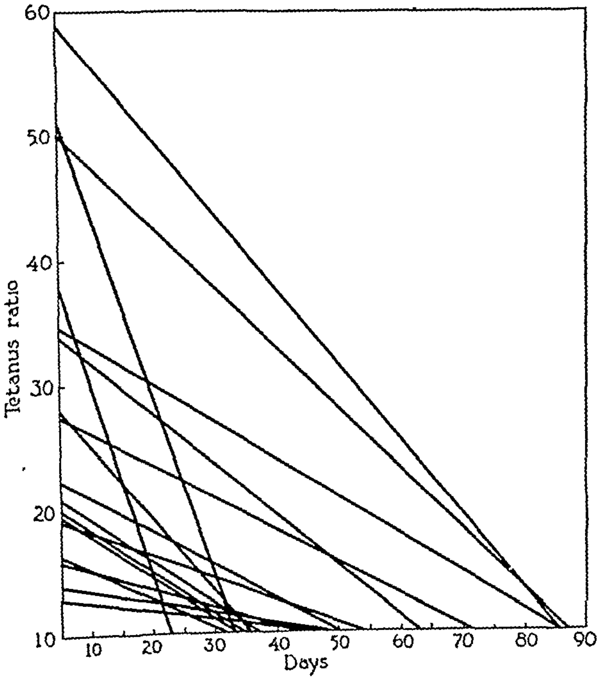

Fig. 3.—Gaps in severed nerves; comparison of preoperative tetanus ratio and denervation of 1.0 at various days after operative intervention.

There were 3 cases of lesions of the ulnar nerve. In 1 the distal part showed a large amount of scar formation. Some neural structures could also be seen which were definitely compressed. A few fine fibrils were present, which reminded one greatly of neurofibrils. They were adjacent to the Schwann sheath cells, were dark and impregnated with black and could be definitely distinguished from the rather plump Schwann cells. In another a large number of Schwann sheath cells were present in the distal segment. They were arranged pole to pole and formed empty tubes. A few fine neurofibrils could be seen in the tissue. They were short and stained a dark black. In the third the distal segment was decidedly small and contained many muscle fibers. In the periphery fine fibrils, which were only lightly stained, could be seen.

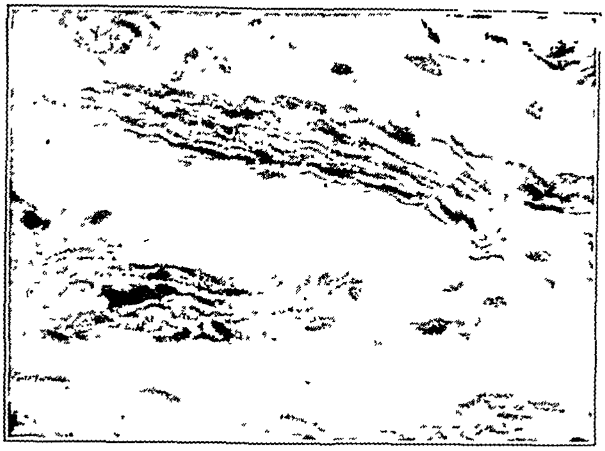

Fig. 4.—Median nerve showing small darkly stained neurofibrils in part of the distal stump.

There were 2 cases of injury to the peroneal nerve. In 1 the peripheral segment showed a diffuse arrangement of Schwann sheath cells. In one area Schwann sheath cells were arranged pole to pole, and fine black fibrils running longitudinally through the specimen could be seen. These fine fibrils were attached to but definitely distinct from the Schwann sheath cells (fig. 5). In the other case a large amount of scar tissue with many lymphocytic infiltrations was present. On longitudinal section a great number of elongated Schwann sheath cells could be seen. Many of these were lying pole to pole, and because of their elongated form they at times simulated neurofibrils in the Bodian preparation. A large number of such structures were present, in most of which no definite neurofibrils could be *distinguished. These Schwann cells formed* axial tubes which seemed to be empty, but there were definitely several areas in which dark, black fibers not connected with the Schwann sheath cells but only attached to them on the outer margins could be seen (fig. 6).

In only 1 case was there a probability of recovery of voluntary motion in an ulnar lesion.

In 3 cases there was a return of pain to deep pressure of the tips of the index or little finger; of the former, 2 were lesions of the median nerve, and of the latter, 1 involved an ulnar lesion. The histology of the lesion of the ulnar nerve has been described (fig. 2).

COMMENT

Although at operation the ends of severed nerves may have been separated by gaps of some distance, prior to surgical intervention there was evidence that nerve fibers had found their way into the distal segment.

This evidence consisted of return of sensation in a few cases, even of motion in 1 instance, and in such response of muscle to electrical stimulus as is indicative that the muscle is not completely denervated. Among the instances of such response were a number of cases with short chronaxia and response to faradic stimulation. In almost all cases there was found a galvanic tetanus ratio of more than 1.0.

Since we have found that the galvanic tetanus ratio of a completely denervated muscle remains 1.0 for as long as we have observed such a muscle, at times for over a year, we consider that we are on safe ground when we conclude that a galvanic tetanus ratio of over 1.0 is indicative of some neurotization of a muscle.

By a fortunate circumstance of having available to us the data obtained before operation and at intervals afterward, we have been able to show that when the preoperative galvanic tetanus ratio was greater than 1.0, at the expected time for denervation after resection and suture of the ends of the severed nerves the galvanic tetanus ratio fell to 1.0.

This we consider to be sound proof that despite long gaps between the severed ends, nerve fibers find their way into the distal segment and muscle. Whether such regeneration would lead to good functional recovery cannot be answered. It is probable that despite evidence of neurotization of muscle or of even return of sensation and motion, good functional recovery would not take place.

In the majority of cases in which tissue was available for histologic examination newly formed neurofibrils were seen in the peripheral segment.

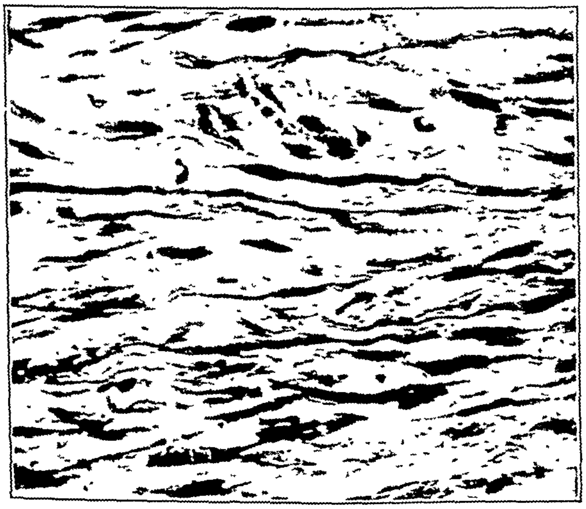

Fig. 5.—Peroneal nerve in which small neurofibrils can be seen attached to the Schwann sheath cells (Bodian fuchsin stain).

In some cases no neurofibrillary structures could be observed. The pathologist, however, was handicapped in the examination of such tissue by the fact that only the most proximal part of the distal stump could be submitted. These structures lying so close to the injured section of the nerve are always surrounded by a tremendous proliferation of connective tissue, and in many cases innumerable lymphocytes are also present. Fine fibrillary structures may conceivably be destroyed in such mediums or may easily escape attention.

It is conceivable that if a section could be made through the more peripheral parts of a severed nerve fibrillary structures might be seen.

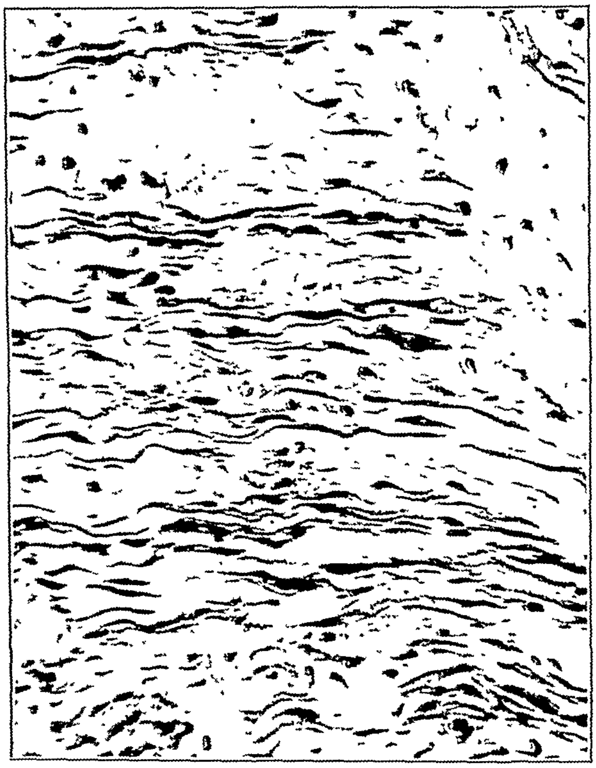

Fig. 6.—Peroneal nerve with small, darkly stained fibrils passing longitudinally along the Schwann sheath cells.

Moreover, there is a suggested possibility that some fibers may break through from adjacent nerves and find their way to the distal segment of the severed nerve being studied.

In electrodiagnosis, evidence of neurotization as shown by short chronaxia, response to faradic current and a galvanic tetanus ratio above 1.0 must be evaluated along with other evidence of recovery in relation to the time which has elapsed since injury. When a sufficient time has elapsed after injury so that maturation would be expected to be well advanced, signs limited to those obtained by electrical stimuli constitute evidence of a minimal neurotization.

CONCLUSIONS

1. At the time that gaps of varying lengths between ends of severed nerves have been found on operative intervention, there has been evidence that fibers had found their way to the distal segment. This evidence consisted of: in a few instances, a return of sensation; in a considerable number, a short chronaxia and response to faradic stimulation of muscle, and in most, a galvanic tetanus ratio of over 1.0.

2. Histologic examination revealed the presence of neurofibrils in the distal segments of the severed nerve.

3. Spontaneous regeneration, probably of insufficient degree to result in recovery of function, occurs to some extent in most instances of severed nerves.

RIGHT-SIDED (REGIONAL) COLITIS

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Eight per cent of all cases of ulcerative colitis of the nonspecific type are regional or right sided in anatomic distribution. They represent a distinctive subgroup, inasmuch as by sigmoidoscopic examination the rectum is free of disease. In this subgroup the pathologic process begins and is commonly limited to a segment or segments of the proximal colon; its life history is characterized by a progressive march to the left, until by skip lesion or by continuity the whole colon from cecum to sigmoid may become interruptedly or continuously involved.

Clinically right-sided or regional or segmental colitis is less severe in its local signs and symptoms than is universal or left-sided colitis with its predominantly rectal involvement; that is the diarrhea, the urgency, the straining and the bloody stools are less pronounced. On the other hand, the constitutional manifestations are more apparent and are characterized by fever, often continuous, by manifestations referable to the joints, ocular complications and occasional implication of the valves of the heart.

Table 1.—*Right-Sided (Regional) Colitis; Seventy-Seven Cases to September 1945*

Sex			
Male	Female	Age: 1 to 60 Years	Cases
32	45	1 to 10	1
		10 to 20	17
		20 to 30	33
		30 to 40	14
		40 to 50	11
		50 to 60	1
	Average age	27.3 years	

Table 2.—*Anatomic Distribution of Disease*

Right-sided (cecum anc	22
Regional (transverse;	16
Diffuse (cecum to sigı	39
Involvement of terminal ileum..................	33

Segmental colitis is progressive in nature and in anatomic distribution, but lends itself well to surgical approach in the nature of short-circuiting procedures followed by resection of the diseased proximal areas.

Segmental colitis without involvement of the rectum, while not a new entity, has not received the clinical attention and the recognition that the subject deserves. Bargen and Weber[1] had reported 23 such instances in 1930, Crohn and Berg[2] 17 cases of regional colitis in 1938, 14 of which had been subjected to surgical procedures. Bargen in 1939 classified as regional in distribution 6.3 per cent of 299 cases of ulcerative colitis observed at the Mayo Clinic up to 1939. Bockus[3] speaks of the regional type of colitis as being estimated generally as between 5 and 15 per cent of all such cases. The office records of one of us (B. B. C.) includes 600 cases of ulcerative colitis of which 48 or exactly 8 per cent are segmental or regional in distribution.

This study comprises 77 cases of right-sided or segmental colitis which have come under our observation between the years 1928 and the present date, namely seventeen years with an assiduous follow-up which necessarily varies by many years but which is accurate and recent and which covers all but 2 of the cases, which have been lost to record. The causation of this form of colitis is as little specific or known as that of colitis in general or of ileitis. Specific pathogens have as yet not been determined. Tuberculosis and syphilis play no role. The Shigella of dysentery has been impugned, but in our cases all cultures of the stool and of the wall of the intestine have been negative and in the few cases in which specific dysentery agglutinins in the serum have been sought, no distinctive titers have been found. The observations and studies of Reimann[4] with the demonstration of a filterable virus in cases of so-called nonspecific or indeterminate diarrhea is to our recollection the first successful attempt to associate a virus with any form of diarrheal disease, exclusive of venereal lymphogranuloma. This work with its suggestive observations points the way to a possible elucidation of the causation of many indeterminate intestinal infections.

The age distribution in segmental colitis is much like that of universal colitis and ileitis. The average age at the time of study has been 27.3 years; the youngest patient was 6 years, and the oldest 60 years of age. All the intervening decades are represented, the main incidence being 33 cases during the third decade of life (20 to 30 years) and 14 cases in the fourth decade (30 to 40 years). Women predominate somewhat in this group, the proportion being 45 women to 32 men (table 1).

ANATOMIC DISTRIBUTION OF THE DISEASE

The pathologic process involves one or many of the segments of the colon in its progressive course except the rectum. Cases in which the rectum has already become involved by late extension have been excluded from this study and have been grouped as instances of universal colitis even though the process originated in the right rather than in the distal colon and the rectal and the rectosigmoid segments. Since surgical intervention has been called on in all of this series to delimit disease before the rectum was implicated, the discussion of anatomic distribution is necessarily restricted to the proximal colon.

Pure "right-sided" colitis involving the cecum and the ascending colon was observed 22 times (table 2). The transverse colon and the descending colon alone were regionally involved in 16 cases. In the remaining 39 instances all of the proximal colons from the cecum to the sigmoid were either continuously involved or were affected by intermittent "skip" lesions. Associated involvement of the terminal ileum was noted in 33 of the cases, these being characterized by excessive severity in the clinical course, the ileitis occurring by backwash extension from the cecal areas of involvement. Rarely is the ileum the sole and primary source of the disease, though often, when first observed, the terminal ileum and several "skip" areas in the proxi-

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Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] Bargen, J. A., and Weber, H. M.: Regional Migratory Chronic Ulcerative Colitis, Surg., Gynec. & Obst. **50:** 964-972 (June) 1930.

[2] Crohn, B. B., and Berg, A. A.: Right-sided (Regional) Colitis, J. A. M. A. **110:** 32-38 (Jan. 1) 1938.

[3] Bockus, H.: Gastroenterology, Philadelphia, W. B. Saunders Company, 1944, vol. 2, p. 570

[4] Reimann, H. A.: Infectious Diseases: Tenth Annual Review of Significant Publications, Arch. Int. Med. **74:** 280-310 (Oct.) 1944.

mal colon are already demonstrable roentgenologically or at exploratory laparotomy. These cases of combined ileitis and colitis (ileocolitis) are among the gravest which have come under our observation.

CLINICAL MANIFESTATIONS OF SEGMENTAL COLITIS

The clinical manifestations of segmental colitis (table 3) are both local in the intestinal tract and general throughout the body. Locally the disease is characterized by diarrhea which is rather moderate in severity, two to three or up to five to seven stools per day, the stools being mushy or liquid or mucoid in character, fresh blood being rarely present. The straining, the urgency and the extreme frequency of defecation with watery sanguineous stools as seen in left-sided or universal colitis are not present, essentially because of the absence of involvement of rectum and the rectal and anal sphincters Occult blood in the stools may or may not be present and is an undependable sign Gross hemorrhage either at the onset or during the course of the disease occurred seven times, the hemorrhage being frank and profuse, but never seriously threatening life and easily controlled by opium derivatives and by liberal administrations of synthetic preparations of vitamin K.

The bowel movements are usually preceded by abdominal pain localized to the lower segments of the abdomen, particularly the right lower quadrant The sequence of events is pain, urge to defecate, defecation and relief, a sequence which is characteristic both for right-sided colitis and for terminal ileitis Intestinal obstruction occurred twice in this series, once as an initial and severe manifestation and once as a sequel to a long-standing case in which there had been refusal over a course of years to accept surgical intervention. In this type of segmental colitis rectal complications are again common (table 4). In this series of 77 cases anal fistulas occurred fifteen times; perirectal abscesses without fistulas four times, and rectovaginal fistulas twice; in 1 of the latter 2 cases the fistula closed spontaneously after a resection of the involved proximal colon. In addition we noted 1 internal fistula (colon to ileum) and 2 fecal fistulas to the anterior abdominal wall. It is of interest to note that though the rectum and the anus are not part of the inflammatory process, still the same prodromal and accompanying complications occur here as in ileitis. The infectious agent is transported from the above involved areas through the sigmoid and the rectum, to lodge presumably in the crypts of Morgagni, there to reenact the sequence of infection, abscesses and fistulas As a rule, perianal or perirectal phenomena do not complicate any of the nervous or functional diarrheas, the allergic diarrheas, or those classed as mucous colitis or irritable bowel. The presence of perianal abscesses or fistulas thus differentiates the infectious and organic from the functional varieties of intestinal disturbances.

General Manifestations—Among the general manifestations of the disease, fever is the most outstanding, being present in 49 out of the 77 cases The febrile course, ranging from 101 to 105 F., is irregular in form, lower in the morning and higher at night and not continuous and sustained but irregular and peaked. It is commonly present and characterizes the cases of more severe disease and signifies phases of active progression of the pathologic process The afebrile type is less severe, is indolent and represents the inactive or chronic nonprogressive phase of the process

The leukocyte count is usually low or only slightly elevated (8,000 or 12,000 to 15,000); rarely, except in cases of extremely toxic disease, is it as high as 25,000. The diarrhea being often minimal if not occasionally absent, these cases of fever of unrecognized origin are frequently confused with those other clinical conditions which are themselves characterized by continuous fever with low white cell counts and few if any localizing symptoms. Segmental colitis in which the diarrhea is minimal or has been overlooked is frequently confused with brucellosis, with chronic rheumatic fever, with subacute bacterial endocarditis, with periarteritis nodosa or with the Libman-Sacks form of disseminated lupus erythematosis. Such a case of long-standing fever with multiple involvements of the joints, simulating for a long period rheumatic fever, has been aptly described in the recent literature by Sprague, Anderson and Aaron.[5]

Segmental colitis is, however, marked by its general symptoms apart from the diarrheal manifestations. These general symptoms consist of single or multiple involvement of joints, by a variety of ocular manifestations, by the occurrence of aphthous ulcerative stomatitis, by erythema nodosum on the extremities, by occasional involvement of the heart valves and again locally by its most frequent complication, perianal fistulas and abscesses

Table 3—*Clinical Manifestations, Forty-Nine Cases*

Temperature range 101 to 105 F	
Gross hemorrhage	7
Intestinal obstruction	2
Erythema nodosum	2
Involvement of joints	
Multiple	8
Single	2
Clubbed fingers	2
Abdominal pain	
Diarrhea	
	1
	2
	2
Uveitis	1
Iritis	2
Corneal ulcer	1
Purpura	1

Table 4—*Associated with Fistulas*

Perianal fistulas	15
Rectovaginal fistulas	2
Internal fistulas	1
Perirectal abscess	4
Fecal fistulas of abdominal wall	2

Involvement of the Joints.—Monarticular, but more commonly polyarticular, involvement is common. Any of many of the larger joints (elbows, knees or ankles) may be affected; the smaller joints, particularly of the hand, are frequently the site of periarticular inflammation The joints are slightly enlarged, tender and painful, the periarticular serous membranes being more implicated than the serosal lining of the joint proper. Involvement of joints, seen frequently in the diffuse or universal type of ulcerative colitis, is not seen in ileitis or in ileojejunitis. Its true prototype is observed in bacillary dysentery; this has long been recognized and has been aptly termed "dysenteric rheumatism." Clubbing of the fingers occurred twice in this series, an occurrence which is significant of serious metabolic and nutritive disturbances.

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[5] Sprague, P H, Anderson, W S, and Aaron, T. H: Long Standing Fever Due to Regional Ileo-Colitis, Am J. Digest Dis 11: 295 296 (Sept) 1944

Ophthalmologic Complications.—One of the less frequent but characteristic complications is involvement of the eye as part of a focal infection. Phlyctenular conjunctivitis, iritis, keratitis and uveitis constitute the commoner forms. All these manifestations of focal infection are also commonly seen in universal ulcerative colitis, either as inflammatory or as avitaminotic sequelae. Where the diarrhea is exaggerated and severe, the eye complications seem of secondary importance. But when, as in this type of colitis, the diarrhea is minimal and fever is the sole evidence of an infection, then the involvement of the eye together with joint inflammations constitute a very significant guide to diagnosis.

Involvement of the Heart.—In 1 case we noted an acute endocarditis, with fever and a blowing systolic apical murmur developing under observation. The temperature was high and the patient prostrated, but the blood culture at the height of the febrile curve was negative. With the patient under intensive therapy with penicillin the temperature dropped to normal within five days and the cardiac murmur disappeared. The segmental colitis persisted in spite of the penicillin and required subsequent surgical resection.

In the cases of more chronic disease one not infrequently meets with old so-called rheumatic valvular heart disease. This occurred twice in our limited series of cases (77) and probably represents a pure coincidence of two unrelated diseases. It would, however, be interesting to hypothecate a specific type of chronic valvular disease of the heart arising solely as a complication of this type of segmental colitis and not related to a previous rheumatic origin.

Cutaneous Manifestations.—In this series erythema nodosum occurred twice, the rash being identical with that on the extremities so commonly observed in the severe types of universal colitis. A purpuric rash was once seen, possibly as a sequel to the use of the sulfonamide drugs. Stomatitis occurred three times.

DIFFERENTIAL DIAGNOSIS

The diagnosis of segmental colitis is simple once one becomes conscious of the fact that colitis can and does occur even though the sigmoidoscopic examination is negative. The roentgenograms taken after a barium enema, when interpreted by an experienced eye, should demonstrate disturbed mucosal pattern, irregular and moth-eaten borders of the outline of the colon, foreshortening of the lumen and absence of haustral markings in the affected segments of the large bowel. The roentgenographic interpretation is usually anatomically accurate; the diseased areas as noted in the roentgenograms correspond anatomically rather accurately with the bowel as seen at time of operation or in the resected specimens.

In the absence of diarrhea, or when the diarrhea is so minimal as likely to be overlooked in the more impressive array of general symptoms the diagnosis of segmental colitis becomes a more difficult problem. When fever, articular manifestations and ocular complications (iritis, uveitis) are the obvious clinical symptoms, it is easy to understand why so frequently these cases are mistaken for chronic rheumatic fever, for Libman-Sacks disease, brucellosis or periarteritis nodosa. The leukocyte count is generally low in all of these clinical conditions; the fever is similarly frequently continuous or irregular in type. But diarrhea, which is not present in any of these complicated symptom complexes, an astute observer will usually find almost regularly present in segmental colitis. The agglutination titer of brucellosis is absent, though the course in segmental colitis may be equally prolonged and irregularly febrile. The cutaneous manifestations of lupus erythematosis disseminatus are absent, as well as the late general involvement of the arteriolar tree and the renal parenchyma. The eosinophilia of periarteritis nodosa is absent as well as the late renal albuminurea and evidences of arteriolar degeneration.

It behooves every internist to watch carefully any case of fever of supposedly unknown origin, lest by disdaining to note the mild diarrhea, the vague abdominal pain or the perianal complications, he may fail to recognize and identify the focus of origin of the disease in this segmental form of ulcerative colitis.

The differentiation of right-sided colitis from terminal ileitis or ileojejunitis is essentially a roentgenographic one. Articular and ocular manifestations are rare in ileitis, fistulas of the abdominal wall common. The "string sign" of terminal ileitis in its classical appearance does not occur in segmental colitis. Combined forms of right-sided colitis (cecum and ascending colon) with extension into the terminal ileum occasionally occur. Presumably the original or parent site of the lesion is the colon, for though the colitis may continue to spread and extend toward the anus the ileitis remains stationary; skip lesions in the upper part of the ileum do not occur.

Recurrences, when seen after surgical resection or short-circuiting procedures invariably occur in the more distant parts of sigmoid and rectum and not in the proximal part of the ileum.

PROGNOSIS AND MEDICAL TREATMENT

In right-sided or segmental colitis the prognosis is "good." Whether by medical or by surgical skill the patient may expect to be restored to good health and efficiency. Of the 75 patients seen and observed in the follow-up, 63 are alive, a total survival rate of 84 per cent (16 per cent mortality).

A group of 19 patients remain under medical or conservative observation; 12 are well, 3 improved and 4 unimproved. These patients chose and insisted on conservative therapy, such treatment consisting of a strict nonroughage diet, bed rest, abstention from vigorous exercise, and the intramuscular injection of large doses of the various vitamin fractions. Three lines of approach in therapy are instituted.

Retention enemas of 1 to 4,000 solution of neutral acriflavin in isotonic solution of sodium chloride, 350 cc. to be retained, are given each night at bedtime. Chemotherapy, that is, the administration of the less soluble sulfonamide compounds, is regularly prescribed. Succinylsulfathiazole in the dosage of 0.25 Gm. per kilogram of body weight is from experience a good therapeutic agent. Thus a man of 130 pounds (59 Kg.) of body weight will take thirty tablets as an initial dose and seven to eight tablets four times daily thereafter. If succinylsulfathiazole proves ineffectual, the new phthalylsulfathiazole, ten tablets daily, should be recommended. There are few local or general reactions to these relatively insoluble sulfonamide derivatives; if the hemoglobin is watched every few days for possible hemolytic anemia, if no rash appears or further rise of temperature, the sulfonamide drug may be indefinitely continued. Finally, intramuscular injections of 1 cc. of crude liver extract and vitamin B complex should be given every other day.

Under this form of conservative therapy 12 of the 19 medically treated patients are well and have remained well. It would be erroneous to conclude from this figure that 12 out of 19 or approximately 63 per cent of the whole group of patients would have shown improvement or cures by such a conservative plan of therapy. All of the larger group of patients who submitted to surgical treatment must be deemed "medical" failures, for they presumably had had previous conservative treatment, submitting to operation only as a recourse from the failure of such an attempted therapeutic regimen.

In the over-all picture, therefore, 12 "cured" out of a total of 77 patients represents a medical success of only 15.6 per cent. Even so, the fact that 12 persons in this relatively small group preferred medical treatment and were restored to health indicates that there is a field for conservative therapy which warrants a trial before the more brilliantly successful but more arduous and less safe approach of surgical intervention is chosen.

SURGICAL CONSIDERATIONS (DR. JOHN H. GARLOCK)

On the basis of our experience with these 77 patients, we are now agreed that in the cases of milder disease a trial should be made of medical therapy but that most of the patients will necessarily be subjected to surgical treatment. With a disease the exact course of which is still unknown, it has been extremely difficult to predict what would happen to the uninvolved lower part of the sigmoid and the rectum subsequent to the removal of the diseased colon. The observations of the clinical course of a few cases of severe disease in which surgical therapy was refused has led us to believe that the disease progresses from right to left in a steady march and eventually will involve the rectum. If this progression is permitted to occur, then all hope of restoring normal intestinal continuity will probably be lost. Permanent ileostomy then becomes the only recourse. It is because of these observations on the life history of the disease that we have formed the opinion that the majority of these patients should be treated by surgical means. It remained for careful follow-up study to indicate what would eventually happen to the uninvolved rectum and it is the purpose of this section to indicate what these studies have shown.

The surgical treatment of segmental or right-sided colitis as evolved in our clinic is predicated on the fact that there is no evidence whatsoever of any disease in the rectum and/or the sigmoid. To be certain of this requires repeated sigmoidoscopic examinations and careful barium enema roentgenographic demonstrations of the large bowel. The slightest swelling or friability of the rectal mucosa should deter the surgeon from carrying out any anastomosis. If rectal mucosal swelling or friability is demonstrated, then the plan of surgical attack must be altered. Under such circumstances, the first operation should consist of ileostomy, followed, three to six months later, by subtotal colectomy. Experience with an appreciable number of such cases has shown that after the removal of the seriously diseased colon the rectal mucosa will quickly return to normal and that it will then be possible to reconnect ileum and the upper part of the rectum, thus restoring intestinal continuity.

If, however, the rectum and/or the sigmoid are found to be normal, the surgical treatment consists of a two stage operation. The first operation is carried out through a long incision in the lower part of the left rectus. Exploration will indicate the extent and severity of involvement of the colon. Usually, the diseased bowel is thickened and foreshortened and the serosa displays a reddened stippled appearance. The regional lymph nodes are enlarged and succulent. Too much handling of the bowel is inadvisable. It will be found that the disease ends abruptly and that there is a fairly sharp line of demarcation between the involved portion and the normal distal segment. The examination should also include the terminal part of the ileum to demonstrate the presence or absence of "backwash" ileitis. The patient is now placed in high Trendelenberg position. The terminal part of the ileum is divided about eight inches (20.3 cm.) from the cecum after section of its mesentery and accurate ligation of the vascular arches. Sufficient mobility of the proximal loop should be obtained in order to permit of its approximation to the rectum deep in the pelvis, should that become necessary. Both ends of ileum are triply inverted with silk sutures and the distal one is dropped into the abdomen.

Attention is now directed to the distal colon. The exact termination of the disease process should be determined. This may be anywhere along the transverse or left part of the colon, and in many instances it may extend to the distal portion of the sigmoid. At an appropriate distance beyond this point the mesocolon is split from its base to bowel attachment with accurate ligation of the vessels in the line of incision. Care should be taken to ligate the marginal artery at the same level of bowel division in order to protect the blood supply of the ends of the bowel. The reason for complete division of the mesocolon is twofold: first, in order to obtain adequate mobilization of the proximal loop for exteriorization without tension and, second, to cut across all possible lymphatic channels on the theory that these may be factors in the progression of the disease distally; the latter is purely theoretic. The colon is now divided between appropriate clamps and the proximal part of the colon is brought out through the abdominal wall for exteriorization. This is done to allow for external drainage of the foul discharge that comes from the diseased segment. The distal end of the transected colon is now carefully inverted with three layers of silk. The proximal ileal loop is approximated to the lower sigmoid or anterior rectal wall, as the case may be, and an isoperistaltic side to side anastomosis effected. The cut edge of the mesentery of this loop of ileum should be tacked down to the posterior parietal peritoneum to prevent herniation of small bowel beneath it. The abdominal wound is closed about the exteriorized proximal limb of colon with buried wire sutures and skin clips. On the third or fourth postoperative day the clamp on the exteriorized loop should be removed. Prolonged application of this clamp may lead to a blowout of accumulated secretions in the region of the cecum.

During the succeeding three or four months, there will be usually noted a dramatic change in the general condition of the patient. The gain in weight may be up to 50 pounds (22.7 Kg.). During the early stages of convalescence the patient may be troubled by multiple liquid movements, but, as time goes on, compensation for the disturbed intestinal functions takes place and most of the patients eventually have only one to three formed movements. The articular symptoms and ocular and cutaneous manifestations may not clear up until the diseased part of the colon is extirpated. Certainly the fever abates, and otherwise the patient is clinically well.

The second stage is carried out when the limit of improvement has been reached, and this is usually after three or four months. This second procedure consists of a subtotal colectomy, performed through a long incision in the right rectus. Before the incision is made, the exteriorized limb is freed from the abdominal wall, closed over with silk and dropped into the abdomen. The colectomy is done in the usual manner, but we have made a great effort carefully to peritonealize all raw surfaces to prevent late intestinal obstruction In the early days of this work, this was a serious complication. However, since we have insisted on complete peritonealization there has been a sharp drop in the incidence of late obstruction This point deserves emphasis.

Table 5—*Surgical Therapy*

Type of Operation	Number of Patients	Operative Mortality
Ileotransverse colostomy with exclusion of ileum	2	0
Ileotransverse colostomy with subsequent ileocolic resection	6	0
Ileosigmoidostomy with exclusion of ileum	12	5
Ileosigmoidostomy with subsequent subtotal colectomy	32•	7
Ileostomy with subsequent colectomy and reanastomosis	4	0
One stage ileocolic resection	2	0
Total	58	12

Operative mortality 20%

In the group of 58 patients treated surgically, 3 were operated on elsewhere but came under our observation and are included for completeness. The accompanying table 5 is self explanatory and indicates the type of operation in each group and the mortality incidence. If we exclude the 3 fatal cases in which operation was done elsewhere, our own series would be 55 patients with 9 deaths or a 16.2 per cent mortality.

It will be noted that 14 patients had either ileotransverse or ileosigmoid anastomoses with exclusion of the ileum as the only definitive procedure. Most of these were in the early group of this series. On the basis of subsequent experiences, we believe that the short-circuiting operation should include division of the part of colon proximal to the new anastomosis with exteriorization of the proximal end and resection of the excluded part of the bowel at the second stage.

Table 6—*Analysis of Operative Deaths*

Cause of Death	No of Cases
Sulfanilamide hepatitis	1
Postoperative shock (operations done elsewhere)	2
Peritonitis (1 case done elsewhere)	5
Pulmonary embolus	1
Perforation of cecum with peritonitis	1
Retroperitoneal phlegmon	1
Undiagnosed subhepatic abscess	1

This, we feel, is the procedure of choice, and it was carried out in 44 instances.

An analysis of the causes of death reveals some interesting facts. In the majority of these 12 cases, postmortem examination was carried out Table 6 indicates that the major cause of death was peritonitis. Here again, 4 of these patients were operated on in the early days of this study. With increasing experience, it becomes evident that these patients should have had an ileostomy as the first operation. They were all too acutely ill to warrant the extensive procedures that were carried out. Two patients died of postoperative shock; both had been operated on elsewhere. One patient died of peritonitis due to postoperative perforation of the cecum, which had been handled with a sponge at the time of operation. This case emphasizes the need for great care in the operative manipulation of the colon, especially in the acute and subacute cases. With the advent of the newer antibiotics, with more thorough preoperative preparation and with increasing experience in the selection of the suitable operation for the problem at hand, there has been noted a rapidly decreasing operative mortality in the past two years. We are confident that this mortality will reach the present low figure for operation for cancer of the colon.

Follow-up Studies.—The greatest interest in this study has been in determining the subsequent course of the 46 patients who survived operation, especially with respect to function of the bowel and the development of disease in the remaining part of the colon and the rectum. All cases have been followed for at least six months (table 7). Most of the patients in this series have been under observation for an average period of almost three years after the termination of surgical therapy. One patient has been followed for sixteen years. The average weight gain was 30 pounds (13.6 Kg.). Following resection of the colon, all manifestations cleared spontaneously. Of the 43 patients who have remained well, all except 4 have an average of three formed movements daily. The remaining 4 have five or six semiformed stools a day with occasional bouts of mild diarrhea. The most important feature of this study has been the fact that, of 46 survivors of operations only 3 subsequently experienced disease in the rectum In these 3 instances an ileostomy was perforce performed. Two of these patients died and are included in the mortality chart One patient survived and is awaiting reconnection of his ileum The remaining 43 patients are clinically well and carry on a normal existence.

Table 7—*Follow-Up Results*

16 Years to 6 Months—46 Operative Survivors

Type of Operation	Well	Unimproved	Subsequent Disease in Rectum
Ileotransverse colostomy with ileal exclusion	2	0	0
Ileotransverse colostomy with subsequent ileocolic resection	5	0	1
Ileosigmoidostomy with ileal exclusion	7	0	0
Ileosigmoidostomy with subsequent subtotal colectomy	24	0	1
Ileostomy with subsequent colectomy and reanastomosis	3	0	1
One stage ileocolic resection	2	0	0
Total	43	0	3

We believe, on the basis of this group study, that segmental colitis is quite different from universal ulcerative colitis in its clinical course, diversified manifestations and response to definitive surgical therapy. In the vast majority of instances, the prognosis is good and the patient can be restored to normal health. It is felt that the radical surgical therapy outlined in this paper offers the greatest hope to a majority of the sufferers of this disease.

1075 Park Avenue

ORAL ADMINISTRATION OF PENICILLIN IN CHRONIC ULCERATIVE COLITIS

A Clinical, Chemical and Bacteriologic Evaluation

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In the past few years considerable progress has been made in the treatment of chronic ulcerative colitis with the newer intestinal sulfonamide compounds. Phthalylsulfathiazole has been very effective. Essentially, therapeutic results were obtained through the action of sulfonamide compounds against the coliform organisms plus the standard supportive measures.

The sulfonamide compounds employed in infectious disease of the colon failed to be efficacious against the staphylococci and the streptococci.

With the present knowledge of penicillin and its properties it was thought advisable to employ this agent alone and in combination with phthalylsulfathiazole in chronic ulcerative colitis.

The recognition of penicillin as a general antibacterial agent came with the experiments of Fleming[1] in 1929. His researches were corroborated by Reid[2] in 1935 and by Bornstein[3] in 1940. Later the studies were extended in reference to stability by Chain,[4] Florey[5] and Clutterbuck.[6] Abraham,[7] in his studies on staphylococci, concluded that penicillin exerted only a bacteriostatic effect, while Rantz and Kirby[8] suggested that its action is bactericidal. Hobby, Chaffee and Meyer[9] concluded that this antibiotic has both bactericidal and bacteriostatic action and that activity depends on experimental conditions. The first clinical report, made by Florey and his co-workers in 1941, was on an Oxford policeman who had a Staphylococcus aureus and Streptococcus pyogenes infection.

Primarily the power exerted by penicillin is against gram-positive bacteria, whether aerobic or anaerobic, and yet it does possess some antibacterial properties against most gram-negative organisms. Fleming[1] also reported variations in sensitivity in some strains of the green-producing streptococci; he also stated that penicillin is relatively ineffective against organisms of the colon-typhoid group.

Wide variations in sensitivity of strains were reported by Heilman and Herrill,[10] Bornstein,[3] Spink[11] and Rammelkamp and Maxon.[12] The staphylococci are highly sensitive to penicillin and are more uniform in their strain variations.

PROCEDURE OF STUDY

Forty-five patients afflicted with chronic ulcerative colitis were employed in this study; of these 6 were males and 39 females. All were studied clinically and proctoscopically.

Penicillin was administered orally to each patient in doses varying from 100,000 units to 300,000 units daily. A calculated amount of phthalylsulfathiazole was given to some subjects simultaneously. The patients were hospitalized for two weeks and controlled during the experimental trial. Recovery of penicillin was determined daily in the blood, urine and stool. The level of phthalylsulfathiazole in the blood and stool was also established.

Bacteriologic studies and sensitivity studies were made before and after treatment.

RESULTS

Bacterial Response.—The bacteriologic response in the stool to oral administration of penicillin is significant in that a definite trend is noted in the B. coli count on the one hand and the staphylococcus and streptococcus counts on the other.

Table 1.—*Bacterial Response to Penicillin Administered Orally in Chronic Ulcerative Colitis*

Number of Patients	Dosage in Units	B. Coli		Staphylococcus		Streptococcus	
		Before	After	Before	After	Before	After
2	100,000	96*	2530	433	90	180	46
			3390	...	50	...	60
2	150,000	37	430	49	17	81	2.3
			1250	...	0	...	0.7
			910	...	10	...	0.2
			940	...	4	...	0.09

* Bacterial count in millions.

For instance, with a daily dosage of 100,000 units of penicillin orally the B. coli count was recorded as 96,000,000 before treatment and 3,390,000,000 four days after treatment; the staphylococcus count was decreased from 433,000,000 to 50,000,000 and the streptococcus from 180,000,000 to 60,000,000 over the same period. With a dosage of 300,000 units daily the B. coli count ranged from 68,000,000 to 279,000,000, while the staphylococcus count decreased from 100,000,000 to 6,000,000 and the streptococcus from 5,000,000 to 57,000.

When phthalylsulfathiazole is given simultaneously in doses varying from 1.5 Gm. to 3 Gm. daily the B. coli, the staphylococcus and the streptococcus counts are decreased correspondingly.

These results are exemplified in detail in tables 1, 2 and 3.

It was observed that twenty-four hours after administration of penicillin the staphylococci and the streptococci register an initial rise in number and subsequently decrease to a level below the original.

The research grant on oral penicillin is sponsored by Sharpe and Dohme, Glenolden, Pa.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

Assistance was given by Miss Verna Pittard, research assistant, and helpful suggestions were made by Dr. Robert W. Keeton, Head, Department of Medicine, and Dr. Milan Novak, Head, Department of Bacteriology.

[1] Fleming, A.: On the Antibacterial Action of Cultures of a Penicillium, with Special Reference to Their Use in the Isolation of B. Influenzae, Brit. J. Exper. Path. **10:** 226-236 (June) 1929.

[2] Reid, R. D.: Some Properties of a Bacterial-Inhibitory Substance Produced by a Mold, J. Bact. **29:** 215-221 (Feb.) 1935.

[3] Bornstein, S.: Action of Penicillin on Enterococci and Other Streptococci, J. Bact. **39:** 383-387 (April) 1940.

[4] Chain, E.; Florey, H. W.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A.; Orr-Ewing, J., and Sanders, A. G.: Penicillin as a Chemotherapeutic Agent, Lancet **2:** 226-228 (Aug. 24) 1940.

[5] Florey, H. W.: Penicillin: Its Development for Medical Uses, Nature, London **153:** 40-42 (Jan. 8) 1944.

[6] Clutterbuck, P. W.; Lovell, R., and Raistrick, H.: Studies in the Bio-Chemistry of Micro-Organisms: XXVI. The Formation from Glucose by Members of the Penicillium Chrysogenum Series of a Pigment, an Alkali-Soluble Protein and Penicillin—the Antibacterial Substance of Fleming, Biochem. J. **26:** 1907-1918, 1932.

[7] Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A., and Florey, H. W.: Further Observations on Penicillin, Lancet **2:** 177-188 (Aug. 16) 1941.

[8] Rantz, L. A.; Kirby, W. M. M., and Randall, E.: The Action of Penicillin on the Staphylococcus in Vitro, J. Immunol. **48:** 335-343 (June) 1944.

[9] Hobby, G.; Meyer, K., and Chaffee, E.: Observations on the Mechanism of Action of Penicillin, Proc. Soc. Exper. Biol. & Med. **50:** 281-285 (June) 1942.

[10] Heilman, D. H., and Herrill, W. E.: Comparative Antibacterial Activity of Penicillin and Gramicidin: Tissue Culture Studies, Proc. Staff Meet., Mayo Clin. **17:** 321-327 (May 27) 1942; abstracted, J. Bact. **43:** 12-13 (Jan.) 1942.

[11] Spink, W. W.; Ferris, V., and Vivino, J. J.: Comparative in Vitro Resistance of Staphylococci to Penicillin and to Sodium Sulfathiazole, Proc. Soc. Exper. Biol. & Med. **55:** 207-210 (March) 1944.

[12] Rammelkamp, C. H., and Maxon, T.: Resistance of Staphylococcus Aureus to the Action of Penicillin, Proc. Soc. Exper. Biol. & Med. **51:** 386-389 (Dec.) 1942.

Sensitivity of Bacteria to Penicillin.—To determine sensitivities of organisms found in the stool, typical colonies of representative types were picked out, incubated and inoculated into broth. Then serial dilutions of penicillin were made in brain broth. The number of units of penicillin required to inhibit growth of an organism is then determined by a modification of the Rammelkamp technic.

TABLE 2.—*Bacterial Response to Penicillin Administered Orally in Chronic Ulcerative Colitis*

Number of Patients	Dosage in Units	B. Coli		Staphylococcus		Streptococcus	
		Before	After	Before	After	Before	After
2	225,000	1 4*	188	180	134	13	53
			1,200	...	60	..	3
			2,190	.	24	..	2 9
2	300,000	68	49	100	3	5	0 1
			19	...	1 1	..	0 2
			63	...	0 4	.	0 1
			301	...	5	..	0 1
			279	...	6	..	0 05

* Bacterial count in millions.

In the coliform group the sensitivities ranged from 20 to 80 units after treatment. When phthalylsulfathiazole was used in addition to penicillin administered orally the sensitivities ranged from 100 units before treatment to 350 units after treatment. The staphylococci and the streptococci respond in the same direction (as shown in table 5).

Determination of Penicillin Levels in the Blood, Urine and Stool.—Blood levels of penicillin were determined daily by the method of Cooke and also by the Kolmer modification of Rammelkamp's method. Blood samples were drawn at 4 p. m., when maximum concentrations were assumed; these were collected sterilely, and penicillin assay was made after the cells had settled by centrifugation. The levels ranged from 0.1 unit to 0.4 unit per cubic centimeter, as shown in table 4.

The urine is collected into sterilized bottles and corked. The specimens were collected at 9 a. m., 1 p. m. and 4 p. m. and refrigerated until assayed. Urine levels ranged from 0.4 unit to 100 units of penicillin per cubic centimeter, depending on the dose of penicillin on oral intake (table 4).

TABLE 3.—*Bacterial Response to Penicillin Administered Orally and Phthalylsulfathiazole in Chronic Ulcerative Colitis*

Number of Patients	Dosage	B. Coli		Staphylococcus		Streptococcus	
		Before	After	Before	After	Before	After
6	3 Gm. Phthalyl sulfathiazole and 225,000 Units Penicillin	141*	9 8	13	221	36	133
			4 8	..	106	..	74
			5 2	..	73	..	43
			4 1	..	302	..	94
			4.7	..	313	..	199
			4 2	..	194	..	126

* Bacterial count in millions.

The assay in the stool is done by a modification of the method of Cooke; the specimen is refrigerated immediately on collection and after a sterile filtrate is obtained the procedure is similar to that used in determining the penicillin levels in the blood and urine as shown in table 4.

The penicillin levels in the stools ranged from 0.4 unit to 80 units per gram.

Clinical Studies.—The clinical study was carried on for one year. Of the 45 patients treated orally with penicillin 39 were female and 6 were male; of these 40 were in the chronic stage and 5 in the acute stage. The entire group showed improvement with oral administration of penicillin in doses of 100,000 to 300,000 units daily. One is impressed with the fact that the cramping in the abdomen subsides and that the number of evacuations are reduced. The stools become formed but are *not* odorless, and the blood and pussy mucus is reduced considerably. The temperature is lowered to some extent after treatment has been continued for four days or more. No toxic signs or symptoms were elicited in any patient after oral administration of penicillin from one to four weeks in doses varying from 100,000 to 300,000 units daily.

When phthalylsulfathiazole was administered in addition to penicillin, the most gratifying observation was that of the disappearance of the odor in the stool and with that the change in the color of the stool to a lighter yellow.

These patients were studied proctoscopically after treatment, but apparently not enough time has elapsed to evaluate the changes noted.

TABLE 4—*Penicillin Levels in the Blood, Urine and Stool*

Number of Tests	Dosage in Units	Units per Cc. or per Gm.		
		Blood	Urine	Stool
279	300,000	0 to 0 4	21 - 0 4	118 - 0 4
			35 - 2	4 - 6
			18 - 3	4 - 8
			31 - 6	6 - 12
			8 - 12	6 - 16
			7 - 20	6 - 20
			22 - 40	1 - 60
			6 - 50	5 - 80
			6 - 80	
			4 -100	

TABLE 5.—*Sensitivity of Bacteria to Penicillin*

Number of Determinations	Dosage in Units	B. Coli		Staphylococcus		Streptococcus	
		Before	After*	Before	After	Before	After
4	100,000	20/40	80	1.0	2.0	1 0	2 0
4	150,000	20/80	80	1 5	0 3	1 0	3 0
4	225,000	20	20(10)	0 3	0 6	0 3	1 5
42	3 Gm Phthalyl sulfathiazole and 225,000	20/80	100(2)	0 3	0 125	0 3	1 56
			100(4)	...	0 002	. .	3 125
			150(6)	...	...	...	...
			250(8)	...	5 0	...	10 0
			300(10)	...	6 25	...	12 5
			350(12)	...	. .	...	...

* Figures in parentheses represent days.

COMMENT

Much has been written on the oral administration of penicillin and the method has been in disfavor because penicillin is inactivated by the acidity in the stomach. It is also claimed that it is destroyed in traversing the gastrointestinal tract by body heat and that it would prove ineffective unless the penicillin were absorbed before passing the upper intestinal tract and thus escape its destruction by the bacteria in the colon.

Libby [13] administered penicillin orally successfully and concluded that larger doses would be needed to produce comparable blood levels.

The destruction of penicillin by penicillinase-producing organisms reported by Abraham and Chain [7] is not conclusive inasmuch as it has been shown that absorption of penicillin occurs from ligated loops of the colon in the rat.

In my experience oral administration has proved efficacious—because while it may not have proved to be specific against B. coli it has been decidedly active against staphylococci and streptococci; this would indicate that the quantity of penicillin that reached the colon was not inactivated entirely either by the gastric juice, the body heat or the penicillinase-producing organisms.

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[13] Libby, R L: Oral Administration of Penicillin in Oil, Science **101:** 178 180 (Feb 16) 1945.

Again, our results on the concentration of penicillin in the stool (table 4) show that substantial amounts of orally administered penicillin reach the colon effectively.

While the literature does stress the fact that the power exerted by penicillin is primarily against gram-positive bacteria, my results show that B. coli may be inhibited in the stool by 80 units when 100,000 units or 150,000 units of penicillin are administered orally for two weeks, and that B. coli may be inhibited by 20 units when 225,000 units are given orally for ten days.

This antibacterial trend by penicillin against gram-negative bacteria is impeded when phthalylsulfathiazole is added; when 3 Gm. of phthalylsulfathiazole is given in addition to 225,000 units of penicillin 300 units are needed to inhibit the B. coli organisms, as against 20 units when penicillin is given alone.

The staphylococci of the albus group and the streptococci of the gamma type are readily susceptible to penicillin; when, however, phthalylsulfathiazole is given with penicillin the staphylococci (albus) and the streptococci (gamma) become less sensitive, as is demonstrated in table 5.

It is worthy of note that the elimination of penicillin in the urine is decreased when phthalylsulfathiazole is given in addition to penicillin administered orally. This tendency would indicate that phthalylsulfathiazole brings about a slower rate of absorption of penicillin or prolongs the retention of penicillin in the body in a way similar to that of para-aminohippuric acid (excretory blockade).

I should like to refer to the work of Bigger,[14] who concluded that sulfathiazole is more effective than other sulfonamide compounds in combination of sulfonamide compounds with penicillin.

The work of Bigger on the synergic action of penicillin and sulfonamide compounds is corroborated in my studies on chronic ulcerative colitis. Because this disease is a polyvalent infection the combined utilization of both therapeutic agents has proved effective.

The evidence which I present suggests that if oral administration of penicillin could be made practicable, large doses would be required and correspondingly large amounts of penicillin would be wasted.

To obtain the maximum effect with a limited quantity of penicillin the combined utilization of penicillin and phthalylsulfathiazole would be preferable in the treatment of chronic ulcerative colitis.

One hesitates to be too dogmatic in suggesting that the problem is solved; it is not solved—there are still many, unexplained questions that present themselves. For instance, the wide variations that are obtained in the daily levels of penicillin in the stool or the blood, the failure to account for a good percentage of penicillin intake in the combined estimates in the urine, blood and stool and the wide range in the sensitivities of the various strains of intestinal organisms to penicillin administered orally are still unanswered.

Yet, considering the remarkable progress made in the field of antibiotics in the past two years, one remains hopeful. More work should be done and more standard criteria should be established.

CONCLUSIONS

1. Penicillin administered orally may be employed in chronic ulcerative colitis in doses from 100,000 to 300,000 units daily.
2. It is an aid in the management of chronic ulcerative colitis.
3. It is effective against some gram-positive organisms found in the stools of ulcerative colitis.
4. Penicillin levels were obtained in the urine, blood and stool.
5. Phthalylsulfathiazole and oral penicillin may be administered simultaneously to advantage.

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CAUSES AND MANAGEMENT OF ANEMIA ASSOCIATED WITH CHRONIC ULCERATIVE COLITIS

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The occurrence of anemia in association with chronic ulcerative colitis has been a common clinical observation for many years.[1] The exact incidence of anemia in this disease, however, has never been accurately studied, nor has there been a careful evaluation of the various factors which are important in its production. There have been a few general statements [1b, c] in regard to this anemia, but most of them have not been supported by either experimental or statistical data. For example, Haden [1c] states that in chronic ulcerative colitis there may be a microcytic hypochromic anemia, a macrocytic anemia or a normocytic one. The hypochromic, microcytic type is said to be the most common variety, being due to chronic hemorrhage and the consequent loss of iron. The macrocytic type is presumably due to a rapid passage of food material through the gastrointestinal tract or to some disturbance in the

Distribution of One Hundred and Nine Cases of Chronic Ulcerative Colitis by Age, Sex, and Extent of Anatomic Involvement

Age		Sex		Anatomic Involvement	
Age	Number	Male	Female	Degree	Number
10-19	19	11	8	I	25
20-29	35	23	12	II	18
30-39	33	13	20	III	14
40-49	9	4	5	IV	34
50-59	6	3	3	V	9
60-69	6	4	2	Polyposis	9
70-79	1	..	1		

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[14] Bigger, J. W.: Synergic Action of Penicillin and Sulphonamides, Lancet 2: 142-145 (July 29) 1944.

Aided by a grant from the Horace H. Rackham School of Graduate Studies.

From the Department of Internal Medicine, University Hospital, University of Michigan.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] (a) Bargen, J. A.: Blood Picture of Patients with Intestinal Disease, J. Indiana M. A. **31**: 52-57 (Feb.) 1938. (b) Garvin, R. O., and Bargen, J. A.: Hematologic Picture of Chronic Ulcerative Colitis: Its Relation to Prognosis and Treatment, Am. J. M. Sc. **193**: 744-752 (June) 1937. (c) Haden, R. L.: Anemia in Relation to Diseases of the Colon, S. Clin. North America **19**: 1157-1162 (Oct.) 1939.

small intestine with a resultant deficiency in absorption of the erythrocyte-maturing factor. The depression of the bone marrow by associated toxemia and infection is said to be responsible for the occasional occurrence of normocytic anemia.

Because of the lack of material and information in regard to the occurrence of anemia with chronic ulcerative colitis, a study was made of 109 consecutive patients with this disease admitted to the University Hospital during the last five years. This material included patients of all ages and of both sexes, whose disease was of varying periods of duration and at all stages, in regard both to activity and to anatomic involvement of the gastrointestinal tract (the table). In an effort to standardize our data the cases were graded in regard to anatomic involvement as follows:

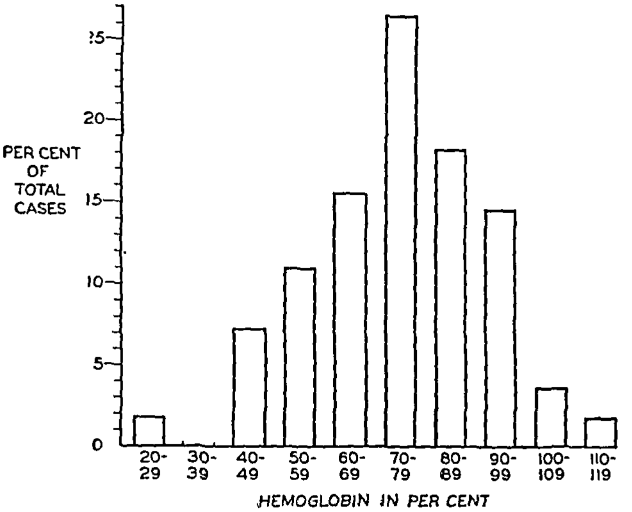

Chart 1.—Initial hemoglobin levels in 109 cases of chronic ulcerative colitis.

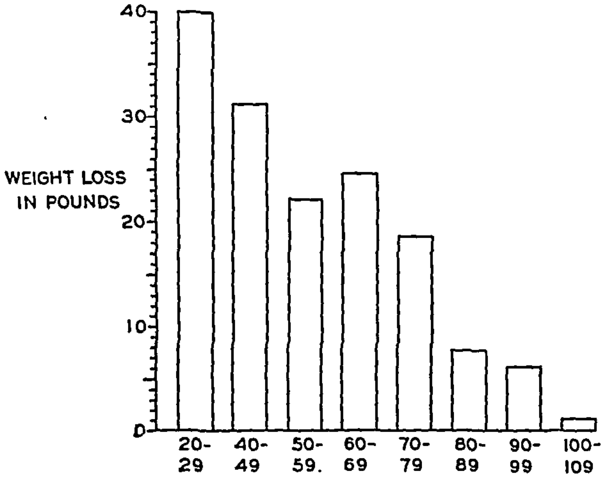

Chart 2.—Average loss of weight in relation to severity of anemia.

I. Involving rectum and sigmoid only
II. Involving rectum, sigmoid and descending colon
III. Involving rectum, sigmoid, descending and transverse colon
IV. Involving rectum and entire colon
V. Involving rectum, colon and terminal ileum

In regard to the evaluation of the activity of the disease, a case was considered to be in a period of remission if the temperature was normal, if the weight was increasing or was within 10 per cent of the value usual for the patient prior to the onset of his illness and if there was no diarrhea; that is, if there were no more than two or three stools daily and if these had some form.

In considering the anemia it was assumed that a hemoglobin value of 15.6 Gm. per hundred cubic centimeters of blood was 100 per cent, and if the hemoglobin was 80 per cent or more of this value the patient was not considered to have anemia. By means of this criterion, it was found that at the time of the original admission of the 109 patients to the University Hospital 71, or 65.1 per cent, had anemia. The distribution of the initial hemoglobin levels of all patients is shown in chart 1. An inspection of this chart reveals the hemoglobin values to lie generally on a curve which has the shape of a normal distribution curve, the peak, however, lying in the 70 to 79 per cent range, which is definitely in the anemia level. Of all patients with anemia, 58, or 81.6 per cent, had hypochromic, microcytic anemia and 13, or 18.4 per cent, had normocytic anemia. In this entire series there was no case of macrocytic anemia.

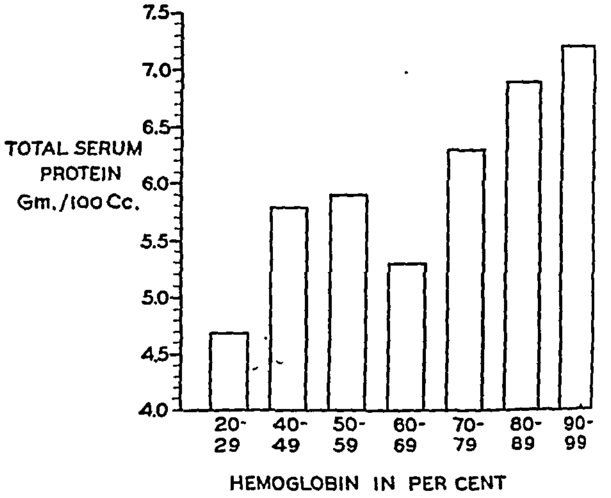

Chart 3.—Serum protein level in relation to anemia.

FACTORS POSSIBLY RESPONSIBLE FOR PRODUCTION OF ANEMIA

In attempting to determine those factors that may have been responsible for the production of the anemia the following items were considered:

1. The degree of iron deficiency produced by chronic hemorrhage, inadequate intake or absorption. In evaluating the last factor the occurrence of achlorhydria had to be considered.

2. The nutritional status of the patient, especially in regard to the adequacy of protein intake and absorption.

3. The influence of infection and toxemia on the ability of the body to utilize iron and protein in the production of hemoglobin.

1. *The Degree of Iron Deficiency.*—The degree of loss of blood was a difficult factor to evaluate because only 2 of the 109 patients failed to show loss of blood in the stools either grossly or on chemical examination. It is true that those patients with grossly bloody stools

or with a history of frank hemorrhage had severe anemia. On the contrary, in many cases in which there was severe anemia no greater degree of blood loss was revealed in the stools than in similar cases in which there was no anemia. Thus, from this point of view the occurrence of severe anemia in such cases appeared to be out of proportion to the amount of blood lost. It would seem, therefore, that loss of blood from the intestinal tract was a contributory factor in the production of anemia, and that it was not necessarily an essential one.

Our data on the occurrence of achlorhydria was inadequate to determine whether or not this was an important factor in producing impaired absorption of iron and a consequent anemia. In all of our cases in which a gastric analysis was done (15 cases) there was free hydrochloric acid in the fasting specimen. In 14 of these cases anemia was present with hemoglobin values below 70 per cent. In the other case the hemoglobin was 92 per cent. Mackie[2] has stated that 40 per cent (of 200 cases) of chronic ulcerative colitis exhibit achlorhydria, so that this factor may be more important than our data indicates

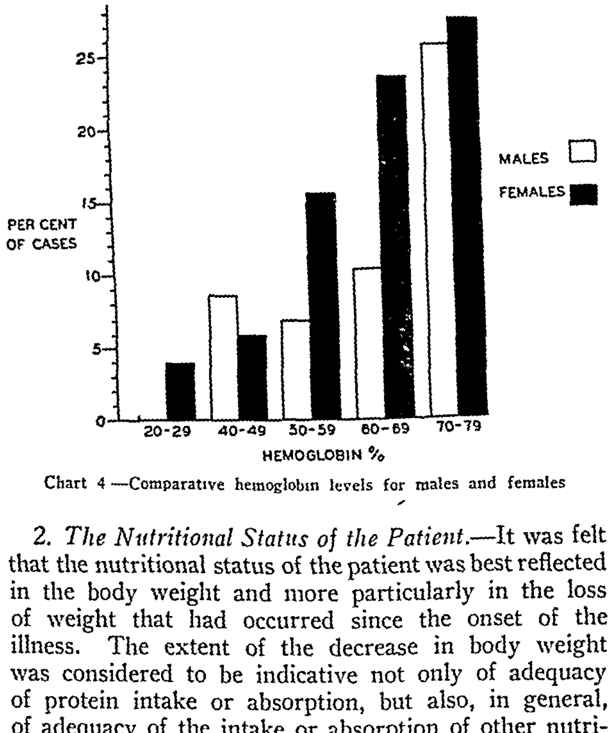

Chart 4—Comparative hemoglobin levels for males and females

2. *The Nutritional Status of the Patient.*—It was felt that the nutritional status of the patient was best reflected in the body weight and more particularly in the loss of weight that had occurred since the onset of the illness. The extent of the decrease in body weight was considered to be indicative not only of adequacy of protein intake or absorption, but also, in general, of adequacy of the intake or absorption of other nutritive factors that may be essential for formation of hemoglobin. Confirmation of this point of view was supplied by the frequent occurrence in those patients with severe loss of weight or other evidences of malnutrition such as glossitis, cheilosis and hyperkeratotic changes in the skin. In addition, the occurrence of a negative nitrogen balance, as well as deficiency in other essential nutritive elements, has been previously reported.[3] Elsom and his co-workers[4] have indicated that this disturbance of nitrogen balance may be related to an associated dysfunction of the small intestine.

Our data in correlating the degree of weight loss to the degree of anemia is shown in chart 2. It can be seen that there is almost a direct relationship between the degree of weight loss and the hemoglobin level. The relation of poor nutrition to the production of anemia has long been well established. Of interest in this respect is the absence of any case of macrocytic anemia in our series. Previous investigations[5] indicate that macrocytic anemia is more closely related to disease of the small intestine or gastric disease with consequent interference in the absorption of the erythrocyte-maturing factor rather than with disease of the large bowel as occurs in chronic ulcerative colitis. Besides, some of our cases of normocytic anemia may actually have been macrocytic ones, but so modified by iron deficiency as to give the morphologic picture of normocytic anemia.

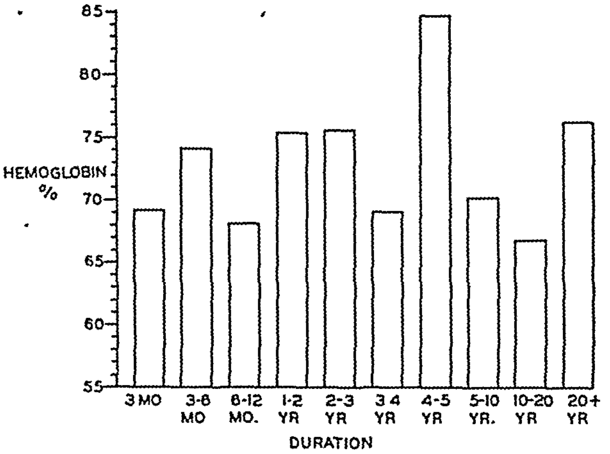

Chart 5—Relation of duration of disease and severity of anemia.

The level of the serum proteins was also considered as indicative of the protein-nutritional status of the patient. Total serum proteins were not determined in all cases, but in the 30 cases in which they were determined there was a close correlation between the severity of the anemia and the degree of deficiency of serum protein (chart 3). This evaluation in conjunction with that of the general nutritional status of the patient seems to indicate that an inadequate supply

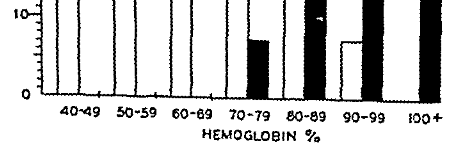

Chart 6—Comparative hemoglobin levels during remissions and exacerbations

of nutrients, particularly protein, to the patient with chronic ulcerative colitis is an important factor in the production of the associated anemia. Whether this lack of nutriment is due to an inadequate ingestion or inadequate absorption cannot be determined from our data, but it certainly does appear to be related to the incidence of anemia.

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[2] Mackie, T. T.: Studies in Ulcerative Colitis, Tr & Stud Coll Physicians, Philadelphia **9:** 1-10 (April) 1941

[3] Bercovitz, Z, and Page, R. C. Metabolic and Vitamin Studies in Chronic Ulcerative Colitis, Ann Int. Med. **20:** 239 254 (Feb) 1944. Welch, C S, Adams, M., and Wakefield, C G Metabolic Studies on Chronic Ulcerative Colitis, J. Clin. Investigation **16:** 161-168 (Jan.) 1937.

[4] Elsom, K. A; Dickey, F. G, and Chornock, F. W.: Functional Disturbance of the Small Intestine in Chronic Idiopathic Ulcerative Colitis, Am. J. Digest. Dis **9:** 74-76 (Feb) 1942

[5] Butt, H. R., and Watkins, C. H.: Occurrence of Macrocytic Anemia in Association with Lesions of the Bowel, Ann. Int. Med. **10:** 222 233 (Aug) 1936 Sturgis, C. C., and Goldhamer, S. M.: Macrocytic Anemia, Other Than Pernicious Anemia, Associated with Lesions of the Gastrointestinal Tract, ibid. **12:** 1245 1262 (Feb) 1939.

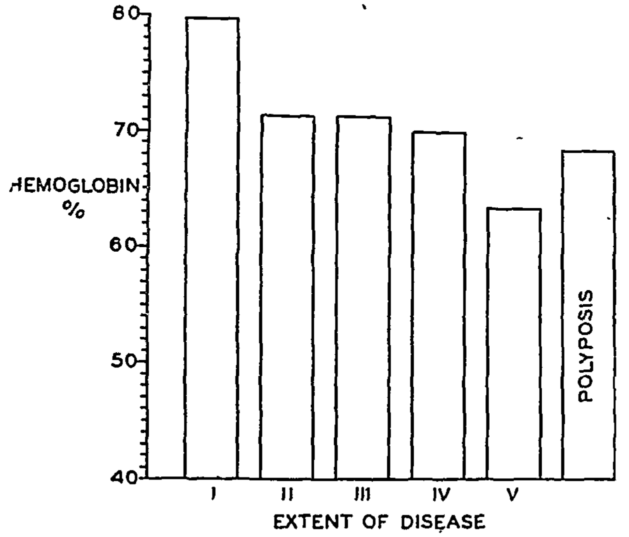

Chart 7.—Severity of anemia in relation to degree of anatomic involvement.

3. *Relation of Infection and Toxemia to Anemia.*—Anemia associated with infection and toxemia has been studied by Wintrobe,[6] and he has postulated that such an anemia is due to an inability of the body to utilize both the iron and protein in the formation of hemoglobin. We attempted to correlate the occurrence of anemia in our cases with the presence of infection and toxemia. An elevated temperature and leukocytosis were used as indexes of the presence or absence of toxemia. Of those cases with anemia there was an elevated temperature and leukocytosis in 53.2 per cent. This figure contrasts with the occurrence of fever and leukocytosis in only 18.4 per cent of those cases without anemia. This figure is significant enough to indicate that toxemia associated with chronic ulcerative colitis seems to be a factor in causing the anemia. In the cases of normocytic anemia this factor appears to be particularly important in that in 10 of the 13 cases of normocytic anemia there was a severe degree of toxemia, as indicated by high temperatures ranging up to 104 F.

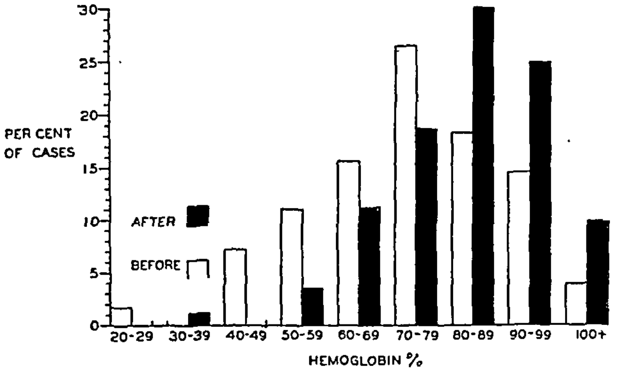

Chart 8.—Comparative hemoglobin values before and after treatment.

4. *Other Factors Playing a Possible Role in Production of Anemia.*—Under this heading an attempt was made to evaluate less specific items. For example, it was found that in females there tended to be a greater incidence of severe anemia than in males (chart 4). This observation is to be anticipated in view of the greater requirement in females[7] associated with menstruation and pregnancy, so that any factor tending to produce anemia would be reflected more severely in females. This factor was of particular interest in 2 of our cases in which the onset of the illness occurred during pregnancy and in both instances was associated with a rather severe hypochromic anemia.

The duration of the disease seemed to bear no direct relationship to either the occurrence or severity of anemia (chart 5). This seemed more closely related to the occurrence of exacerbations of the disease (chart 6). There is clearly an increase both in incidence and severity of anemia during exacerbations as contrasted with remissions. Likewise, the severity of the anemia seems to be directly related to the anatomic extent of the disease (chart 7).

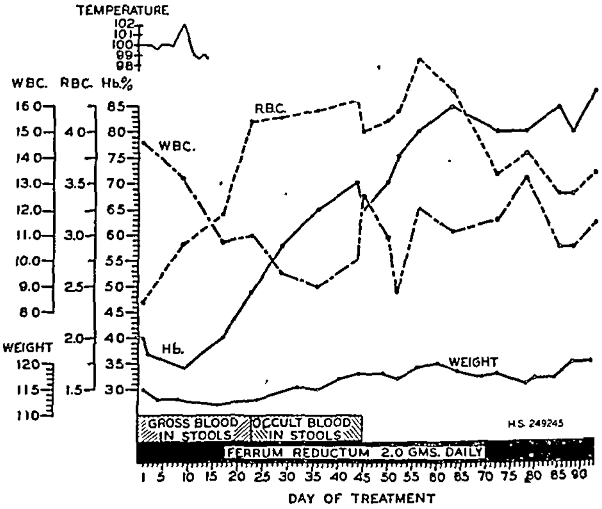

Chart 9.—Hypochromic anemia. Response to iron administered orally.

TREATMENT

It was of interest to evaluate grossly the effects of all treatment in all cases on the hemoglobin level. In chart 8 are the results of such an evaluation. The final hemoglobin levels after treatment was completed (patient discharged, failed to return or died) are contrasted with the initial values at admission. Here it can be seen that general incidence of anemia has decreased markedly, and in those cases in which anemia was still present its severity was generally less. Here the peak of hemoglobin values is 80 to 89 per cent as contrasted with 70 to 79 per cent prior to therapy.

In general, the treatment of the anemia was closely associated with the treatment of the disease. The material available for the treatment of the anemia included all materials used for the treatment of any anemia and consisted of iron, blood transfusions, a nutritionally adequate diet high in protein and the erythrocyte-maturing factors as exemplified by liver extract. Likewise, the therapy of the anemia depends on the morphologic type present from which the specific deficiency is ascertained. Thus, a hypochromic anemia is essentially an iron deficiency anemia, and its therapy is primarily the supplying of adequate iron. Because many factors seemed often responsible for the production of the anemia, however, it was often necessary to deviate from the general principles in therapy. For example, in managing a case of severe hypochromic anemia it was occasionally necessary to supply blood transfusions in addition to iron because severe prolonged gastrointestinal hemorrhage endangered the patient's life by producing a low blood pressure.

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[6] Cartwright, G. E.; Lauritsen, M. A.; Jones, P. J.; Merrill, J. M., and Wintrobe, M. M.: The Anemia of Infection, J. Clin. Investigation **25**: 65-80 (Jan.) 1946.

[7] Heath, C. W.: Iron in Nutrition: Requirements for Iron, J. A. M. A. **120**: 366-370 (Oct.) 1942.

Chart 9 illustrates an example of a hypochromic anemia. The toxemia was minimal in this instance as indicated by the only moderate transient fever and leukocytosis. The response to iron as indicated by the rising hemoglobin was not certainly adequate until the chronic loss of blood had decreased. It is of interest to note that the hemoglobin certainly did not fall, but rose slightly with the administration of iron even during the period when there was gross blood in the stools.

Chart 10 is another example of a hypochromic anemia. Here again the toxemia was minimal. However, there was the nutritional factor, of some importance in this instance as indicated by the low body weight. It is of interest that the anemia remained approximately stationary in spite of the administration of iron until the nutritional status improved as indicated by increase in body weight. At this stage the hemoglobin levels returned to normal promptly.

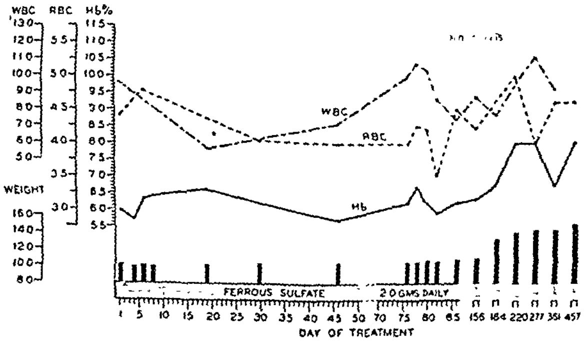

Chart 10.—Hypochromic anemia. Response of blood picture to iron and improvement of nutritional status.

In the cases of normocytic anemia the basic therapeutic indication is the use of transfusions. The use of such treatment is a temporary measure only to tide the patient over until the factors (such as toxemia) which are producing the anemia are overcome. This is well illustrated in chart 11. In this particular case it was possible to raise the hemoglobin by use of transfusions. This elevation of hemoglobin was transient and did not persist at a high level until the toxemia had cleared and there was a concomitant gain in weight. Chart 12 also indicates the ability to elevate the hemoglobin by use of transfusions even in the face of a severe toxemia.

The use of liver extract or other erythrocyte-maturing factors is indicated only in the presence of a macrocytic anemia. The use of crude liver extract parenterally may be indicated to supply other nutritive factors, but cannot be expected to have a specific hemopoietic value in either hypochromic or normocytic anemia. It is possible that in some instances of normocytic anemia there was an actual macrocytic anemia present, but so modified by loss of blood that the morphologic picture of a normocytic anemia resulted. In such instances liver extract would be of value, and its use is worthy of trial in cases in which the anemia does not respond adequately to iron and transfusions.

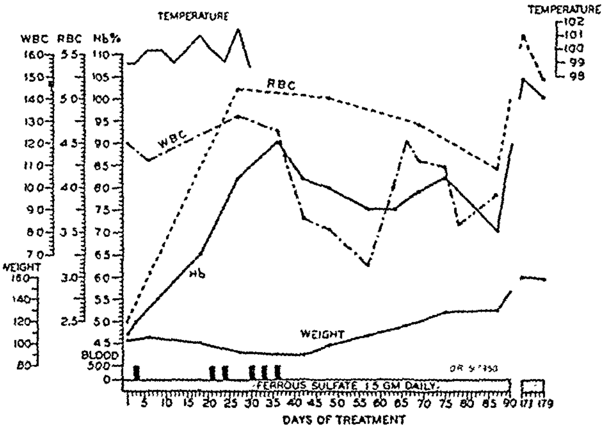

Chart 11.—Normocytic anemia. Effect of transfusions on anemia and improvement of nutritional status.

SUMMARY

One hundred and nine cases of chronic ulcerative colitis were studied in regard to the incidence of associated anemia. In 71 (65.1 per cent) of these cases anemia was present at the time of the original hospital admission. In 58 of the total of 71 there was a hypochromic microcytic anemia, while in 13 cases normocytic anemia was present. No cases of macrocytic anemia occurred in the series.

Many factors contribute to the causation of the anemia: (1) the degree of iron deficiency produced by chronic hemorrhage and inadequate intake or absorption; (2) the nutritional status of the patient as indicated by the degree of weight loss, evidence of avitaminosis and the level of the serum-protein; (3) the degree of toxemia and infection; (4) the anatomic extent of the disease; (5) the occurrence of exacerbations of the disease as contrasted with remissions, and (6) the sex of the patient, the anemia being more common and more severe in females.

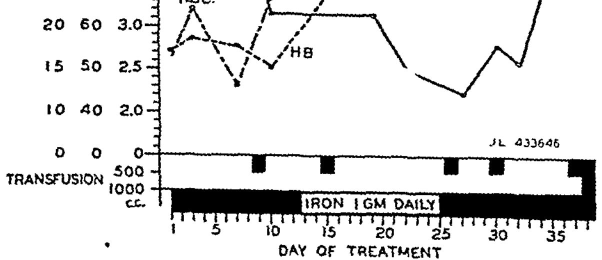

Chart 12.—Normocytic anemia. Influence of transfusions on hemoglobin level.

Treatment of the anemia follows the main principles laid down for the treatment of anemias in general. 1. Hypochromic anemias respond to iron given orally, but occasionally transfusions may be temporarily necessary because of low blood pressure. 2. Normocytic anemias respond temporarily to transfusions, but a sustained cure of the anemia is dependent on the cure of the toxemia, infection and malnutrition that produce the anemia. 3. Macrocytic anemia, if such might occur, should respond to injections of liver extract, as well as folic acid.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CROHN, GARLOCK AND YARNIS, DR. STREICHER AND DRS. POLLARD, BLOCK AND BACHRACH

DR. J. A. BARGEN, Rochester, Minn.: My remarks will concern Dr. Crohn's presentation on regional colitis. We are in general agreement concerning the nature and treatment of regional or segmental colitis. It may be best to consider it a disease entity. It does not seem the same as, or part of, the condition which we generally think of as regional enteritis. We have recently reviewed a series of 140 cases of regional colitis, and, interestingly, the largest number of our series occurred in the transverse part of the colon. A positive diagnosis is dependent on the roentgenologic manifestations. Medical treatment has value in the control of this trouble and does result in rather marked change in the bowel in a fair percentage of cases. Sulfathalidine has been of considerable help in treating these patients. Even when operation is contemplated the importance of the preoperative treatment cannot be overrated. We feel that resection in this group of cases, if operation is to be done, is the treatment of choice, and not just a short-circuiting operation. I should like to ask Dr. Crohn if he has an explanation of the thought offered by his group that with ileitis short-circuiting operations are satisfactory, whereas in this type of disease resection seems to be better.

DR. THEODORE L. ALTHAUSEN, San Francisco: Dr. Streicher should be commended for setting up such a thorough study of the effects of orally administered penicillin in patients with chronic ulcerative colitis. His studies on the bacterial response in the stools are uniform and convincing for the period of two weeks during which they were followed bacteriologically. One wishes that they were followed over more prolonged periods of time because in our experience the bacterial counts following an initial marked drop after the administration of sulfathalidine often go up almost to the original levels after two to four weeks, in spite of continued administration of this drug. Such a phenomenon might also be expected from our knowledge about the development of penicillin-fast and sulfonamide drug-fast bacterial strains in other diseases. The author's finding that the addition of sulfathalidine decreases the sensitivity of staphylococci and streptococci to penicillin is of interest. The reported levels of penicillin in the stools are surprisingly high. I should like to ask whether penicillin was administered to his patients in a single daily dose or in divided doses. The general clinical results of Dr. Streicher appear to be favorable. However, considerable caution until further confirmation is advisable in view of the initially favorable reports with the use of all kinds of antibacterial agents in the past which were later followed by a considerable scaling down of therapeutic claims, if not by total disappointment. I am inclined to be somewhat skeptical about the ultimate therapeutic results with any antibacterial agent in idiopathic ulcerative colitis because to my mind bacterial invasion in this disease is a secondary phenomenon which follows a primary breakdown of defenses in the colon, the cause of which, in most cases, remains unknown. My skepticism is reinforced by Dr. Streicher's non-committal remarks about the sigmoidoscopic appearance of the colonic mucosa of his patients after a year of treatment. It seems that a really successful remedy should have shown a distinct improvement in this respect. However, I am eager for really effective additions to our therapeutic armamentarium in ulcerative colitis and sincerely hope that Dr. Streicher's results may be not only confirmed but extended. I should like to ask Dr. Streicher whether he ever observed allergic sensitization to penicillin in his patients, because conditions for such sensitization are ideal in the ulcerated colon.

DR. EVERETT D. KIEFER, Boston: Dr. Pollard and Dr. Block are to be commended for choosing an important subject and for their able analysis of the problem. Our experience agrees with theirs, in that anemia is a common feature of ulcerative colitis and is of the hypochronic, microcytic type. As Dr. Pollard pointed out, the function of the bone marrow may be depressed in ulcerative colitis and unable to compensate for loss of blood due to the toxic effect of chronic infection, poor absorption of iron and food protein. There is evidence that the liver also suffers in this disease, which probably plays a part in some of the anemias. I believe that we are in agreement that the outstanding cause of anemia is the persistent hemorrhage into the colon. The pathologic changes in the mucosa are characteristically favorable for bleeding. The mucosa is congested, extremely friable and often ulcerated down to good-sized vessels. The exudate from the bowel includes important quantities of plasma proteins as well as hemoglobin. One might expect that the chronic diarrhea would tend to produce a vitamin K deficiency, and actually the prothrombin time is found reduced in some, but by no means all, cases. Other vitamin deficiencies are common; particularly the lack of vitamin C absorption also may increase the bleeding tendency through increase fragility of the capillaries. Secondary purpura is a rare complication, apparently produced in severely toxic cases or associated with drug idiosyncrasies and allergic reactions to foods. Bleeding in ulcerative colitis sometimes amounts to exsanguinating hemorrhages. In a group of 430 cases of ulcerative colitis, gross hemorrhage occurred in 12 cases, resulting in death in 3 cases and contributing to the death of a fourth patient. In 7 of the 12 cases, the gross hemorrhage appeared after an ileostomy was done. The treatment we have used for this complication is multiple transfusions, parenteral injections of vitamins, including vitamin K, opium and sedation. Several of these patients had from fifteen to twenty-five transfusions. We have felt that surgical intervention in the presence of acute hemorrhage is absolutely and definitely unwise, and have made no attempts to remove the bleeding area surgically. We have tried the instillation into the distal ileostomy loop of topical thrombin solution, with unconvincing success. In most of the cases, if one is persistent in giving repeated transfusions, the bleeding eventually stops.

DR. ALBERT H. ROWE, Oakland, California: During the last eight years we have accumulated evidence that chronic ulcerative colitis is often due to food and at times to pollen allergy which produces an eczematous-like reaction in the colon complicated in varying degrees with secondary infection, anemia, hypoproteinemia and avitaminosis. The edematous, erythematous and granular mucosa resembles the involved skin in atopic eczema due to food and pollen allergy. In cases of moderate or severe disease, vascular thromboses and necroses due to localized vascular allergy can explain the ulcerations. These may be intensified by secondary infection. Bleeding with consequent anemia can arise from the increased permeability of blood vessels, and free bleeding may arise from the necrotic vascular tissues resulting from localized vascular allergy. In 52 hospital cases and 18 office cases good or excellent results have arisen in 50 with the control of food allergy. Pollen allergy was the probable major cause in 3 cases and associated with food allergy in 5 others. Varying degrees of bleeding have been present in most of these patients, disappearing with the gradual control of the allergy. Transfusions were necessary in 26 and liver and vitamin K were given parenterally in many, but usually the bleeding stopped only after the allergy was controlled. Of the 15 patients failing to improve with allergic control 5 failed to cooperate, 1 gave no cooperation, 2 were controlled with sulfathalidine, 1 was controlled with sulfaquanidine, 3 had excellent results with ileostomy after allergic control failed, 2 died after ileostomy before diet trial had been used, and 2 died of perforation. The data on the slides which I will show illustrate the typical reduction in fever, diarrhea, cramping, and bleeding with the control of food and pollen allergy.

DR. RUSSELL S. BOLES, Philadelphia: It has always been difficult for me to accept the idea that any organism can be present in the bowel and active in causing ulceration or granulomatous formation without at the same time causing some disturbance in function. Of course, we find these organisms in the latent period. We have seen amebas in thoracic empyema, and in sections of the uterus, but at some time following their original invasion of the bowel, certainly, alterations of function must have been present. I want to ask Dr. Crohn about a particular case which I saw two weeks before I came out here, in which active acute inflammatory changes had occurred in the duodenum and jejunum and yet no disturbance of function of the bowel had occurred. This man was suspected of having a high lying, acutely inflamed appendix about which the surgeon and I both agreed. We operated on him, and he had what appeared to be regional duodenitis and jejunitis. Has Dr. Crohn seen cases of regional jejunitis in which at no time diarrhea had occurred?

DR. MARTIN S. KLECKNER, Allentown, Pa.: In the time allotted to me I did not have the opportunity to present certain slides which summarize the work done on this subject in private practice between 1940 and 1945. It has been my good fortune to observe that many other gastroenterologists, in addition to those I mentioned, together with the proctologists have done extensive work on chronic nonspecific ulcerative colitis. If you will observe the statistics on the slides, you will note that malignant growth was present in 9 per cent of the so-called "near" cases, whereas it was noted in only 4 per cent of the group listed as the "absolute." I may be criticized for using the terms "near" and "absolute," but I feel that an "absolute" division was necessary. Classification according to history obtained resulted in groups A, B, C and D. A careful interpretation of this slide will reveal interesting statistics. Seventy-two per cent were cured and improved. Further study of this slide reveals some interesting statistics on operation mortality and cure. I need not remind you that careful interpretation of the signs and symptoms in history taking leaves us in absolute accord, as far as the details of these cases are concerned. Furthermore, every certified proctologist invariably sees and studies pathologic conditions of the colon, and the progress of each case can only be followed by the complete and careful cooperation of both pathologic and roentgenologic laboratories. *In all these cases I insist on the double contrast* barium-air enema, but I do experience trouble in getting roentgenologists to give these patients sufficient time to go through with this procedure. The medical phase is summarized by rest, diet and the various therapies listed previously. On slide A-4 other drug therapy is presented. The occasional purge, the use of fullers' earth coupled with bismuth, the use of atropine alone or combined with codeine, the administration of calcium compounds and the careful use of iron with liver extract (which may increase the movement of the bowels and must then be discontinued if taken by mouth) together with replacement of vitamins, particularly the use of vitamin K by mouth or menadione bisulfite (hypodermically) and the administration of amino acids by mouth or intravenously when given with dextrose solution, has proved most helpful at times. I have used instillations of sulfathiazole and bismuth subgallate powder via the sigmoidoscope in the form of insufflations when the lesions are particularly bad around the rectosigmoidal area. In the last slide I have summarized the surgical phase, which does not always meet with the approval of the patient. However, I shall continue to urge surgical intervention whenever I feel that it is indicated.

DR. BURRILL B. CROHN, New York: There is something very satisfactory about the treatment and ultimate prognosis of segmental colitis. The outlook in universal colitis is always dubious, because of the constant tendency to recurrences. In the segmental type of case, patients either do well under conservative medical treatment or are operated on. Those that survive the 16 per cent operative mortality do well thereafter. The only exceptions are the 3 cases in which eventually the rectum became involved. Dr. Boles's question about the segmental form of jejunitis is interesting, though there is no common factor between these two diseases. Purely segmental forms of jejunitis do occur and are easily resectable with satisfactory results. Two striking cases were published in *Gastroenterology* **1**:347, 1943. Dr. Boles's query in regard to diarrhea is also interesting. It is essential to remember that segmental colitis, ileitis and jejunitis may occur without diarrhea, though such an occurrence is unusually rare.

DR. MICHAEL H. STREICHER, Chicago: I have three questions here. One is as to the dosage given. We gave three doses daily equally divided, about an hour or an hour and a half after meals; 100,000 units at each dose. The second question is about the proctoscopic aspect; I apparently did not make it clear enough. The entire problem was studied for one year. We had 45 patients to study and therefore did not have time to study all these cases proctoscopically. The third question is about the allergic phenomenon. We did have 1 patient react severely in the skin, with a severe rash, after administration of 50,000 units of penicillin on the third or fourth day, and from there on the rash lasted two weeks. Intravenous medication was given, and finally the patient did respond fairly well to additional doses of penicillin.

DR. H. MARVIN POLLARD, Ann Arbor, Mich.: As Dr. Kiefer mentioned, there is no doubt that some of the patients with chronic ulcerative colitis have some definite damage to the liver. This is probably on the basis of infection, as well as disturbed absorption from the small intestine, resulting in the decrease of the total serum proteins, a reversal of the albumin-globulin ratio and the production of a macrocytic anemia. The blood picture may be confused some in the presence of loss of blood from the colon, which produces a microcytic form of anemia rather than macrocytic. We have not included in this report our studies on increased capillary fragility in ulcerative colitis, but we have some information which suggests that this condition may be improved by the administration of rutin. In answer to the statement regarding transfusions, we have been reluctant to advise transfusions for our patients unless they are in a critical condition, with toxemia and active loss of blood from the lower bowel. Occasionally we have encountered a reaction to transfusion which has counterbalanced any beneficial effects which might have been obtained from the transfusion. As Dr. Bargen mentioned, we likewise have encountered difficulty occasionally in the administration of iron. This is unusual, however, in our experience. The preparation which we employ is that of enteric-coated ferrous sulfate, 5 or 10 grains (325 to 650 mg.) three times a day. The enteric-coated product has been found to be absorbed satisfactorily, and it is a helpful adjunct in the management of the microcytic anemia in these cases. In cooperation with our allergists, we have attempted to evaluate the role of food and pollen allergy in the management of these patients with chronic ulcerative colitis. Our enthusiasm has fluctuated considerably on this point and at the moment we are not finding many instances in which a specific food or pollen is playing a consistently significant role. It must be admitted that occasionally a patient will have an increase in the number of stools with some specific item of food. Whether this is a mechanical or allergic problem I am not yet convinced. Furthermore, what seems to be the offending food on one occasion frequently bears no relation to an exacerbation of the diarrhea some weeks or months later.

Veterans.—The Veterans Administration reports that as of March 3 about 5,000,000 veterans had applied for education and training under the G. I. bill. More than 3,500 veterans from World War I were carried on Veterans Administration rolls as amputees (loss of hands or feet or both). The number of Civil War veterans drawing pension from the Veterans Administration as of Jan. 31, 1947 was 116.

ANDROGEN THERAPY IN PROSTATIC DISEASE

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The theory that benign hyperplasia of the prostate gland is the result of hormonal imbalance is supported by much experimental and clinical observation The fact that benign hypertrophy does not develop except in the presence of a functioning testis is the strongest evidence yet offered, according to Moore[1] that the disease is an endocrinologic dystrophy It is also well established that the testes are the main center of androgenic activity and exert a powerful influence on the development and function of the entire genital organs, for without the natural male hormone (testosterone) atrophy, hypogonadism, eunuchoidism and degrees thereof result There is no record of prostatic obstruction ever developing in a true eunuch, although Young[2] and others have performed prostatectomy on men previously castrated in early life Barron and Huggins[3] consider that removal of testicular androgens by excision causes atrophy of the prostate gland and cessation of secretion and it has been further demonstrated by Huggins and Stevens[4] that the prostatic epithelium at least is under control of the testicles

The exact histogenesis of benign hypertrophy is not known, but the fact that the nodulation of early hyperplasia occurs only in the lateral and middle lobes, the ambisexual part of the prostate, and that nodulation usually begins after the age of 40, with a corresponding decline of urinary androgens which are biochemically active points to endocrine influence On the other hand nodular hyperplasia never occurs in the posterior lobe which is the true prostate of the male, yet the latter commonly is the seat of primary carcinoma and as such is subject to endocrine influence The relationship between the testes and carcinoma of the prostate has been clearly demonstrated both by Huggins[5] through bilateral orchiectomy and by Munger[6] through direct radiation of the testes, thereby removing the main source of androgenic stimulation to cancerous growth This paper will not discuss the use of androgens in prostatic cancer, except to point out that injections of testosterone propionate may aggravate rather than relieve symptoms and may activate metastatic growth with corresponding increase in serum acid phosphatase levels (Huggins and Hodges)[5a]

Many therapeutic methods have been tried toward control of benign prostatic enlargement Castration was performed by White[7] in 1895, with 87 per cent of the patients reporting improvement Deming, Jenkins and van Wagener[8] found no change in the structure of benign hyperplasia thirty days after castration, yet Huggins and Stevens[4] (1940) have clearly shown that atrophy of prostatic epithelium will take place ninety days after bilateral orchiectomy and that recession in the size of the prostate will occur with improvement in the urinary stream The Steinach I operation (vasectomy) and the Steinach II (bilateral ligature of the efferent ducts of the testes) are attempts at control of benign enlargement of the prostate through increased production of the male hormone, but, according to Jacobs,[9] without much success

The modern conception of hormonal control was advanced by McGee[10] in *1927* with the extraction of an active androgenic substance from bull testes Since 1935, when Laqueur[11] first isolated true primary testosterone, synthetic androgens have been widely used the first were produced from cholesterol by Ruzicka[1]

Surgical excision of the prostate and transurethral resection of hyperplastic overgrowth give relief of certain urinary symptoms, but according to Moore[1] and others the basis for the disease remains; that is, the cause of hyperplasia is not removed by the operative procedure The not infrequent recurrence or regrowth (Tandler and Zuckerkandl,[13] Kretschmer,[14] Thomson Walker[15] and others) of prostatic tissue, especially after resection, is one proof of this Besides its surgical relief the need of an endocrine approach to the problem of all prostatic disease, in a manner that may be compared to the use of thiouracil in thyroid surgery, is becoming more apparent

Whether or not modification of androgenic activity by medical or surgical measures will restore hormonal balance (androgen-estrogen relationship) and retard development of benign nodular hyperplasia must await further experimental and clinical proof It is the opinion of Moore and McLellan,[16] Heckel,[17] Draper and others[18] *that the administration of testosterone propionate alone* does not alter the histologic structure of fully developed benign hypertrophy. Nevertheless the widespread use of androgens today indicates the potency of certain physiologic properties possessed by the steroid hormones Among these are vasodilation, increased muscular tonus and nitrogen storage The property of vasodilation has been made use of in the relief of angina due to coronary heart disease, and the muscular stimulus of testosterone has led to its use in increasing the

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Read before the Section on Urology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco July 5, 1946

[1] Moore, R A Benign Hypertrophy and Carcinoma of the Prostate Surgery **16**. 152, 1944

[2] Young H H The Treatment of Prostate Hypertrophy by Conservative Perineal Prostatectomy An Analysis of Cases and Results Based on a Detailed Report of One Hundred and Forty Five Cases, Johns Hopkins Hosp Rep **14**· 1, 1906

[3] Barron, E S G, and Huggins C The Metabolism of Isolated *Prostatic Tissue, J Urol* **51** *630, 1944*

[4] Huggins C, and Stevens, R A The Effect of Castration on Benign Hypertrophy of the Prostate in Man, J Urol **43** 705 1940

[5] (*a*) Huggins C, and Hodges C V Studies on Prostatic Cancer I The Effect of Castration, of Estrogen and Androgen Injection on Serum Phosphatases in Metastatic Carcinoma of the Prostate, Cancer Research **1**: 293, 1941 (*b*) Huggins, C Stevens R E, Jr, and Hodges, C V Studies on Prostatic Cancer II The Effects of Castration on Advanced Carcinoma of the Prostate Gland Arch Surg **43**: 209 (Aug) 1941

[6] Munger, A D Experiences in the Treatment of Carcinoma of the Prostate with Irradiation of the Testicles J Urol **46** 1007, 1941, Treatment of Carcinoma of Prostate by Irradiation, Radiology **45**: 31 1945

[7] White, J W The Results of *Double Castration in Hypertrophy* of the Prostate Ann Surg **22**· 1, 1895

[8] Deming, C L, Jenkins R D, and van Wagener, G Some Endocrinological Relationships of Prostatic Hypertrophy Clinical and Experimental Studies, Preliminary Report, J Urol **33** 388, 1935

[9] Jacobs, A A Critical Review of the Steinach II Operation as a *Method of Treating* Prostatic Obstruction, Glasgow M J **131-132**: 166 1939

[10] McGee L C The Effect of the Injection of a Lipoid Fraction of Bull Testicle in Capons, Proc Inst Med Chicago **6**. 242, 1927

[11] Laqueur, E *Treatment of Hypertrophy of Prostate* with Hombreol with Experiments Showing Basis for Such Treatment, Schweiz med Wchnschr **64**. 1116, 1934

[12] Ruzicka, L, and Kagi, H Helvet chim acta **18**· 478, 1935

[13] Tandler, J, and Zuckerkandl, O Studienzur Anatomie und Klinik der Prostata hypertrophie, Berlin Julius Springer, 1922

[14] Kretschmer, H L Recurrence Following Suprapubic Prostatectomy for Benign Hypertrophy, Surg, Gynec & Obst **53**: 829, 1931

[15] Thomson Walker, J Failures of Prostatectomy, Lancet **1**: 1009 1927

[16] Moore, R A and McLellan, A M A Histological Study of the Effect of the Sex Hormones on the Human Prostate, J Urol **40**: 641 1938

[17] Heckel, N J The Influence of Testosterone Propionate upon Benign Prostatic Hypertrophy and Spermatogenesis A Clinical and Pathological Study *in* the Human, J Urol **43**: 286 1941

[18] Draper, J W, Slaughter, G, and Dunlow, C The Effect of *Testosterone* Propionate on Benign Prostatic Hypertrophy J Urol **45**: 539 1941

emptying power of the bladder. Testosterone propionate also seems to exhibit a general anabolic effect, aiding nitrogen retention and nutritional gain. Kenyon[19] has made use of this principle in the treatment of convalescent patients.

SUMMARY OF CASES

This analysis is based on the use of androgen therapy in 141 cases of prostatism. The cases are divided into four groups as follows:

I. *Chronic Prostatitis.*—Fifty-two patients with chronic prostatitis were given supplementary androgen therapy in amounts averaging 200 mg. of testosterone propionate besides the usual local treatment. Approximately one third gave a history of previous gonorrheal infection. In the 25 to 40 age group the duration of treatment was not shortened, averaging eight weeks, and no appreciable alteration in the course of the disease was noted. Normal androgenic function is the rule in the younger group, and the prostatitis seen is of the acute inflammatory type due to bacterial invasion, which responds satisfactorily to local therapeutic measures and chemosepsis.

However, in the older group aged 40 to 55 years, androgen therapy may well be used to advantage as an adjunct to commonly accepted measures: digital massage, local heat, urinary antiseptics, the antibiotics, urethral instrumentation and medication as indicated. In 37 cases of chronic recurrent prostatitis in men past 40 years of age, the response to combined androgenic and local treatment has been more rapid, more permanent and more productive of clinical cures (86 per cent) than formerly, that is the prostatic secretions became nearly free of inflammatory products and the size and consistency of the prostate receded to near normal with relief of symptoms. In some patients symptoms of the now recognized "male climacteric," such as nervousness, sleeplessness, poor appetite and lassitude, were distinctly benefited.

To respond to androgens a prostate must have a potential active secretory capacity, as androgens apparently stimulate normal epithelial cells to secrete either directly or through the mechanism of vasodilatation and increased blood flow. The fibrous prostate does not respond, and usually symptoms are not relieved. If a patient does not respond then one should check further to ascertain the reason. Cystoscopic examination, and tests for residual infection in the upper part of urinary tract should be made, and other remote causes should be sought. Frequently unsuspected fibromuscular hyperplasia, fibrosis of the neck of the bladder, diverticula, prostatic calculi and the like will be found which requires operative correction rather than continued local treatment.

Case 1.—*Androgen Therapy in Acute Prostatitis with Abscess.*—J. D. H., a man aged 46, had acute urinary retention due to acute prostatitis with abscess formation. The condition subsided after the initial placement of an indwelling catheter followed later by digital massage and administration of 310 mg. of testosterone propionate intramuscularly over a two month period. From an acutely swollen, firm, resistant, abscessed gland, the prostate returned to average size and medium consistency. Urination became free and effortless; the prostatic secretions became copious and almost free of cellular elements.

In my experience this was one of the most graphic examples of the possible value of androgen therapy in acute prostatitis with abscess, obviating the necessity of surgical drainage either by perineal section or transurethral methods (resection). Further trial of this plan of treatment is recommended.

II. *Benign Hyperplasia Not Submitted to Surgical Measures.*—A group of 40 patients with benign hyperplasia have been treated entirely without surgical intervention. The average age was 62 years. The outstanding symptoms were increasing frequency of urination, nocturia, urgency, slowness, suprapubic or perineal discomfort and frequently impotence. The rectal and cystoscopic findings usually pointed to grade 1 to 3 glandular enlargement. Residual amounts of urine generally ran under 60 cc. Obstruction to the passage of urine and insufficiency of the bladder wall had not developed. Approximately half the patients showed definite associated prostatitis, as determined by study of the prostatic fluid. This is not the prostatitis engrafted on a normal gland by bacterial invasion but is a type of presenile hypertrophy with resultant inflammatory infiltration.

The principal method of treatment consisted in biweekly intergluteal injections of testosterone propionate supplemented when necessary with methyl testosterone tablets by mouth so as to bring the average weekly dose up to 50 mg. of available hormone. The absorbable rate by mouth is about 1 to 4 as compared with intramuscular injections. The total amount given ranged from 100 to 1,500 mg., with an average of 300 mg. given in any one period. Usually additional treatment was given; that is, prostatic massage, irrigation of the bladder and urinary antiseptics were given as indicated, and occasionally a sound was passed if the urinary stream remained restricted.

The clinical effect in this group of patients with benign hyperplasia has been consistently good, otherwise the case was transferred to the operative list. Positive symptomatic and objective proof of improvement was recorded by patients' statements, tests for residual urine and microscopic examination of prostatic secretions. The statement most consistently made by the patient was "I feel better." The force and ease of the urinary stream increased with reduction of residual urine, frequency (especially nocturia) decreased and pressure symptoms of urgency or perineal discomfort were relieved. Impotence is one symptom generally not improved. The most rapid improvement occurred in those whose disease was associated with definite degrees of prostatitis, for as the inflammatory infiltration subsided the symptoms improved and the size of the prostate receded, due not to any actual reduction of hyperplastic nodulation but rather to a disappearance of edema and round cell invasion.

Case 2.—*Reduction of Residual Urine.*—R. W. J., a man aged 51, a salesman, came in complaining of slowness of urination, frequency, nocturia and suprapubic discomfort. Cystoscopic and rectal examination disclosed a typical grade 2 hyperplasia of the prostate with residual urine of 110 cc. Intensive treatment was given during the first two months, since which time monthly observations have been carried out. He received a total of 425 mg. of testosterone propionate by intergluteal injection. After one year's time the residual urine remains at 20 cc., the nocturia has decreased to one time and the urinary stream is free. In his case it is not anticipated that resection will not be indicated eventually, but for the time being he is clinically well.

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[19] Kenyon, A. T.: Problems in the Endocrine Aspects of Convalescence, paper read before the meeting of the California Medical Association, May 7, 1946.

Case 3.—*Slow Development of Benign Hypertrophy.*—F. H. F., a man aged 69, is a wholesale paper merchant. In 1936 he had a typical grade 2 benign hypertrophy associated with some degree of prostatitis; that is, the expressed prostatic fluid contained 2 plus pus cells in clumps and 20 cc. of residual urine was recorded. Today, after ten years, the rectal findings are typical of a grade 4 smooth, rounded benign hyperplasia. The prostatic secretions have practically ceased, and those expressed contain few scattered pus cells About one and a half years ago periodic androgen therapy was started because of increased urinary frequency, nocturia and dribbling with residual urine of 60 cc. A total of 600 mg. of testosterone propionate has been given by intergluteal injection. The amount of residual urine has decreased to 20 cc., the urinary stream has improved and general tonus has been maintained. Total prostatectomy or resection has been repeatedly advised, but this patient chooses to continue a "business as usual" regimen. My fears of an acute stage of urinary retention have not come about, which is the only symptom that influences many men to undergo surgical intervention.

The surprising thing about such patients is the fact that they can be carried along for indefinite periods of time without apparent increase in their symptoms or increase in the size of the gland. Frequency, slowness and nocturia in themselves, though sleep-disturbing, are not necessarily an indication for immediate surgical intervention. However, continued chronic vesical retention with infection should be relieved surgically. This and similar cases convinces me that it is not necessary to advise immediate operation in well selected patients, and that average good health may be maintained for long periods by treatment and observation as outlined. The patients who do the best under androgen therapy are those who fall into the age group 50 to 65 years and have uncomplicated grade 1 to 2 benign adenomatous hyperplasia associated with some degree of chronic prostatitis.

III. *Benign Hyperplasia of Prostate Treated Preoperatively with Androgens.*—In 14 cases of benign hyperplasia the patients were treated preoperatively with testosterone propionate and then submitted to operative removal of their obstruction. Few cases are included in this group because a patient who requires operative intervention usually is not subjected first to androgen therapy. The average age of patients in this group was 65. The symptoms were much the same as in group II: urinary frequency, nocturia, urgency, slowness and occasionally dribbling. Suprapubic and perineal discomfort were not prominent. This is a symptom more of prostatitis than of hyperplasia in my experience. Residual amounts of urine were not great—from 30 to 70 cc. on the average. In 1 patient acute urinary retention developed, and in 1 case there was chronic retention (250 cc. residual). Both were subjected to preliminary cystotomy. Both the rectal and the cystoscopic finding as a rule pointed more to fibromuscular than to glandular hyperplasia. Androgen therapy did not relieve patients in this group; in fact, in a few instances residual amounts of urine became greater and the symptoms increased. Temporary improvement was recorded in some patients, possibly due to auxiliary treatment consisting of urethral dilation (sounds), bladder irrigations and prostatic massage.

In view of the negative clinical response to androgen therapy in amounts varying from 125 to 1,500 mg. of testosterone propionate given by intergluteal injection, patients in this group were submitted to operative treatment, 12 by transurethral resection and 2 by suprapubic prostatectomy. A review of the histologic sections showed predominantly fibromuscular hyperplasia, less adenomatous hyperplasia and consistently little round cell invasion. This observation supports the conclusion that androgenic (testosterone) treatment will reduce inflammatory infiltration of the prostate either in one undergoing hyperplasia or in chronic prostatitis. Keller and Hull[20] noted a similar effect.

IV. *Postoperative Use of Androgen Therapy.*—Androgen was administered to 35 patients subsequent to transurethral resection and suprapubic prostatectomy. Intramuscular injections of testosterone propionate in amounts ranging from 100 to 300 mg. were given during the immediate convalescent periods. When indicated vesical lavage and urethral dilation were performed and urinary antiseptics were administered. The trauma of resection, the atony of the bladder wall after spinal anesthesia and the general low metabolic state of the patient are factors to be considered. I have found that supplementary androgen therapy even in small amounts may bring about a quick response, relieving such postoperative sequelae as frequency, burning, pyuria or hemorrhagic urine, urethral irritation and spasm of the bladder.

In many cases of late recurrence of symptoms it is unnecessary to perform a second resection, as treatment with androgens and local measures will give the patient prompt relief. The effect is more noticeable in those who have had previous bilateral vasectomy, possibly due to reactivation of the interstitial cells of the testes. In 6 cases reported in this series such treatment was given with prompt relief of symptoms. Chronic infection of prostatic tissue not removed by resection is one cause of recurring symptoms; another is regrowth of hyperplastic nodules, which lends support to the endocrine theory that the basis of benign hypertrophy is not removed by operative intervention. It is understandable that seldom does transurethral resection remove all prostatic nodules, no matter how well performed, and for this reason the rationale of hormonal therapy during convalescence and the follow-up period should be investigated further as a means of preventing future prostatism.

In 3 cases of delayed healing of the suprapubic wound following second stage prostatectomy in which there was pronounced atonicity of the bladder (residual urine of 1,000 cc. or more on admission) testosterone propionate injections did relieve the mental depression, improve the general tonus and start the patient on nutritional gain. The need for hormonal therapy in such debilitated patients during their immediate convalescence is suggested.

CONCLUSIONS

1. Androgen therapy is not a substitute for surgical relief of benign prostatic obstruction with insufficiency of the bladder wall.

2. The male hormone, testosterone, should seldom be administered before the age of 40, which is the age at which nodular hyperplasia may begin, except in selected cases of testicular absence or deficiency.

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[20] Keller, W. F., and Hull, W. M.: Histopathological Changes in the Prostate Following Testosterone Propionate Therapy, Urol. & Cutan. Rev. 44: 18, 1940.

3. Androgen therapy is most useful in cases of early benign hyperplasia in which there is associated prostatitis.

4. The postoperative aspects of hormonal therapy after prostatic surgery should be carefully considered.

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ABSTRACT OF DISCUSSION

Dr. Willard Thompson, Chicago: There are two types of carcinoma of the prostate, one dependent for its growth on stimulation by androgens and the other not dependent on this factor. The type that depends for its growth on androgen stimulation is the one that is relieved by bilateral orchiectomy or by functional castration with diethylstilbestrol. It is interesting to cite a related experience which has just come into the foreground. Dr. Adair, in a panel discussion in the joint session on Internal Medicine and Experimental Medicine, reported that at the Memorial Hospital in New York they have produced corresponding changes in carcinoma of the breast by administration of testosterone in doses of 100 mg. three times a week for a period of eight to ten weeks. He reported that in such cases the roentgenologic evidence of metastases may disappear, just as Huggins reported that metastases in bone in patients with carcinoma of the prostate may disappear following removal of the testes. Improvement in carcinoma of the breast has been reported as a result of removal of the ovary. My colleague Dr. Heckel has made a careful study of this problem and feels that administration of the male sex hormone is not of much value in benign prostatic hypertrophy. The development of the prostate depends on stimulation by androgens. Since that is the case, it is difficult to see why the administration of male sex hormone would be of much value. Some observers feel that improvement may result from some effect on the tone of the muscle of the bladder. I am glad to hear that Dr. Farman also feels that androgen therapy is not of much value. Dr. Farman's observations on chronic prostatitis are of considerable interest. His suggestion of giving the male sex hormone during the period of convalescence from operations on the prostate is an interesting one, and it may well be that the improvement in the general condition of the patient as a result of administration of testosterone propionate may be an important factor in the convalescence of the patient.

Dr Roy Henline, New York: Dr. Farman has taken a proper attitude concerning the value of androgens administered in prostatic hyperplasia. Symptomatic benefits are frequently obtained in prostatic infections, yet prostatic smears often fail to demonstrate comparable improvement. This symptomatic relief may be due to the improvement in the muscle tone of the bladder. In a similar way, as mentioned by Dr. Farman, there is some evidence indicative of the beneficial effects of androgen therapy on coronary disease Thus the effect of androgen in the human body deserves further investigation and clarification. It has recently been brought to my attention by Dr. Elmer Belt of Los Angeles that androgens administered in large doses are beneficial in treatment of urinary suppression. He cited several patients with complete anuria who began secreting urine after the administration of androgens. It is administered as testosterone propionate in peanut oil or as testosterone pellets The indiscriminate use of androgen therapy, because of its relationship to cancer, should be discouraged.

Dr. Monroe Wolf, New Orleans: May I ask how that preparation was given, whether in oil or solution?

Dr. Roy Henline, New York: It was given intramuscularly and also as testosterone pellets.

Dr. Wolf: Was that the methyl salt or propionate?

Dr. Henline: The propionate was used in the intramuscular administration.

ACTINOMYCOSIS OF THE FACE AND NECK

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Cutaneous actinomycosis may appear near any body cavity but is seen most frequently about the mouth. All the cases about to be discussed were so located. Cervicofacial actinomycosis may be primary or secondary. The primary form is comparatively rare, and as 15 of our cases were of the secondary type, the present discussion will be limited for the most part to that form of the disease.

INCIDENCE

Formerly regarded as a regional disease, a wider knowledge of bacteriology has made the members of the medical profession alert to detect actinomycosis in nearly every portion of the globe—"wherever there is a microscope and a laboratory," as Zachary Cope has put it. Cope,[1] writing in 1939, noted that for the previous six years there had been just 60 deaths from actinomycosis in Great Britain. He does not give the total number of cases reported. In the United States in the two decades from 1920 to 1940 data have been obtained on 839 cases of all types of clinical actinomycosis, particularly in regard to their distribution throughout the different states. The greatest number of cases were seen in the Mississippi valley and the Northwest Central states. Minnesota reported 163, Illinois 101, Iowa 56, Michigan 91 and Ohio 24. Of the Northeastern states, New York led with 54 cases; Pennsylvania had 36 and Connecticut 23. In the Southeastern states Virginia's 28 cases led Georgia's 16, Florida's 14, Tennessee's 8 and Kentucky's 2. Of the Western Plains states, Missouri gave a total of 48 cases, Kansas 24, Oklahoma 21, Colorado 19, North Dakota 16, Nebraska 10 and Texas 8. In the far west California was estimated at 51 and Montana 18. The states not mentioned reported but 2 or 3 cases or none at all. Probably many cases in which the patients do not manifest all the clinical symptoms are entirely overlooked, and it may be well that those states and countries reporting the largest number of cases are those in which recognition averages higher. To quote Cope again, "The more carefully the fungus is sought, the more often it is found."

ETIOLOGY

Identification of the Organism.—The identity of the organism responsible for actinomycosis in man has been a controversial question. Bostroem[2] in 1890 isolated an aerobic actinomyces, which he believed to be the causative factor in submaxillary lesions. Later investigators demonstrated an anaerobic pleomorphic organism, which was at first a threadlike fungus, later segmenting into a bacillus; and this common parasite[3]

Read before the Section on Dermatology and Syphilology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

Because of lack of space this article is abbreviated in The Journal by omission of portions of the text The complete article will appear in the authors' reprints

[1] Cope, Z.: Actinomycosis, London, Oxford University Press, 1939

[2] Bostroem, E Untersuchungen uber die Aktinomykose des Menschen, Beitr. z. path Anat. 9: 1-240, 1890.

[3] We are in agreement with Rosebury's suggestion that the word parasite be used to mean an obligate parasite for Actinomyces bovis when it is found in a nonpathogenic state. "Saprophytic" will be used only in reference to the soil group (Streptomyces) of actinomyces. Rosebury, Theodor: The Parasitic Actinomycetes and Other Filamentous Microorganisms of the Mouth, Bacteriological Review 8: 189 224 (Sept) 1944.

in carious teeth and normal tonsils afterward was proved to be the causative organism in perimandibular actinomycosis. Others observed it in the root canals of the teeth. It was the opinion of Axhausen[4] that infection by the fungus depended on a previously existing or coexistent invasion of pyogenic organisms, the invaded tissue being thereby altered until the parasitic fungus became a pathogenic foreign agent. In such a lesion the granules may be many times removed by radical surgical intervention without their true nature being recognized unless a histologic study is made. New areas of induration and abscess formation may come into existence if the actinomycetes penetrate the borders of a local focus after its surgical extirpation. The majority of observers have for a long time considered the anaerobic, non-spore-bearing actinomyces as the commonest etiologic agent of human actinomycosis, and there has been a trend in the clinical literature for cutaneous lesions due to the aerobic actinomyces to be termed nocardiosis.[5] Guy[6] expressed the opinion that too much was included under the title "actinomycosis." He felt that actinomycosis of the skin is a definite clinical entity in which the ray fungus is always present and that this picture differed materially from that presented by tissues invaded by the non-spore-bearing aerobe.

TABLE 1.—*Nomenclature and Classification of Actinomycetales*

1. Vegetative mycelium fragments into bacillary or coccoid elements.

    Family: Actinomycetaceae, Buchanan

    A. Anaerobic, parasitic, not acid-fast: Actinomyces, Harz (bovis)

    B. Aerobic, partially acid-fast or non-acid-fast; multiplication by fragmentation of the mycelium; lack of aerial hyphae-forming spores: Nocardia, Trevisan

2. Vegetative mycelium not fragmenting into bacillary or coccoid elements

    Family: Streptomycetaceae, Waksman and Henrici

    A. Multiplication by conidia in chains from aerial hyphae (common soil actinomyces): Streptomyces, Waksman and Henrici

    B. Multiplication by single terminal spores on short sporophores: Micromonospora, Orskov

After Waksman and Henrici[7]

Waksman and Henrici[7] have offered the best suggestion for nomenclature and classification of the Actinomycetales to date (table 1).

Methods of Culture.—The common soil streptomyces are easily cultured for the most part on simple mediums, including potato sliced up and sterilized in a tube, but numerous factors must be considered when culturing nocardia and actinomycetes from human or animal tissues. The medium must be enriched with acetic fluid or whole blood; it must be either neutral or of a slightly alkaline p_H, and its temperature must be consistently maintained at 37 C.

In our case 1 all the blood agar plates incubated at this temperature were positive for the aerobic actinomycete, but all other mediums—Sabouraud's agar, veal infusion, broth or agar—on which the original fluid was inoculated showed no growth even when the temperature was carefully maintained throughout at 37 C. Not until the third or fourth subculture could we obtain growth on any medium save that first mentioned. Domingo and his co-workers[8] by careful bacteriologic methods were likewise able to get a positive growth of Actinomyces madurae in one of five tubes inoculated with material from a patient with cervicofacial actinomycosis.

Straw Chewing Theory.—With the acceptance by nearly all investigators during the past twenty years of Actinomyces bovis as the etiologic agent, the legend that actinomycosis of the head and neck is connected with chewing straws must be abandoned.[9] There is no evidence that this organism is capable of producing spores or otherwise maintaining growth on vegetable matter. Many strains fail to live past the fourth subculture, even when grown on the most carefully prepared medium with precise temperature consistently maintained.

There is, however, a remote possibility that in the granulating form the fungus is so protected from unfavorable outside influences as to be able to maintain a semianaerobic state, thus making it able to infect straws or other foreign particles. Because the disease affects men far oftener than it does women and, in this country at least, men are more likely to be in prolonged contact with farm animals than are women—and possibly more prone to chew straws—this legend has become more credible. Only a few of the affected persons gave a history of having chewed straws, so it has probably been overstressed in consideration of etiologic factors. Yet the high incidence of cervicofacial actinomycosis in the so-called dairy states is too suggestive to be entirely ignored.

In general animal inoculation experiments have been inconclusive. The acid-fast strain Actinomyces phenotaleron, isolated by Gammel,[10] is pathogenic for guinea pigs if inoculation is made in the lungs. But both aerobic and anaerobic types of actinomyces, if non-acid-fast, have proved almost universally negative in animal inoculation. It would seem that some aerobic strains such as that isolated in 1 of our cases are not highly pathogenic for man, since this patient had carried the infection for fifteen years.

Probably many cases diagnosed as simple pyogenic periodontitis are mild infections with the anaerobic A. bovis strain. Axhausen was surprised to find as high as 28 per cent of patients with these mild early cases showing granules when he excised tissue from the affected area for microscopic examination. In his opinion many cases are overlooked.

Theory of Allergic Sensitization.—That infection results not from a single exposure to the parasite but from repeated absorption which leads eventually to allergic sensitization is the theory propounded by Mathieson and his colleagues.[11] The progressive disease we call actinomycosis would be the result of such sensitization. Experiments with animals indicate that both vaccination and other methods of introducing infection, if frequently repeated, may induce allergy. Rabbits were more easily sensitized than guinea pigs, and the allergic reaction was more pronounced with the highly virulent Actinomyces asteroides than with the less virulent Actinomyces gypsoides. Oft repeated vaccination leads to desensitization, and there is some evidence that immunization accompanies this reaction. But there is

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4. Axhausen, G.: Die allegemeine Chirurgie in der Zahn- Mund- und Kieferheilkunde, Munich, J. F. Lehmanns, *1943, p. 313.*

5. Weidman, F.: Chapter on Infections, Practitioners Library of Medicine and Surgery, George Blumer, Supervising Editor, New York, D. Appleton-Century Company, Inc., 1938, vol. 10, p. 192.

6. Guy, W. H., and Helmbold, T. R.: Nocardiosis Cutis Gangrenosa, Arch. Dermat. & Syph. **27:** *224-231* (Feb.) 1933.

7. Waksman, S., and Henrici, A.: The Nomenclature and Classification of the Actinomycetes, J. Bact. **46:** *337-342* (July-Dec.) 1943.

8. Domingo, P.; Trespalacios, F., and Vidal, R.: Actinomycosis cutanea, Vida nueva **49:** 137-154 (April) 1942.

9. Bates, R.: Actinomycosis, Lancet **1:** *571-573* (March 18) 1933.

10. Gammel, J. A.: Actinomycosis Without Granules, Arch. Dermat. & Syph. **29:** *287-297* (Feb.) 1934.

11. Mathieson, D. R.; Harrison, R.; Hammond, C., and Henrici, A. T.: Allergic Reactions of Actinomycetes, Am. J. Hyg. **21:** *405-421* (March) 1935.

no evidence that sensitization to the acid-fast actinomycetes was accompanied by a like reaction to commercial tuberculin of human type or that any protection against tuberculosis was afforded by such sensitization or immunization. Certain experiments along this line, however, have suggested that allergic sensitization may be a factor in the etiology of actinomycosis.

PRIMARY CUTANEOUS ACTINOMYCOSIS

Primary cutaneous actinomycosis is a designation which should be restricted to those cutaneous cases in which the infection does not spread from a neighboring mucous membrane or arise from a systemic infection. Instances of this form are probably less infrequent than figures usually indicate (1 to 2 per cent), but the diagnosis is usually difficult unless biopsies are taken and serial studies are carried out with both aerobic and anaeroblic cultures. All species of actinomycetes have been accused as etiologic agents in primary actinomycosis. In our only case of primary actinomycosis colonies of nocardia were cultured. It is the fifth case of nocardiosis cutis to be reported in American literature, and a more detailed report than has appeared previously in the literature [12] is here given.

History.—A man aged 61, a farmer, had a pustular lesion at the hair line of the neck sixteen years before examination. Twelve years before, several large nodules developed in the supraclavicular region, which were diagnosed as cancer and treated with corrosive pastes by quacks Five months before examination similar nodules appeared in the left supraclavicular region. On examination by us, three large, bluish red, fluctuant tumors were seen in the left supraclavicular region; in the right fossa were several ulcerated areas, 1 to 2 cm. in diameter, with grayish red bases and sloping edges—apparently the site of previous sloughing due to the action of zinc chloride paste. Radiographic examination of the chest showed an infiltration at the base of the left lung—a condition thought to be compatible with fungous infiltration due to actinomycetes. The diagnosis was nocardiosis; treatment consisted of sulfanilamide compounds given by mouth and roentgen therapy to the infected areas. The patient succumbed to coronary thrombosis while he was under treatment; permission for autopsy was refused

Laboratory Observation.—A moist smear of fluid obtained by sterile puncture from a nonulcerated tumor in the left supraclavicular fossa showed no granules or fungi; stained smears showed no acid-fast or other bacteria. After two days' incubation at 37 C. (99.5 F.) aerobically, four cultures on blood agar plates showed minute, tenacious colonies of fungi resembling nocardia. The organism was non-acid-fast and gram-positive. Glucose agar shake tubes and Sabouraud's agar slants inoculated at the same time with fluid from the tumor showed no growth at the end of a month.

Two week old cultures of the aerobic nocardia on blood agar showed gradually enlarging colonies of a brownish mucoid growth; later snow-white aerial mycelium formed, and the typical musty odor characteristic of nocardia was noted.

The second and third subcultures failed to grow on any medium except blood agar at 37 C., but after two months' subculture the fungus grew on other mediums at room temperature. The mycelium was nonseptate and the aerial mycelium short, but true branching of the mycelium was noted. Study of mycelium from various mediums failed to show any sporogenous hyphae or conidia.

Cultural Characteristics.—Gelatin was liquefied; minute colonies were cultured on potato but they were never luxuriant, and no pigment was formed. There was no acid or coagulation on litmus milk and no utilization of starch On blood agar the blood pigment was slowly destroyed, with a wide area of hemolysis about the colonies. In beef infusion whitish puff balls, delicate and fuzzy, floated at different levels, becoming firmly attached to the walls of the tube. Of the sugars—after four weeks' growth—sucrose, lactose, dextrose and maltose showed neither acid nor gas. The growth on Sabouraud's agar was scant and failed to show any pigment in the mediums.

General Conclusion.—The characteristics presented by this actinomycete seem in all ways similar to those of nocardia but not compatible with any recorded species. Therefore the name Nocardia hemolyticus is suggested.

Animal Inoculation.—One rabbit intravenously injected with 2 cc. of a rather heavy suspension of the organism, with simultaneous introduction into the pleural spaces, failed to manifest any elevation of temperature. At autopsy after three months the same rabbit showed nothing but a small encapsulated abscess in the lung at the site of intrathoracic injection. The abscess consisted of a small inflammatory area composed of lymphocytes. No granules were demonstrable. Growth of the organism from material from a second rabbit used for these injections was obtained after several months on culture mediums. More positive results might have followed the use of cultures nearer the original, before virulence was reduced or entirely lost.

PATHOLOGY: FORMATION OF GRANULES

Two theories have been advanced to account for the formation of clubs. One attributes to them a developmental part in the life cycle of the organism; the other regards them as a thickening of the sheaths enclosing the filaments as a protection against the effect of animal fluids. Bayne-Jones [13] has shown that to regard club formation as exclusively the result of interaction between organism and animal fluids is incorrect. He demonstrated that club formation may take place in simple glucose agar and glucose broth by Actinomyces hominis without the addition of serum or any other animal protein.

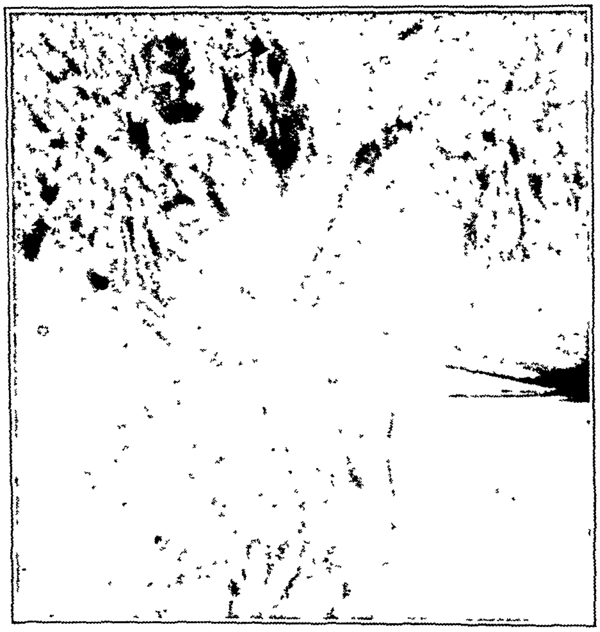
Fig. 1 (case 4).—Asteroid microcolonies of actinomycetes.

Not all species of pathogenic actinomycetes produce club-bearing granules, and clinically granules are not in evidence in all cases of actinomycosis. Emmons [14] has emphasized the mistake of assuming that because clubs are conspicuous in tissue invaded by one certain species of actinomycetes they are an essential feature of actinomycosis. Other infections produce granules as well. In botryomycosis of horses—in which the etiologic factor is a staphylococcus—clubs radiate from gram-positive masses of micrococci enclosed in a zoogleic substance. Granules with clubs are formed under certain conditions[15] by other organisms, such as Coccidiodes immitis and strains of Aspergillus, Sporotrichum and Monilia. This emphasizes the importance of crushing and staining all granules before examination so as to ascertain whether they are formed by bacteria or fungi. In our studies of many unstained smears, in all stages of the disease, there seemed to be a definite chronologic order of appearance of three distinct types of granules.

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[12] Lewis, G. M., and Hopper, M. E.: An Introduction to Medical Mycology, ed. 2, Chicago, The Year Book Publishers, Inc., 1943, Cap. 10, p. 176.

[13] Bayne-Jones, Stanhope: Club-Formation by Actinomyces Hominis in Glucose Broth, with a Note by B. Actinomycetum-Comitans, J. Bact. **10:** 569-575, 1925.

[14] Emmons, C. W.: Actinomyces and Actinomycosis, Puerto Rico J. Pub. Health & Trop. Med. **11:** 63-75 (Sept.) 1935.

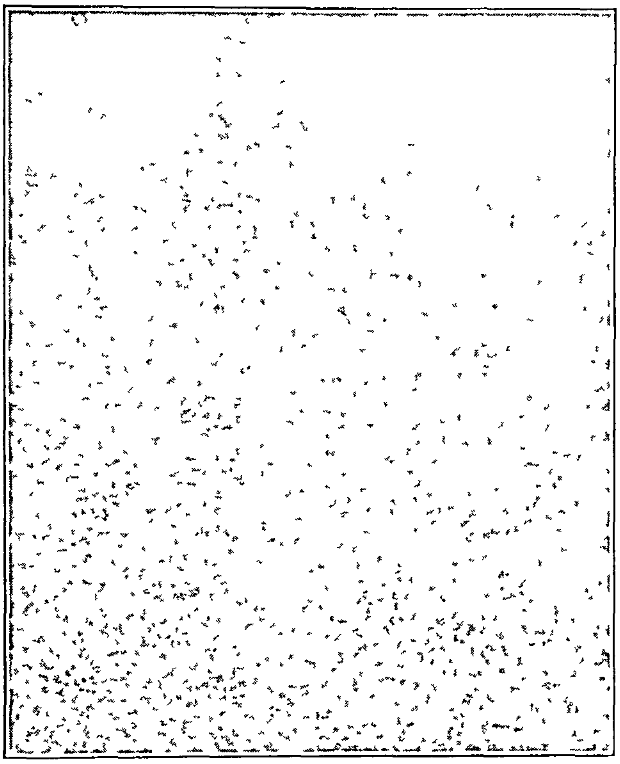

Fig 2 (case 3).—Matted filaments of actinomycetes in a soft granule

1. When a smear was made early in the disease, from fresh pus, organisms were seldom demonstrated, but in cases 4 and 12 microcolonies were in evidence (fig. 1), the actinomycetes being 20 to 25 microns in diameter. The arrangement they assume may best be described as an aster, or leptothrix-like form,[16] radially fixed about a small central axis. The separate filaments were the usual size of actinomycetes, located about 15 microns from the central pivot. In making the smear many of these short filaments were broken up into separate long rods; these were recovered only five or six days after treatment had been instituted and did not have the appearance of cholesterol crystals, in which all the radiations of the spicules are in one plane. The examiner was obliged to focus up and down in order to follow the filaments from the central axis to the tip. They were gram-positive.

In both cases 4 and 12 we were able to cultivate anaerobically, in dextrose agar shake tubes, an organism similar to that described as A. bovis. Later in the course of the disease typical sulfur granules appeared.

The careful pathologic study of Poiteau,[17] describing a similar evolution of the parasite in an early nodule in actinomycosis of the breast, contains the following description:

> Right in the center is the parasite, represented by mycelium undergoing evolution. The mycelian elements, mixed together in a very irregular way in the center, are regularly arranged at the periphery. The periphery portions of these filaments are arranged parallel to each other, and give the first indication of a tendency to peripheral radiation which characterizes the adult grains of the actinomycosis, only at this stage the clubs are not yet formed.

This is the earliest reference in the literature to microcolonies and represents a transition from the asteroid form to the second type of microcolony, the soft granule (fig. 2).

2. In this second type—the soft granule stage—we may see the effects of ten to twelve days of treatment, as we did in 4 of our cases. Emmons[14] recognized this early type of granule, having found it in actinomycotic meningitis, as well as in 2 cases of facial actinomycosis. The cultures were in all cases typical of A. bovis, but no clubs accompanied the granules. Henry[18] observed granules which yielded no clubs in a case of cerebrospinal meningitis caused by A. bovis

Such findings are probably not infrequent,[19] but their occurrence has not been sufficiently emphasized. The soft granules may be explained as a reaction to the environment provided by the host, or they may indicate either a recent infection or one in which the normal degree of resistance has not yet been established. Two of our patients when reexamined later in the course of the disease showed granules with clubs.

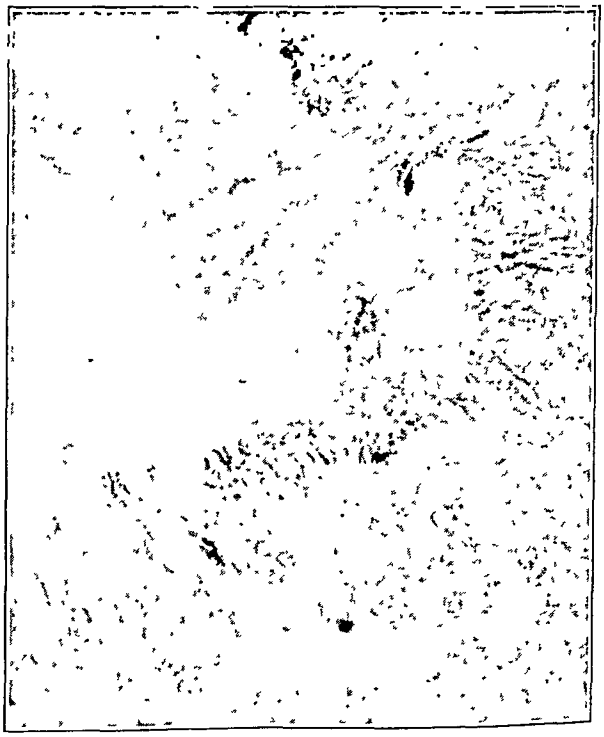

Fig. 3 (case 1).—Transitional type of granule with both clubs and penetrating hyphae.

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[15] Weidman, F.: Radiate Formation Due to a Hypomycete (Aspergillus), Arch. Path. **13:** 725 744 (May) 1932 Moore, M., and Ackerman, L. V.: Sporotrichosis with Radiate Formation in Tissue, Arch Dermat. & Syph. **53:** 253 264 (March) 1946. Emmons[14]

[16] Frieboes, W., and Zander, I.: Studien über Aktinomykose 1, Arch f. Dermat. u. Syph. **185:** 468-469, 1944.

[17] Poiteau, M.: The Pathology of Actinomycosis of the Breast, Internat. Clin. **3:** 19 28, 1921.

[18] Henry, H.: A Case of Actinomycotic Cerebro Spinal Meningitis, J. Path & Bact. **14:** 164-173, 1909 1910

[19] Conant, N. F., and others: Manual of Clinical Mycology, Philadelphia, W B. Saunders Company, 1944.

On microscopic examination the soft granule is found to consist of the matted filaments of actinomycetes—from six to ten bundles forming the granule. The filaments are disposed in whorls, under high power magnification presenting a design suggestive of a fingerprint. A definite "ray effect" is brought about in some areas by the arrangement of the filaments at right angles to a clearer area in the center

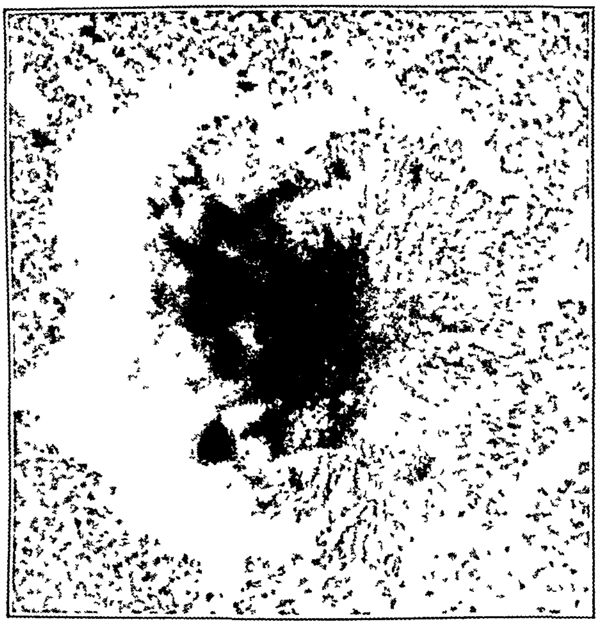

Fig 4 —The ray effect of the central area in which the mycelium penetrates through the peripheral arrangement of clubs (Gram's stain).

At the granule's periphery is seen loose mycelium, its size suggesting that of the actinomycete, and in several areas the mycelium may enlarge in an abortive attempt to form clubs or begin chlamydosporulation By allowing the pus to strain through fine gauze fresh soft granules may be recovered and immersed in isotonic solution of sodium chloride. When we studied such granules several layers of large, multinucleated giant cells were revealed about the granule. Each cell had three or four nuclei, and the entire cell was four to five times the size of a monocyte They were egg shaped with a granular material filling the cytoplasm They appeared actually to be macrophages trying to destroy the actinomycetic infiltration. This leads to the conclusion that as the immunity of the host to the actinomycete increases, the fungus makes some effort to survive its unfavorable environment In the early stages of the infection an excellent propagation site under anaerobic conditions is offered the organism in the dense, woody, fibrous edema with little vascularity, which the spread of the disease provides Treatment—such as roentgen radiation in sufficient dosage to produce an erythema—gives the tissues a higher oxygen potential, making living conditions much harder for the growing actinomycetes. It is probably at this stage that chlamydosporulation takes place. The spore provides itself with a chitinous covering as it enlarges, and the typical clubs are produced by an antigen-antibody interaction, much as the pneumococcus secretes its capsule. In case 1 (fig. 3) there was some pathologic evidence pointing toward an intermediary stage, represented by a granule composed both of clubs and penetrating hyphae. As this granule was photographed immediately after its recovery from the smear, the penetrating hyphae do not represent growth of the fungus after the material was secured.

3. The third type—the typical sulfur granule—we found so like that which has many times previously been described that little can be added concerning it.

The sulfur granule is composed of a dense reticulum of fibrils which takes the violet dye in sections stained by Gram's method. Around the periphery of the granule the ends of individual filaments may be seen projecting through the clubs, out into the surrounding infiltrate (fig. 4). Sections stained by Gram's method must be studied in twenty-four hours, since most preparations for permanent mounting tend to completely remove the gentian violet from the stained mycelium. This leaves an eosin-stained granule which shows the clubs and the central bacterial débris which has been so commonly and wrongly described as such in past reports. This central mycelium may be restained repeated times and each time shows up nicely but fails to retain the dye. Part or all of the periphery may be composed of radially arranged hyaline clubs. The clubs usually take the eosin stain with Gram's method. They are several times wider than the filaments whose ends they enclose, and the filaments can sometimes be traced within the structure of the club. Examined under the oil immersion lens, there is some suggestion of filamentous composition of the clubs (fig. 5), while some of the clubs appear to be septate. Dr. G. L Clark of Urbana, Ill., has generously placed at our disposal the results of studies made by him and his associates, with the aid of the electron microscope, on sulfur granules from our patients. His preliminary report is available at this time:

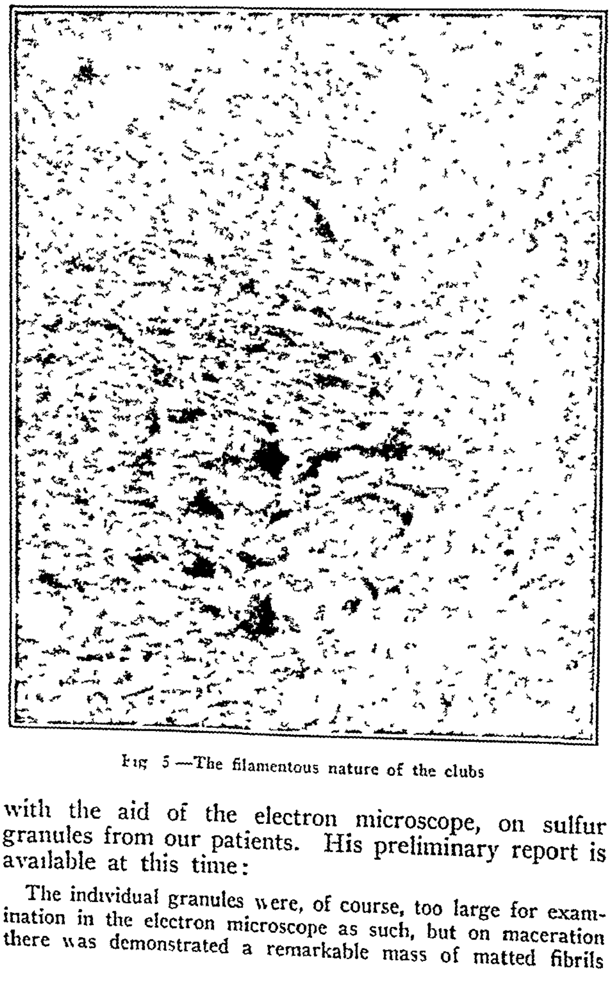

Fig 5 —The filamentous nature of the clubs

> The individual granules were, of course, too large for examination in the electron microscope as such, but on maceration there was demonstrated a remarkable mass of matted fibrils

(fig. 6) which seems to constitute the center of the granules, together with a variety of amorphous material in the interstices of the network and fragments of what appeared to be the concentric layers of membranes forming the shell of the granule. The mat of the fibrils is almost of molecular dimensions and corresponds closely with the nucleoprotein fibrils which are obtained from the chromatin of cells by the Claude technic. This fibril formation, therefore, seems to be a general morphologic feature even under these pathologic conditions.

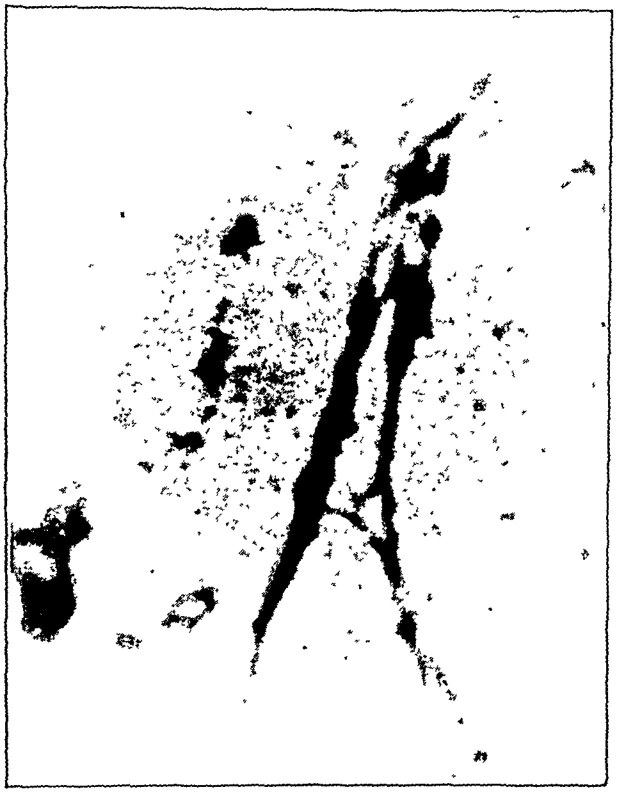

Fig 6.—Fibrils which constitute the center of the granules (slightly reduced electron photomicrograph, × 100,000)

CLINICAL MANIFESTATIONS

The onset of the disease in our experience has been insidious. The usual history is of chronic peridontitis *surrounding* a carious tooth or teeth (fig. 7), often going back for several years. During this time there may be swelling about the alveolar processes and even in the soft tissues, with more or less pain. There is alternate regression of the active process and recurrence with exacerbation. During the period of regression the fungus probably migrates through the root canal or through the gingival pockets directly to the bone and soft tissues, along with secondary bacterial contamination. Each recurrence reduces the resistance of the tissues to the parasitic invader. This is consistent with Axhausen's opinion, already cited, that the person becomes hypersensitive to the actinomycetes, the resulting actinomycosis being an allergic reaction, on the part of the host, to a common parasitic inhabitant of the mouth, teeth and tonsils. In most of our cases the acute stage of actinomycosis had been preceded by the removal of infected or pulpless teeth. Twenty-four to forty-eight hours after extraction of such a tooth there had been a slight rise of temperature, with edema and swelling of the soft tissues about the mandible. In subacute cases the lesion consisted of firm subcutaneous tumors of purplish hue, which gradually softened, ulcerated and broke down, leaving fistulous tracts.

The rapid, acute form of the disease spread gradually until all the soft tissues as far down as the clavicle were a solid wall of dense edema, with bluish red erythema. There was often a rise of temperature to 101 or 102 F., and the patient complained of such subjective symptoms as hoarseness, difficulty in swallowing or choking. Inspection usually showed a central necrosis in the area in which the infection originated, with little true pus but with a suppuration of a clear, straw-colored fluid. As sinuses formed secondary bacterial invasion increased, particularly that of staphylococci and streptococci. In some cases the disease proved extremely resistant to treatment and became chronic, but in most instances treatment greatly shortened the duration of the disease, and roentgen exposures greatly altered its course.

DIAGNOSIS

The salient points in the diagnosis of actinomycosis of the face and neck are:[20] (1) dark red discoloration of the skin ("slate blue" lesions); (2) projection of the lesion beyond the surrounding integument; (3) multiple nodules, with the formation of ridges and furrows in the creases of the skin of the neck; (4) distinct (boardlike) induration; (5) multiple sinuses, with both macroscopic and microscopic granules of actinomycetes in the pus; (6) history of chronic periodontitis followed by an acute exacerbation of the inflammation of the gum after extraction of an abscessed tooth, and (7) pain that if present is not severe; it is often absent entirely.

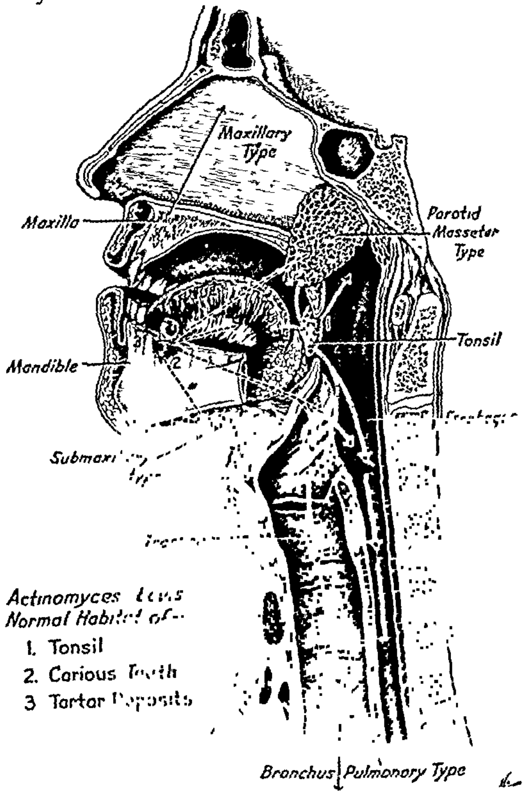

Fig. 7.—The possible routes of infection in the transition from a parasitic actinomycete to a pathogen.

Differential Diagnosis.—Tuberculous Gumma: Actinomycosis must be differentiated from tuberculous gumma. This may be difficult at first, but as caseation takes place the lesion fluctuates but is not indurated, and the dark red spots characteristic of actinomycotic

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20. Monestié, F.: Actinomycosis of the Skin, Internat. Clin. 3:73-82, 1921.

infection are absent. A tuberculous gumma opens as a single sinus and is painless, without the boardlike hardness of actinomycosis. Tuberculous adenitis is a condition seen in early life, while actinomycosis may occur at any age. Search for Mycobacterium tuberculosis in the pus will aid in establishing the diagnosis.

Syphilitic Gumma: Syphilitic lesions are less indurated and clear up more promptly. There is usually a single circular opening with cleancut edges and a grayish or yellowish base. A history of syphilis or the presence of other characteristic syphilitic lesions, together with the results of the Wassermann test, will generally serve for differentiation.

Other Manifestations: Blastomycosis is annular and granulomatous, and cultures of the blastomycete will verify these findings. Budding, yeastlike cells will be found in the tissues. In lupus vulgaris the process is of long duration, tending to chronicity, with permanent scarring. The biopsy will show epitheloid cells and giant cells, typical of the tuberculoid structure, and no granules will be found. Periosteal sarcoma quickly affects the general health, with early cachexia, and biopsy will at once demonstrate malignant growth. In Hodgkin's disease and lymphosarcoma there will be no history of dental trauma, while other glandular areas will show the characteristic manifestations. In both these diseases there is likely to be loss of weight, cough and daily elevation of temperature. A branchial cyst may enlarge and become sufficiently inflamed to mimic the picture presented by actinomycosis. Deep aspiration with the needle may reveal a gelatinous fluid. Sometimes only surgical removal and biopsy will differentiate this cyst.

Metastasis: Metastasis from a cutaneous epithelioma appearing in the submaxillary region has occasionally simulated actinomycosis. Such lesions, however, are much more indurated and do not fluctuate, and there will be a history of removal or treatment of the primary lesions, with a scar at its site. Moreover, metastases from neoplasms do not have the bluish color characteristic of actinomycosis. Because of its location, cervical venereal lymphogranuloma may occasionally cause confusion but can be recognized if the Frei test is positive.

TREATMENT

Drug Therapy.—Sulfonamide Compounds: After Walker[21] (1938) suggested the use of sulfonamide compounds in the treatment of the anaerobic type of cervicofacial actinomycosis, we successfully employed this form of therapy in many of our cases. However, the treatment must be prolonged and the dosage adequate, using larger doses in the acute stages than in the subacute and chronic types of infection. In our most recent cases we have employed sulfadiazine by preference, but from 1939 onward all the sulfonamide drugs except sulfapyridine have given equal satisfaction. The dosage was as follows: Sulfadiazine 8 Gm. in the first twenty-four hours of the acute stage. Reduce to 6 Gm. per twenty-four hours for four to five days; then 4 Gm. for several weeks; then 2 to 3 Gm. daily for the following two months, if the patient tolerates the drug well.

Liver extract—10 units three times a week—is regularly prescribed during prolonged sulfonamide therapy. We believe the patient is less toxic, and we have had no cases of leukopenia or agranulocytosis as yet. We attribute this to the use of liver extract in conjunction with sulfonamide therapy.

Many actinomycosis infections are undoubtedly aborted by dentists who employ sulfonamide compounds before and after the extraction of pulpless and infected teeth.

Penicillin:[22] Herrell was apparently the first to employ penicillin in the treatment of actinomycosis, reporting 50 per cent of success in 1942. In a recent personal communication he suggests using a dosage much larger than that employed in his earlier work—as high as 1 million units daily for a ten day period, with three such courses to be given. A number of other workers (Lyons,[23] Florey and Florey[24] and Walker and Hamilton[25]) have reported their results in treating actinomycosis with penicillin. Lyons' results were generally good, at least temporary improvement occurring in 4 cases. The Floreys reported failure with 2 of their patients. Walker and Hamilton had success in 6 cases, in most of which treatment was carried on for six weeks or more. Their highest total dosage was 8,170,000 units. They considered surgical excision of the scar and underlying fibrous, or granulomatous, tissue essential for success with penicillin therapy.

We have used penicillin in 7 cases of cervicofacial actinomycosis. Three patients responded splendidly; the other 4 improved somewhat but did not do as well as on sulfadiazine therapy. The fourth patient received 2 million units of penicillin in all, the dosage being 25,000 units every three hours; during the administration of the drug five satellite lesions developed about the central nodule. In 1 case of actinomycotic osteomyelitis of the mandible, in which the soft tissues exhibited a sinus draining through the skin, cure was effected by a daily dosage of 300,000 or even as high as 400,000 units of penicillin, prolonged over two months.

Other Therapeutic Agents: Before 1939 we found the iodides valuable in certain instances. Thymol, gold salts and polyvalent vaccine, for which others have made strong claims, we have not so far tried.

Roentgen Therapy.—In 11 of our cases roentgen radiations in large doses were decidedly successful. The results in 5 other patients were not so fortunate. One patient refused to continue the treatment until the full dosage had been received; another had already had both radium and roentgen therapy under a mistaken diagnosis of carcinoma of the inner cheek; the third and fourth patients could not attend regularly enough to get the full dosage, and the fifth patient died while the treatment was in progress.

It has been our experience that many infections show no response to roentgen therapy in lessening the number of new lesions or retarding the progress of the disease until over one half of the total amount of radiation decided on has been given or a moderate erythema has appeared. The kilovoltage and total dosage have varied greatly from one to another of our cases, but every patient who pursued the course to the end received distinct benefit. Since the infiltration of the involved tissues rarely exceeds 3 to 4 cm., we have worked out the following technic: kilovoltage 120 to 140 is used with aluminum filtration of 4 or 6 mm., or with aluminum filtration of 1 mm. plus 0.25 mm. copper at a distance of 12 to 14 inches (30 to 36 cm.). A dosage of 150 r every other day is maintained until 1,500 to 2,200 r have been given.

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[21] Walker, O.: Sulfanilamide *in the Treatment of* Actinomycosis, Lancet **1:** 1219-1220 (May 28) 1938.

[22] Herrell, W. E.; Heilman, D. H., and Williams, H. L.: Clinical Use of Penicillin, Proc. Staff Meet., Mayo Clin. **17:** 609-616 (Dec. 30) 1942. Herrell, W. E.: Further Observations on the Clinical Use of Penicillin, ibid. **18:** 65-76 (March 10) 1943; Clinical Use of Penicillin, J. A. M. A. **124:** 622-627 (March 4) 1944.

[23] Lyons, C.: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. **123:** 1007-1018 (Dec. 18) 1943.

[24] Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, Lancet **1:** 387-397 (March 27) 1943.

[25] Walker, J. M., and Hamilton, J. W.: The Treatment of Actinomycosis with Penicillin, Ann. Surg. **121:** 373-384 (March) 1945.

A much higher dosage will be tolerated if the treatment is given only once or twice a week, and radiation therapy may be prolonged in this manner for as many as eight weeks. For the acute phases of actinomycosis the heavier filtration of 6 mm. aluminum or 0.25 mm. copper and 1 mm. aluminum was preferred, since the treatment could be given in a higher total dosage over a longer period of time, with less danger of the manifestation of remote roentgenologic sequelae when the original actinomycosis was entirely cured. The total roentgen dosage in each case is dependent on the size of field to which the treatment is administered.

Surgical Treatment.—Radical surgical removal of large areas of tissue in acute or subacute cases is definitely contraindicated. The recurrence of infection in the surgical scar is almost inevitable. This is only too well illustrated in our cases 12 and 14, wherein both patients had extensive local removal of tissue, soon followed by recurrence of the infiltration all about the scarred areas. Permanent cure was accomplished for both these patients by roentgen therapy.

In cases in which there is involvement of the mandible with sinus formation through the soft tissues to the cutaneous surface the infection must first be controlled by roentgen, sulfonamide and penicillin therapy, to be followed by excision of any sequestrums of residual osteomyelitis in the mandible. A pathologic fracture of the mandible calls for orthopedic treatment, while a sinus which fails to heal often requires intervention by the plastic surgeon.

BRIEF SUMMARY OF FIFTEEN CASES OF SECONDARY CERVICOFACIAL ACTINOMYCOSIS

Fifteen cases of cervicofacial actinomycosis (table 2) have been observed in the past eight years. Data from the case histories have been compiled in table 2. To summarize, the entire group of cases was in white patients—six women and nine men. The average age was 41.

TABLE 2.—*Summary of the Histories of Fifteen Cases of Cervicofacial Actinomycosis*

Case	Race	Sex	Age	Occupation	Location and Duration	Culture	Previous Removal of Tooth	Granules Found	Roentgen Rays and Iodides Used	Time to Cure	Roentgen Rays and Penicillin	Time to Cure	Roentgen Rays and Sulfanilamide	Time to Cure
1	W	♀	34	Wife of stockman	Inframandibular, 3 mos.	—	Yes	Sulfur	Yes	7 mos.	—	—	—	—
2	W	♀	41	Wife of truck driver	Inframandibular, 6 mos.	—	Yes	Sulfur	Yes	4 mos.	—	—	—	—
3	W	♂	34	Grocer and horse trader	Inframandibular, 2 mos.	+ A. bovis	Yes	Soft type	—	—	Yes, 2 mil. U.	Failure	Yes	6 wks.
4	W	♀	41	Music teacher	Inframandibular, 1 mo.	—	Yes	Asteroid and sulfur	—	—	—	—	Yes	2 mos.
5	W	♂	52	Grocer	Inframandibular, 3 wks.	—	Yes	Sulfur	—	—	—	—	Yes	2 mos.
6	W	♀	56	Housewife	Inframandibular, bone involvement, 3 yrs.	—	2 yrs before	Sulfur	—	—	Yes, 8 mil. U.	2 mos. cured	—	—
7	W	♀	61	Housewife	Inframandibular, bone involvement, 2 yrs.	—	No	Sulfur	Yes	Failure	Yes, 6 mil. U.	Failure	Sulfonamide reaction	—
8	W	♀	24	Housewife	Supramandibular, 2½ mos	—	Yes	Sulfur	—	—	Yes, 2.5 mil. U.	Failure	Yes	6 wks.
9	W	♂	45	Oilfield worker	Supramandibular, bone involvement, 10 mos.	—	No	None	Yes	1 recurrence, cured 2 mos.	—	—	—	—
10	W	♂	56	Farmer	Acute parotid masseter, 6 mos.	—	No	None	Yes	Cured 1 yr. with 2 recurrences	—	—	—	—
11	W	♂	36	School teacher	Acute parotid masseter, bone involvement; 4 yrs.	—	Yes	Soft granule	—	—	Yes, 3 mil. U.; with sequestrectomy	2 recurrences, cured in 1 yr.	—	—
12	W	♂	43	Cement finisher	Acute perimandibular, 6 mos	+ A. bovis	Yes	Asteroid	—	—	—	—	Yes	3 recurrences cured in 1 yr.
13	W	♂	35	Salesman	Acute perimandibular, 9 mos.	—	Yes	Sulfur	—	—	—	—	Yes	2 recurrences cured in 9 mos.
14	W	♂	24	Truck driver	Acute perimandibular, 6 mos.	—	Yes	Sulfur	—	—	—	—	Yes	2 mos.
15	W	♂	42	Farmer	Acute perimandibular, 4 mos.	—	Yes	—	—	—	Inadequate dosage of both roentgen rays and penicillin	Failure to date	—	—

The incidence of the infection seemed to bear little relationship to occupation. Only 2 patients were farmers. The occupations of the others are given in table 2.

The location of the disease varied; in 7 cases there was a fairly well demarcated area below the mandible in the submaxillary region. The exact location was about equally divided between the middle portion of the area between the angle of the jaw and the chin, the angle of the jaw and under the chin.

Two infections were located on the cheek above the mandible or supramandibular.

Two cases involved the parotid-masseter region and were of the acute type, with trismus of the muscles in this area—the mouth barely admitting one or two fingers.

Four of the cases were of the acute perimandibular type with swelling above the mandible and below, even extending down to the clavicle. In 1 of these cases there was extension of the lesion to the clavicle on both sides of the neck and around the left ear to the occiput at the midline.

The duration of the disease before the patients were examined by us ranged from two months to four years. A study of the cases shows that early diagnosis and treatment seems to offer a better prognosis for cure.

In 2 cases cultures grown anaerobically in glucose agar shake tubes showed the small, smooth, grayish white colonies of gram-positive pleomorphic bacilli identified as A. bovis.

Granules of various types have been found in 12 instances—in 3 cases the diagnosis was made on a clinical basis only.

The removal of one or more carious teeth preceded the infection in 11 cases and was the cause of a severe relapse in 2 cases. Nine patients suffered recurrences. Six had more than one recurrence.

The results of treatment have been gratifying. Four patients treated by roentgen radiation and iodide therapy were entirely cured. In 1 case treatment with iodides alone resulted in failure. Seven patients treated with the sulfonamide drugs and roentgen rays were cured. Of 5 patients treated with penicillin and roentgen rays, only 2 were cured. Thirteen of 15 patients were cured by various other methods. The time to produce a complete cure varied from one and a half months to four years. This was counting the time in remission between recurrences.

COMMENT

Actinomycosis of the face and neck, as seen in our experience, is a persistent, recurrent and disabling disease in the majority of cases—11 of 16—but has never been fatal, though 1 patient died of other cause while under treatment. Five patients had neither complications nor recurrence after the initial treatment. Seven factors probably operated in the recurrent cases:

1. The virulence of the organism.
2. Lowering of the patient's resistance by overwork, mental strain or undernourishment due to fear of artificial dentures or the poor condition of natural teeth, leading to improper mastication.
3. Further impairment of immunity-producing balance between actinomycetes and body fluids by release of new organisms into the tissues when another abscessed tooth was removed or the skin of the old involved areas was surgically excised.
4. Any kind of trauma to the affected region.
5. Involvement of the mandible overlooked during the original treatment period, so that it remained as a focus of recurrence.

Thoma[26] has stated that in central actinomycosis of the mandible, destruction of the bone may exist for a long time before symptoms appear; frequently it is by roentgen diagnosis that an osteitic defect is discovered which proves on operative intervention to be due to actinomycosis.

6. Failure to administer in adequate dosage the drugs which inhibit growth of the actinomycete—sulfadiazine and penicillin—giving them for the minimum rather than the maximum number of days.
7. Too intensive roentgen dosage for too short a period. Roentgen radiation should be given over longer periods of time with better filtration, because the vascularity which it induces increases the oxygen potential in the tissues and hinders the growth of the anaerobic actinomycete.

As a case of cervicofacial actinomycosis may come under observation any time from three months to two years after the appearance of the initial lesion, all these factors should be taken into account before a decision is made in regard to the type of treatment to be given.

SUMMARY

1. Sixteen cases of cervicofacial actinomycosis are reported, 1 aerobic and 15 anaerobic in type.
2. Available evidence indicates that granule formation is an antibody-antigen reaction of the actinomycete to unfavorable environmental conditions in the host. Primary cutaneous actinomycosis can be caused by aerobic actinomycetes (nocardia), as is shown by cultural evidence from a case cited.
3. Roentgen therapy and oral administration of drugs to combat infection have proved adequate in uncomplicated cases of the anaerobic type of cervicofacial actinomycosis. If osteomyelitis of the mandible occurs orthopedic surgical intervention or even plastic surgery may be necessary.
4. We have found that the best treatment consists of filtered roentgen radiation applied locally, with sulfadiazine given by mouth. Penicillin has proved valuable in some cases, but it is more expensive than the sulfonamide drugs and must always be administered in large doses over long periods of time.

ABSTRACT OF DISCUSSION

DR. GEORGE M. LEWIS, New York: To have a series of 16 cases of actinomycosis is an unusual experience. Lamb and his associates have done well in this presentation to combine a review of the literature and also to report a careful study of their cases including laboratory confirmation. A clinical feature which should always be thought of as characteristic of actinomycosis is the development of sinuses, which in the absence of other known cause should always be suggestive. Without the development of the sinus tract, actinomycosis is not probable. I would also like to emphasize that a simple method for the laboratory diagnosis of this disease is also the best. A sample of pus is dropped on a clean glass slide and a cover slip applied. Staining is not required and if used is apt to produce distortion. If examined in transmitted light it may be possible to distinguish the colony. The difficulty of carrying out cultural studies precludes this method of study from universal use. This paper is particularly valuable because Dr. Lamb and his associates had the opportunity of evaluating various methods of treatment. From their conclusions we would gather the impression that they favor the retention of roentgen radiation combined with sulfadiazine therapy; in selected cases one may add penicillin therapy, although by no means relying on that alone.

DR. FRED D. WEIDMAN, Philadelphia: Dr. Lamb has described a new species of Nocardia in a case of primary actinomycosis. The item which has aroused the most interest has been the high percentage of cures; something quite different from what is customary. That makes one wonder. Was the fungus a pathogenic strain? For a long time it has been known that there are forms of actinomycetes saprophytic not only in the tonsils of hogs but also in those of man, even though it has been determined recently that *some of the latter were the* genuinely pathogenic Actinomyces bovis. A personal experience is in point. While I was experimenting with cutaneous torulosis in the monkey, I coughed a pellet of mucus from my bronchus. It recalled the mucinoid material which I had observed in monkeys' experimental lesions, and both under the microscope and in culture I demonstrated the fungus. An internist found no physical signs and advised me not to worry about it. He admitted that he did not know anything about mycology but stated on general principles that there was no reason why fungi should not occur in attenuated form, as is the case for bacteria. This happened about ten years ago. At the Philadelphia Zoological Gardens an abscess developed alongside the nose of a monkey, rather close to the eye. In the pus I found ray fungi with clubbing. It is difficult to treat these lower animals. I tried to work some iodine into the milk, but the monkey would have none of it. I injected iodine as best I could into the sinus. It was not very successful, but the monkey went on merrily to a cure. The position of the abscess was over the root of the incisor; such teeth have extremely long roots, and the apex corresponded to the position of the abscess. It was the old story of an apical abscess eroding through to the cheek. In my judgment, the attempts at treating the monkey were useless and the lesion regressed spontaneously. Perhaps here again the strain of Actinomyces was an attenuated or saprophytic one. I agree entirely as to the significance of the material which constitutes the clubs, namely that it is a reaction against an unfavorable environment. This material is elaborated jointly by the tissues and the fungous cell. There is a certain parallelism to Torula histolytica, with its mucinoid envelop. The latter will develop in a limited way, even in the absence of host tissue, on Sabouraud's medium; but if one increases the unfavorableness of the environment by growing it in the incubator, the envelop will develop much more promptly and massively. This proves that the material is in part at least, and in my opinion largely, a development on the part of the micro-organism.

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[26] Thoma, K. H.: Oral Pathology, St. Louis, C. V. Mosby Company, 1941, pp. 849-851.

Dr. D. Truett Gandy, Houston, Texas: Actinomycosis has long been thought of as a Western disease associated with country life, but it has no geographic limitations and is as prevalent in urban as in rural populations. It is widely distributed in the United States. Although a rare disease, with the improved methods of diagnosis available today other mycoses are being transferred to the actinomycotic group. Cervicofacial infection in this disease is the common form, and the mandible is the common primary site. That trauma is a predisposing factor seems indisputable. Since the ray fungus is a normal inhabitant of many mouths, and trauma occurs in all mouths, obviously a third factor must be necessary for infection, namely, sensitization. Differential diagnosis must exclude all forms of infectious granuloma, inflammatory masses and tumors. The patient may complain early of facial pain, which has been mistaken for trigeminal neuralgia. Frequently a dentist is consulted for toothache. I know of more than 1 case in which teeth were pulled, and usually with benefit, since it helped to establish drainage. In the cervicofacial lesion, syphilis, tuberculosis and carcinoma must be excluded. Perhaps the most commonly made errors are diagnoses of tuberculosis, cancer and dental root abscess. One must not forget that actinomycosis and carcinoma have been reported in the same patient, just as syphilis and carcinoma may coexist, notably in the tongue. Because the clinical history and findings in most cases are not pathognomonic, one must depend almost entirely on laboratory studies for a final diagnosis. The finding of the ray fungus in pus from a sinus tract or abscess or its histologic demonstration from biopsy or autopsy material is, of course, conclusive. Lesions in the face and neck offer a much more favorable prognosis than actinomycosis elsewhere in the body, due to their accessibility and the greater likelihood of early recognition.

Dr. William J. Morginson, Salt Lake City: At Bushnell General Hospital 12 patients with actinomycosis were treated with penicillin. One patient was moribund when admitted to the hospital. Actinomyces was recovered from his sputum, from a subdiaphragmatic abscess and from a knee joint. After the administration of 8 million or more units of penicillin and prolonged hospitalization; he was returned to full duty. While treating these actinomycotic patients with penicillin, patients in a comparable series were treated with massive iodide therapy, 500 grains (32.4 Gm.) per day, roentgen therapy and thymol. All the patients in both series recovered, as judged by follow-ups of eight months to a year. It was concluded that penicillin is an effective agent against actinomycosis but not any more effective than older methods of treatment with iodides, roentgen therapy and thymol. However, in the case of the previously mentioned moribund patient penicillin was apparently lifesaving, as it is doubtful if other methods would have been effective.

Dr. C. Guy Lane, Boston: As Dr. Lamb has shown, there are comparatively few cases of actinomycosis in Massachusetts; but several years ago I had a case which brings out two points pertinent to this discussion. A man aged 50 had an extensive actinomycosis of the right side of the face and neck, and eventually of the left side, which had been present for several years before my associates and I saw him, although the diagnosis had not been made. Drs. Swartz and Rockwood concluded that it was due to A. bovis. He did not respond to either iodide or large doses of filtered radiation. He was under study for some time. Eventually his infection responded to combined doses of a sulfonamide compound, I believe it was sulfadiazine, and iodides. The lesions disappeared, and any discharge was persistently negative. As time went on, however, he had a good deal of contraction, probably from the disease and perhaps from the extensive radiation that he had, so that he was unable to open his mouth more than enough to insert a throat stick. He lost weight and strength and became very thin. No lesions were appearing and nothing was active by roentgen examination. Eventually the oral surgeon operated on him, cut some scar tissue and lengthened the muscles, so that he was able to eat satisfactorily and gain weight. The two points that I wish to emphasize in this case are, first, the fact that before the days of penicillin the infection responded to conjoint iodide and sulfadiazine therapy, and, second, the complication of persistent scar tissue which needed operative correction.

Dr. Stephen Rothman, Chicago: From Dr. Lamb's presentation I would draw the conclusion that an effective chemotherapy of this severe disease has not been found. In Hungary where the disease is rather common in the rural population I experienced several waves of initial enthusiasm about therapy with new methods, such as vaccines and injections of gold. Disappointment followed soon. Lately I went through a similar wave of enthusiasm with sulfonamide compounds. They obviously have an influence on secondary infection only. Roentgen rays are not fungicidal. They only reduce the amount of granulation tissue and thereby create less favorable conditions for the ray fungus.

Dr. John H. Lamb, Oklahoma City: Dr. Weidman suggests that our percentage of cures in this disease is much higher than that encountered in the East. The criterion for cure in actinomycosis appears to be early diagnosis and early treatment. It has been our good fortune that a great percentage of our cases were sent by two exodontists who made a diagnosis early and sent the patients to us for treatment before the infiltrations were widely spread. The cases which have not been cured have been ones of long duration, which were treated by various other methods before the patients were seen by us. In answer to Dr. Gandy's remarks, roentgen therapy must often be started before one has a microscopic confirmation of the diagnosis, which must be made clinically without delaying the start of treatment, since each day the disease becomes more difficult to cure. Many times we have not found the granules until the thirtieth day of treatment. Dr. Morginson suggests that penicillin is a good treatment for actinomycosis. This is true in a certain percentage of cases. When it does work the results are indeed dramatic, and I must stress that high dosage levels over prolonged periods are indicated.

Clinical Notes, Suggestions and New Instruments

MELIOIDOSIS

Report of First Case from the Western Hemisphere

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Melioidosis is a specific infection caused by the glanders-like bacillus, Malleomyces pseudomallei. This organism usually produces an acute pulmonary and septicemic form of the disease, with multiple miliary abscesses in the viscera and with early death, but occasionally causes a chronic form, with multiple sinuses of the soft tissue, which is similar to glanders. About 300 cases have been reported, nearly all of them from the Far East. Krishnaswami[1] observed 200 cases in Rangoon and others have been reported from elsewhere in Burma, the Federated Malay States, Indo-China, Siam, Ceylon and the Dutch East Indies. Grant and Barwell[2] observed a chronic case in England in a British soldier who contracted it in the island of Penang. Mayer and Finlayson[1] reported a chronic case from South Africa in a soldier who contracted it in the island of Singapore. Cox and Arbogast[3] recorded an instance of the disease in an American soldier in Burma. Mirick and his associates[1] reported 2 cases in American military personnel in Guam. It is believed that our patient is the first one to be reported from the Western Hemisphere.

The disease was first discovered and the organism identified in Rangoon by Whitmore in 1912. In the Far East it is primarily a disease of rodents, but it is often impossible to demonstrate it in rats in the immediate area in which cases occur in human beings. The mode of transmission is unknown, though some believe it is probably by contamination of foods with the excreta of rats. Blanc and Baltazard[5] have demonstrated experimentally that the disease can be transmitted by the Aedes aegypti mosquito and the rat flea, Xenopsylla cheopsis. Human to human transmission has not been reported.

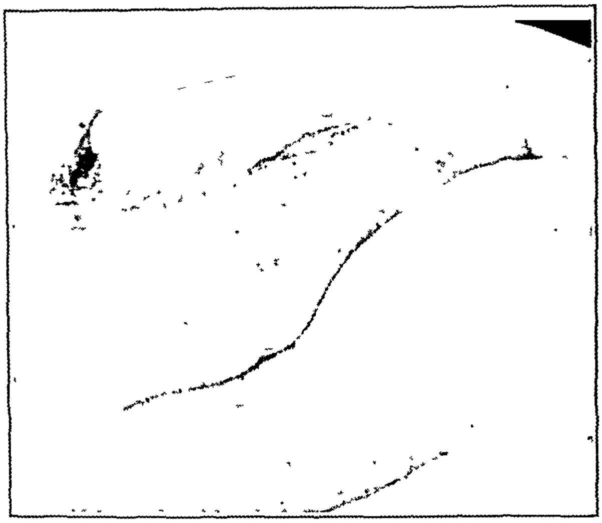
No cures have been reported, though some patients with the chronic form of the disease were greatly improved at the time when their cases were reported and may have since recovered. Penicillin has been used in large amounts in several cases, including ours, without effect. The organism is decidedly sensitive, at first, to sulfadiazine in vitro, but this drug did not help our patient. Grant and Barwell's patient seemed somewhat better when he was taking sulfadiazine, but the temperature went up again each time that administration of the drug was discontinued. At the suggestion of Dr. Jacques Bronfenbrenner and Dr. Barry Wood, streptomycin was tested both in vitro and clinically on our patient. In vitro, the organism, which was extremely sensitive to this drug at first, rapidly became quite resistant; clinically, the patient did not seem to benefit from streptomycin therapy.

The acute form of the disease is often not diagnosed until the postmortem examination. There seems to be nothing particularly characteristic about it, as the symptoms and signs which are usually noted are a sudden onset with high fever, prostration, signs of bronchopneumonia (sometimes hemoptysis), generalized aching pains, diarrhea, lymphadenopathy, collapse and death, which often occurs on the third to the seventh day of the disease.

Of the 8 chronic cases reported, all but 2 developed as a sequel after the patient had survived the acute form of the disease. These patients have chronic ulcers, with subcutaneous and deeper sinuses burrowing out from them and ending in tender, granulomatous nodules, which later break down into abscesses. It somewhat resembles glanders and generalized mycosis.

REPORT OF CASE

History.—W. M., a white man aged 31, entered Barnes Hospital on Oct. 6, 1945 with ulcers and sinuses of the right buttock and thigh of eight years' duration. His story began when he fell, injuring his coccygeal area. Three days later he had a tender, dark swelling in this area, which was incised by his local physician, who thought it was an infected pilonidal cyst. The lesion has not been healed since this time. After the incision he was in the hospital eleven days but was not extremely ill. Three days after he left the hospital he collapsed in the street, and for the next thirty-nine days, unconscious with a high fever, he was in his local hospital. After he regained consciousness, he remained in this hospital for three years and eight months, having seventy-eight drainage operations for abscesses about the right buttock and thigh from the iliac crest to the knee, posteriorly. Since he left there, he has been in a number of the leading clinics and hospitals of this country and has had almost every known form of therapy. He has had numerous courses of sulfathiazole, sulfapyridine and sulfadiazine, usually taking 5 to 6 Gm. a day, but has had to stop each time in three weeks or less because of cutaneous rashes, nausea and vomiting. He thought that the sulfonamide drugs had not helped him. A few months before entry at Barnes, he had undergone an operation in which "14 pounds of flesh and eight abscess sinuses" were removed, and this seemed to help him more than anything tried previously. Amputation had been considered, but the area of involvement seemed too widespread for even an interinnominate one.



Posterior view of right buttock and thigh with patient lying on his left side. Some of the numerous scars of old incisions and tunnels may be seen, showing that the area of involvement is much greater than the surface ulceration.

Much of his past life had been consumed by illnesses, including poliomyelitis with six corrective foot operations, spinal meningitis, typhoid, scarlet fever, diphtheria, whooping cough, measles, chickenpox, mumps, trachoma, a tonsillectomy and a mastoidectomy. He had worked as a machinist and had lived in Oklahoma, Missouri and Illinois, except for 1927 and 1928,

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From the Departments of Surgery and Bacteriology, Washington University School of Medicine.

[1] Mayer, J. H., and Finlayson, M. H.: Chronic Melioidosis: Case with Bone and Pulmonary Lesions, South African M. J. **18:** 109-112 (April 8) 1944.

[2] Grant, A., and Barwell, C.: Chronic Melioidosis: A Case Diagnosed in England, Lancet **1:** 199-201 (Feb. 13) 1943.

[3] Cox, C. D., and Arbogast, J. L.: Melioidosis, Am. J. Clin. Path. **15:** 567-570 (Dec.) 1945.

[4] Mirick, G. S.; Zimmerman, H. M.; Maner, G. D., and Humphrey, A. A.: Melioidosis on Guam, J. A. M. A. **130:** 1063-1067 (April 20) 1946.

[5] Blanc, G., and Baltazard, M.: Transmission of Whitmore's Bacillus by Aedes aegypti, Compt. rend. Acad d. sc. **213:** 670-672 (Nov. 10) 1941; Transmission of Whitmore's Bacillus by Rat Flea Xenopsylla Cheopsis, ibid. **213:** 541-543 (Oct. 20) 1941.

when he was employed in the Panama Canal Zone. Four years ago his weight was down to 119 pounds (54 Kg.), but he has since regained his average weight of 200 pounds (91 Kg.). He has had "bronchial asthma" for the last few years.

Physical Examination.—The patient was moderately obese, had a sallow complexion and was able to walk with some difficulty and considerable pain. There were several chronic, granulating ulcers on the right buttock and thigh, with some subcutaneous tunnels extending out from them. These tunnels ended in tender subcutaneous swellings. The granulations on the ulcers were coarse and gray, but opposite the mouths of the tunnels, where the secretions poured out onto the granulations, they appeared to have been coagulated by heat or caustic chemicals. In some places, where the secretions had apparently drained across the ulcer and onto the normal skin on the other side, this skin was etched as though by some corrosive. The inguinal lymph nodes on that side were swollen and tender but had not been incised. Motion in the hip and knee joints was not restricted, and roentgenograms appeared to reveal normal conditions. Cutaneous sensation was normal except immediately adjacent to active lesions or old scars.

There were a few wheezes and sibilant rales over the two upper lung fields. Roentgenograms of the chest showed only some increase in hilar markings and peribronchial thickening. The reflexes were physiologic, and the remainder of the examination was negative except for the poliomyelitis residual in one of the feet.

Laboratory Examinations.—Urinalysis was negative, and the nonprotein nitrogen of the blood was 17 mg. per hundred cubic centimeters The white blood cell count varied from 5,500 to 15,000 with a slight lymphocytosis in the differential. The red blood cell count was 4,600,000 and the hemoglobin was 13 Gm. on entry, but a moderate secondary anemia repeatedly developed in the patient, and he required transfusions of blood several times during his stay. The serum protein level was 6.4 Gm. per hundred cubic centimeters, and smears for malaria were negative. The mallein ophthalmic test was negative.

Course.—A prolonged attempt was made to get the granulating areas clean, fine and bright red by daily scrubbing with soap and water and pressure dressings with fine mesh gauze next to the wounds. They improved but did not assume a healthy appearance suitable for a skin graft. Local applications of the various dye antiseptics, parachlorophenol, tyrothricin, chlorazodin, zinc peroxide, hydrogen peroxide, sulfonamide drugs, Dakin's solution, isotonic solution of sodium chloride, iodoform, peruvian balsam, merthiolate ointment, xeroform ointment, scarlet red ointment and petrolatum were tried at various times in conjunction with the previously mentioned treatment. None seemed to benefit the patient much, though he seemed to do better on a combination of 10 per cent merbromin and 1 : 2,000 merthiolate ointment than on anything else. Several nodules were drained and tunnels laid open, and in November the thigh portion was covered with split grafts which took almost completely. Cultures had been taken from the tunnels and granulations on several occasions for routine laboratory examination. Various types of staphylococci, nonhemolytic streptococci, Proteus ammoniae and Bacillus pyocyaneus were reported. In January a new nodule was opened, and one of us (P. L. V.) isolated M. pseudomallei from the contents in large numbers.

After in vitro tests, the patient was given 16 million units of streptomycin intramuscularly (4 million for two days, 2 million for one day and 1 million for six days) without any demonstrable improvement. Prior to this he had received large amounts of penicillin without effect, and sulfadiazine therapy had been tried but discontinued because it caused nausea, vomiting and a cutaneous rash.

Subsequent to streptomycin therapy, the remaining nodules and sinuses were opened, and in February a widespread cautery excision of the buttock and upper thigh was performed, removing all the skin, the subcutaneous fat, most of the gluteus maximus and part of the hamstrings. The excision seemed to be well out into normal tissue, and afterwards the pain of the patient diminished and his temperature (which had remained constantly between 39 and 40 C., 102 and 104 F.) fell almost to normal. The granulations which developed seemed quite clean, and in April the area was covered with split-skin grafts. The grafts took every place except at the top of the wound. This remaining area was excised with the cautery in June and was grafted early in July. Most of the graft took, but the patient still had some small granulating areas when he was discharged July 21, 1946. At this time, he had not had any new sinuses or nodules for some months and was so much better generally that we could not persuade him to remain longer, though we did not feel that he was free of the disease.

Bacteriologic Studies.—The organism was recovered repeatedly from blood agar cultures of pus and tissue débris, but cultures of the patient's blood and sputum were negative. The organisms from both the smooth and rough colonies were poorly staining, bipolar, gram-negative and non-acid-fast, and under suitable conditions they exhibited rapid serpentine mobility. Those from rough colonies averaged 2 by 0.6 microns in size, while those from smooth colonies were usually longer and narrower, occasionally reaching a length of 5 to 6 microns. In stained preparations they exhibited decided parallelism and were usually arranged in an irregular network. The bacilli appeared encapsulated, especially in freshly isolated cultures or animal lesions, but no capsules were demonstrated by staining. The organisms resembled Malleomyces mallei, except that they were motile, while the colonies exactly resembled those of M. pseudomallei as described by Topley.

Growth was strictly aerobic, and the organisms grew rapidly and profusely on all commonly used mediums at 24 to 37 C., development being especially good on mediums with a tryptose base and better on blood agar than on plain agar. On blood agar, corrugated forms developed into smooth or only slightly roughened colonies, rarely larger in diameter than 3 to 4 mm., which were entire, hemispherical and mucoid. Colonies of the smooth form were entire, convex and mucoid and often grew to a diameter of 8 mm. The colonies were initially grayish white but changed to a deep brown. The colonies were surrounded by a narrow inner zone of complete hemolysis and a larger zone of diffuse hemolysis.

An extended examination of the organism was made to establish its identity, complete cultural and morphologic characteristics and behavior in animals, as well as the in vitro effect of various chemotherapeutic agents and antibiotics on it. These data will be published in detail in the bacteriologic literature.

COMMENT

It is interesting that Grant and Barwell's patient and Mayer and Finlayson's patient also had involvement of the right buttock and hip region, though in both there later developed osseous lesions. Our patient did not have any demonstrable lesion of the bone on several roentgenograms which were taken during the period of observation.

The occurrence of an isolated case of this disease in the interior of the United States is not easily explained. There is no history of any animal bites or unusual exposure to insects, and the patient has never known any one else who had a similar disease.

SUMMARY

The first case of melioidosis occurring in the Western Hemisphere is reported. It was the chronic form, consisting of ulcers and sinuses about the buttock and thigh, but may have been preceded by an acute pneumonic phase. General therapy with sulfonamide drugs, penicillin and streptomycin was ineffectual. Local treatment with a wide variety of agents was of little benefit. Widespread cautery excision, followed later by skin grafting, seemed to be the most helpful form of treatment.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

In the interest of better controls to insure potency, purity and uniformity of finished products that are accepted for inclusion in N. N. R., the Council is now requiring manufacturers to supply more specific information on the test procedures that are used to control the composition of submitted products. The following statement, adopted by the Council, outlines for manufacturers the points on which the Council will henceforth require additional specific information on articles submitted for inclusion in N. N. R. This statement is now printed with the "Official Rules" of the Council, a copy of which will be furnished on request.

AUSTIN SMITH, M.D., *Secretary.*

CONTROL PROCEDURES FOR ARTICLES INCLUDED IN NEW AND NONOFFICIAL REMEDIES

Manufacturers must submit a statement of the control processes used for each product submitted to the Council. Unnecessary duplication may be avoided with subsequently submitted articles of one type by reference to the first general statement made concerning control methods employed for an article of that same class.

The description of control procedures should include information on each of the following points (where applicable):

(*a*) Precautions to insure proper identity, strength and purity of the raw materials.

(*b*) Precautions to preserve sanitary conditions in space allotted to storage of raw materials.

(*c*) Whether or not each lot of raw materials is given a serial number to identify it and the use made of such numbers in subsequent plant operations.

(*d*) Method of preparation of formula card and manner in which it is used.

(*e*) Manner in which weights and measures of each individual ingredient are checked when preparing formula.

(*f*) Whether or not the total weight or volume of each batch is determined at any stage of the manufacturing process subsequent to making up a batch according to the formula card and at what stage and by whom this is done.

(*g*) Methods of maintaining sanitary conditions within the manufacturing plant and avoiding contamination of the drug with filth, dust and extraneous material.

(*h*) Precautions to check the total number of finished packages produced from a batch of the drug with the theoretical yield.

(*i*) Precautions to insure that the proper labels are placed on the drug for a particular lot.

(*j*) The analytical controls used during the various stages of the manufacturing, processing and packing of the drug, including a detailed description of the collection of samples and the analytical procedures to which they are submitted. If the article is one which is represented as sterile, the same information should be given for sterility controls.

(*k*) An explanation of the exact significance of any control numbers used in the manufacturing, processing and packing of the drug, including any code numbers which may appear on the label of the finished article.

(*l*) Additional procedures employed which are designed to prevent contamination and otherwise insure proper control of the product.

(*m*) Are representative samples of each lot of the drug examined by any other laboratory (government or private) prior to distribution? If so, by whom?

PRESENTATION OF ARTICLES FOR N. N. R.

To facilitate the proper presentation of articles that are submitted for inclusion in New and Nonofficial Remedies, the Council has adopted the following statement as a supplementary guide to manufacturers to assist them in compliance with the Official Rules. Delay in obtaining prompt action on articles submitted for N. N. R. is frequently traceable to lack of required data and failure to comply with the rules. This statement is therefore provided to insure uniformity of understanding concerning the procedure to be followed and the type of information that is required for the presentation of articles that are eligible for inclusion in N. N. R. A reprint of this statement and copy of the Official Rules of the Council will be furnished to manufacturers on request.

AUSTIN SMITH, M.D., *Secretary.*

ELIGIBILITY FOR N. N. R.

Before submitting any article for inclusion in N. N. R., a careful study of the Official Rules and of N. N. R. should be made to determine its eligibility for acceptance by the Council. Articles of questionable eligibility may have their status determined prior to formal presentation on request of the manufacturer. Such preliminary requests directed to the Council office may avoid waste of time for all concerned.

New drugs, not yet released for commercial distribution by the Food & Drug Administration, will not be accepted until passed by that agency unless it seems evident that the product will be placed in interstate commerce. The Council restricts acceptance to articles that are available on the market or soon to be placed thereon and to articles that are marketed in the United States.

1. Articles belonging to a class of preparations already rejected by the Council and for which new evidence is lacking to overcome previous objections are obviously ineligible for inclusion in N. N. R. A cumulative list of references to reports of the Council on articles previously rejected or on which unfavorable action has been taken will be found in the Bibliographic Index of N. N. R.

2. Articles that have had official (U. S. P. or N. F.) status for more than twenty years (except products licensable under the Serums, Virus and Vaccine Act, including arsenicals for syphilis, which are admissible) or have been specifically exempted from consideration by previous action of the Council, are likewise in general ineligible for N. N. R. (Report of the Council: Preparations Exempt from Council Consideration, J. A. M. A. **129**:1017 [Dec. 8] 1945).

3. Articles advertised to the public without adequate directions for use or against abuse or that are not considered safe for use by the general population without medical supervision are ineligible for inclusion in N. N. R. Thus far the Council has classified as safe for public use (*a*) antiseptics for prophylactic application to minor injuries of the skin, (*b*) laxatives not prone to abuse, (*c*) antacids and analgesics that can be safely used for the temporary relief of symptoms.

4. Articles of nonmedical significance or that are not intended for the diagnosis, prevention or treatment of disease are not eligible for N. N. R. Thus, articles not used in or on the human body, or used outside the body for purposes that are not directly or indirectly of medical significance, would not come within the purview of the Council.

5. Instruments or devices per se that do not directly involve consideration of some medicinal or pharmaceutic substance are also outside the purview of the Council.

METHOD OF PRESENTATION

The procedure in submitting an article to the Council consists in forwarding to the Secretary: A complete description of the product (dated and signed) *in duplicate*, in accordance with the form outlined in subsequent paragraphs; three trade packages of each dosage form of the product to be considered (not to include more than one quantity package of identical lots of the same item); one sample of *each active ingredient* contained in the product; twenty-two copies each of all labels (container, package, carton), package enclosures (leaflet or circular) for each submitted dosage form and of *each piece of advertising* for the product that is distributed or intended for distribution. (Advertising for submitted articles that mentions other products not submitted or already accepted by the Council for inclusion in N. N. R. cannot be approved for distribution unless the advertising is revised to eliminate the unaccepted items.) Consideration is expedited if the labels are mounted on normal size letter paper so that twenty-two separate sets of labels will be available for examination. In the case of new drugs or of well known articles, for which new therapeutic claims are advanced, the outlined description should be supplemented by twenty-two copies of reprints (or suitable abstracts) of all available experimental and clinical evidence including references to the published scientific literature or other sources from which it is derived. The Council considers it the responsibility of the manufacturer to furnish evidence to support all claims made for products that it markets. When the article submitted represents only a new brand of a preparation already described in N. N. R., such evidence is not required so long as the claims do not go beyond the statements made in that publication. When the article is simply a dosage form of a brand of the product already accepted, only that information essential to supplement the original presentation of the article to afford a clear description of the composition and purpose of the new dosage form is required, in addition to the necessary specimens and copies of the labeling and any new advertising. When two or more dosage forms of the same product are submitted together, the information may frequently be combined in the same outline when that is feasible. The inclusion of unacceptable dosage forms (or mention of them in the advertising) in a presentation submitted for otherwise acceptable items of the same product frequently causes delay in acceptance of the recognized dosage forms. Separate outlines for dosage forms involving special vehicles or bases may avoid the confusion that sometimes arises in this connection. The Council has restricted acceptance of certain products to dosage forms of specific size or concentration that is indicated either in the Official Rules or in N. N. R. under the general statements for the class of articles affected.

OUTLINE OF DESCRIPTION

1. *Name of Product.*—The protected (trademark) or coined name, if any, should be supplied; otherwise the common name used to designate the product may be given. The common name should, when applicable, conform to the official (U. S. P. or N. F.) designation or the nonproprietary (generic) name adopted by the Council. Protected names should comply with all stipulations of rule 5 concerning acceptable nomenclature and should be followed at this point of the outline with a brief explanatory statement of the significance and reason for choice, together with the date the name was first used publicly to designate the product. (The Council does not recognize protected names that were not in public use prior to admission of the article to official status in the U. S. P. or N. F.) The name (protected or otherwise) should be reasonably descriptive if possible of the principal active ingredient, should include the designation of the salt when it is present in such form, and, when applied to specific dosage forms, should include an appropriate designation of the nature of the product and the quantity or concentration of the active ingredient, e. g. Tablets Phenobarbital, 0.1 Gm., Solution Phenobarbital Sodium 10 per cent. Likewise, certain ingredients that may be present in sufficient amounts or concentration to produce a prominent, though secondary, therapeutic effect (intended or otherwise) are required to be declared as part of the name for the product, e. g. Solution Sodium Morrhuate 5 per cent with Benzyl Alcohol 1 per cent. Care should be taken that the name given and its word order corresponds to that shown on the submitted labeling and advertising.

2. *Synonyms.*—The official or N. N. R. name that may be used for prescribing when a protected or coined name is used to designate the product should be submitted; if marketed only under an official, Council-adopted or common or generic name, any other appropriate synonym that may be applicable is satisfactory. When a protected name is used, and an official or Council-adopted nonproprietary name does not exist, one or more suggested nonprotected names suitable as a generic designation should be submitted for consideration by the Council's Committee on Nomenclature. In all cases when a protected name is used, the official or N. N. R. name is required to be displayed on the labeling and advertising, with sufficient prominence to permit ready identification of the product, e. g. Tablets Luminal (Brand of Phenobarbital), 0.1 Gm.; Solution Luminal Sodium (Brand of Phenobarbital Sodium), 10 per cent.

3. *Definition.*—If the article represents a definite substance, its scientific name and its structural chemical formula so far as this can be ascertained must be submitted. If the article is a mixture, or is submitted in the form of tablets, solution, ointment or the like, a quantitative statement of composition of all active medicinal ingredients, including preservatives, vehicle, base or excipient, preferably in percentage form (when applicable) and in the metric system should also be offered. Unless otherwise indicated, per cent figures will be understood to follow the meaning of percentage as defined for the U. S. P. Labeling should carry a quantitative declaration of all active ingredients unless this is clear from the name used to designate the product and, in the case of injectable preparations, must include a declaration of the presence of any preservatives that are added. The identity of the vehicle or base in the case of solutions, suspensions or ointments not self evident from the name should be specifically stated on the label. In the case of biologic products for injection or topical application to denuded surfaces, the Council encourages the declaration of the animal source of the material because they are capable of precipitating allergic reactions in sensitive persons.

4. *Preparation.*—The description should contain a general statement of the process of manufacture. Details of the process may be omitted, but sufficient description is to be included to enable the Council to assure itself that the process will result in a product of the claimed identity, strength, quality and purity. Particular attention should be paid at this point to indicate all control procedures used to detect errors in manufacture and to insure the satisfactory character of the finished product. The Council requires detailed information concerning the methods used to control the potency and composition of each dosage form that is submitted. Information required on control procedures is outlined under this heading with the Official Rules of the Council.

5. *Properties.*—Appearance, odor, taste and any characteristic physical-chemical properties such as melting point, boiling point, solubility and any important incompatibilities must be stated.

6. *Tests.*—If the article is a chemical substance, there must be submitted adequate tests of identity, strength, quality and purity, including methods of assay. Upper and lower limits of acceptability for ingredients assayed are to be indicated. If the product is a mixture, methods for identification and assay of principal active ingredients are necessary. For vitamin preparations or other substances which must be biologically assayed, protocols of several typical assays, signed by a reputable biological chemist or other qualified assayist, should be presented. If the article is one which is represented to be sterile or because of its manner of use should be sterile, the methods used to determine its sterility, including method of sampling, bacteriologic method, frequency of examination and other pertinent information should be given. All methods should be described in accordance with the style of N. N. R. or of the U. S. P.

7. *Pharmacologic Action.*—General information is necessary concerning the absorption, actions, toxicity and fate or excretion of the preparation, particularly as applied to the manner in which it is intended to be used, i. e. by injection, oral administration or topical application. In the case of disinfectants, antifungal agents or spermicides the appropriate experimental tests made to demonstrate the efficiency of the product should

be outlined. Details of certain pharmacologic, bacteriologic or biologic tests that are required by the Council are described with the Official Rules. When such data are required for specified classes of articles or when the product is a new drug, these detailed reports should be separately compiled (in abstract form if extensive) and twenty-two copies supplied as a supplement to the information given under this heading.

8. *Therapeutic Indications.*—A brief statement of the conditions and/or diseases in which the article is claimed to be indicated is necessary. This should include any diagnostic and prophylactic as well as therapeutic uses. These should correspond to the actions and uses given in N. N. R. when applicable. If additional claims are advanced or if the article is a new drug, all claims must be supported by the pharmacologic or bacteriologic evidence given in the preceding section and by clinical studies to be outlined under this heading. The type of clinical evidence required is set forth with the Official Rules. In general, this should include a summary of the various conditions treated, the number and type of cases treated, the dosage, frequency and duration of the administration of the drug, the therapeutic effects and any untoward reactions observed. The actual clinical data, including a bibliography, should be furnished as a separate supplement to this part of the presentation, accompanied with twenty-two copies of each protocol, reprint or other suitable reproduction of the evidence. When extensive, the detailed reports may be submitted in duplicate and twenty-two copies of a suitable comprehensive and unbiased summary or abstract furnished for the Council. Care should be taken to see that the therapeutic claims that appear in the advertising for the product correspond to the indications and evidence given in this presentation.

9. *Dosage.*—When applicable, the dosage and method of administration recommended should correspond to the one specified in N. N. R. When the product is a new dosage form of an article otherwise described in N. N. R., the details of dosage and administration for the proposed product should be given, together with any necessary precautions peculiar to its mode of application. Similar care should be taken to supply all essential dosage information for a new drug.

10. *How Supplied.*—A list should be given of all dosage forms, sizes and package forms of the article that are intended for consideration by the Council and that are described in the foregoing outline. A statement should also be included to indicate whether or not the active ingredient is marketed in bulk.

11. *Manufacturer.*—The name of the firm that is responsible for the finished article as labeled and the names of the manufacturers of all ingredients contained in the article must be stated.

12. *Patents and Trademarks.*—When pertinent, the number of the U. S. patent and number of the patent in the country of origin is necessary. If the article bears a registered trademark, its number and, if registered in foreign countries, the name or names under which it is so registered is also required.

Firms submitting for the first time an article eligible for inclusion in N. N. R. are required to supply the following additional information (*in duplicate*) at the time the first such presentation is made to the Council:

(*a*) Price list or other suitable tabulation of all products sold by the firm for human medicinal use.

(*b*) A statement of the laboratory and control personnel of the firm and their qualifications.

(*c*) A general statement of the firm's policies with respect to its scientific aims and methods of marketing drugs either for the public or for the profession. This should include present practices as well as any future plans.

(*d*) A statement, signed by a responsible officer of the firm, that it agrees to notify the Council promptly on the discovery that an error has been found in the compounding of any of its Council-accepted preparations, either by the firm itself or by a government or other outside agency, that causes the article to differ from its standard of identity, strength, quality or purity.

(*e*) A statement, also properly authorized, that the firm agrees to abide by the rules of the Council as applied to brands of its articles that may be accepted for inclusion in N. N. R. and to submit to the Council before implemented all future proposals for changes in the composition, labeling, advertising or market status of such products.

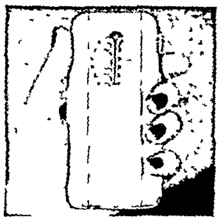
Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. Howard A. Carter, *Secretary.*

PARAVOX HEARING AID MODEL XT ACCEPTABLE

Manufacturer: Paraphone Hearing Aid Company, 2056 East Fourth Street, Cleveland 15.

This instrument is self contained, batteries being inserted in the back of the case. The case is of pressed metal in three parts —one front and two back pieces. One of the back pieces slides off for battery replacement, the other for chassis change. The wearing clip is centered in the slotted grill over the microphone. The volume control and "on-off-tone" switches are placed at the upper corners of the instrument. One receiver, a crystal type, was supplied. Three "tone" selections are readily available.



Paravox Hearing Aid, Model XT.

Dimensions and Weight

Single unit with batteries: 5⅛ by 2⁷⁄₁₆ by ¾ inch (13.0 by 6.2 by 1.9 cm.), weight 6.2 ounces (175 Gm.).

Battery Data		Measured Voltage	Measured Current
A	1½ volts	1.3 volts	60 milliamperes
B	30 volts	28 volts	0.8 milliampere

Acoustical Gain

Measurements of the gain in decibels in the sound pressure level referred to 0.0002 dyne/sq. cm. attached to a 2 cc. coupler over the pressure levels at the microphone were made at nineteen frequencies between 200 and 4,096 cycles per second with the input level set at 0.02 dyne/sq. cm. The following figures are typical of the gains in decibels when the volume control was set full on:

Frequency.......	256	512	1,024	1,200	2,250	3,100	4,096 cycles
Tone controls							
"1 dot"........	35	47	52	57	42	43	48 db.
"3 dots".......	21	33	38	42	24	24	27 db.

Approximate values of maximum pressure levels at four frequencies observed on a 2 cubic centimeter coupler, with volume control set for full gain and the "two dot" tone setting:

Frequency	Input Level	Maximum Output Level
600 cycles	65 decibels	103 decibels
1,024 cycles	81 decibels	107 decibels
1,400 cycles	80 decibels	113 decibels
2,048 cycles	70 decibels	99.5 decibels

The usual articulation and intelligibility tests were made with a hard-of-hearing subject and showed a syllable articulation of 94 per cent and sentence intelligibility of 100 per cent. The whispered voice was understood at a distance of 5 feet.

The Council on Physical Medicine voted to include the Paravox Hearing Aid, Model XT, in its list of accepted devices.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 24, 1947

WORK OF CIVILIAN PHYSICIANS DURING WORLD WAR II

Elsewhere in this issue (p. 369) appears a final report on the replies to the questionnaire developed by the Committee on National Emergency Medical Service on Medical Care of Civilians During World War II. The facsimiles of the questionnaire show the composite replies to each question in percentages of 2,322, the number of returned questionnaires used in the analysis. All statistical tests indicate that the 2,322 replies constitute an extremely good cross section of the physicians who remained in civilian practice during the war period.

The most depleted specialties during the war were internal medicine, surgery, pediatrics and orthopedic surgery. The patient load in 1944 was about three fourths greater than in 1941. This increase strongly suggests that the medical profession was probably more overworked than any other group of civilians. The sharp rise in the average income of physicians during the war period is explained by this increase in patient load. About 4 per cent of the civilian physician's time was devoted to Selective Service board examinations. Of the replying physicians 68 per cent approved a proposal that all qualified physicians in the community be required to serve on Selective Service boards in the event of another national emergency; 20 per cent said No and 12 per cent passed up the question. The Committee asked *the civilian practitioner, the only competent judge*, whether more physicians could have been spared for military service from his community. The response was 66 per cent No, 25 per cent Yes and 10 per cent No Answer. The footnote on question 42 indicates that a disproportionate number of No's came from physicians in towns under 2,500 and a disproportionate number of Yes's from physicians in individual practice in cities of over 1,000,000. Although 46 per cent reported that hospital facilities were unnecessarily depleted, 51 per cent did not attribute the shortage to military hospital construction. Seventy-four per cent hoped that in the event of another war military hospitals with idle staffs and beds in hard pressed civilian areas would be opened to civilian patients.

The replying physicians were favorably impressed by the method of deferment of medical and premedical students, as 70.3 per cent rated it Good or Fair. Also they thought well of the Procurement and Assignment Service, as 77 per cent rated it Good or Fair as it affected their communities. Only 53 per cent thought civilian nursing and technical personnel was unduly and dangerously reduced by induction into the armed forces.

In the event of another national emergency (1) 77 per cent favor the creation of a board representing the medical profession empowered to set the policy for the utilization of all physicians, (2) 50 per cent favor rotation between the armed services and civilian practice of all able bodied physicians below a reasonable maximum age despite the obvious administrative difficulties, (3) 60 per cent favor a national service bill that would require all physicians at reasonable ages to serve the government in some capacity in the armed forces or in civilian communities and (4) 81 per cent favor the formation of mobile civilian medical teams to supply areas stricken by epidemics and atomic or bacteriologic warfare. The No votes were 8, 38, 28 and 5 per cent respectively, the remainder of 100 per cent being No Answer.

The report to the Committee by the Bureau of Medical Economic Research on the replies to the first questionnaire from 26,000 discharged medical officers will be available on June 9 in Atlantic City. Obviously two questionnaires could not possibly cover all features of wartime medicine. Although some will doubtless question the competence of one or a few physicians to judge these questions of wartime medical supply and demand, both military and civilian, the recorded opinions of these many thousands of representative physicians about their military or civilian practices must command the attention of all people deeply involved in the unwanted task of preparing for another national emergency. A reasonable division of the scarce supply of medical services between military personnel and civilians must prevail.

Dickinson points out that civilian health during World War II was *extremely good even though* the 91 per cent of the population which remained civilian was served by less than 60 per cent of the medical practitioners; he lists some of the factors which explain the "riddle of supply." As an economist he calls this to the attention of those who are making extreme claims that a severe nationwide shortage of practitioners will exist after medical demobilization is substantially complete and even when the 10,000 to 15,000 discharged medical officers now in graduate training enter private practice.

ENDOMETRIAL TOXIN

In 1919 Obata[1] of the University of Tokyo showed that salt solution extracts of the human placenta are highly toxic for rabbits and mice. Within the limits of the experimental error extracts from the normal human placenta and from the placentas of eclamptic patients were identical in toxicity. He found that normal human serum can neutralize the placental toxin but that the antitoxic titer is low in eclamptic women. He concluded that eclampsia is an intoxication by the placental toxin made possible by a weakened antitoxic capacity of the maternal blood. The cause of this reduction of maternal antitoxin was not determined. His associates[2] found that a similar toxic product was produced by autolysis of the uterus.

Interest in Obata's toxic theory has been revived by Krichesky,[3] who recently discovered that saline extracts of pregnant and pseudopregnant rabbit uteri are highly toxic when injected intravenously into rabbits. Similar extracts of rabbit muscle, liver and nonpregnant uterus were nontoxic.

Following this renewed interest, Schneider[4] of the department of pathology of Stanford University undertook a quantitative study of the toxic effects of extracts from different portions of the uterus in different functional states from several animal species, with control tests of the toxicity of extracts of liver, intestine and skeletal muscle.

In mice, rats, rabbits and dogs an increase in tolerance could be built up by repeated injections of toxic extracts. After such preparation the animals survived the injection of as much as four times the normal minimum lethal dose of the extract. Within two days the acquired tolerance was completely lost in mice. Intramuscular, intraperitoneal and subcutaneous injection of multiple lethal doses were relatively nontoxic, though an occasional mouse developed convulsions and died after intramuscular injection.

Applying his routine mouse test, Schneider found that control extracts from the liver, small intestine and skeletal muscles of most animals thus far tested are nontoxic. Nontoxic extracts also were obtained from both pregnant and nonpregnant human myometrium and from the virgin uteri of the cow, sheep and rabbit. In contrast highly toxic extracts were obtained from human, cow and sheep placentas, and from the endometriums of man and all pregnant animals thus far tested. These placentas or endometriums often had a titer as high as 200 lethal mouse units per gram of tissue.

A number of the properties of the endometrial-placental toxin have been determined. Among the most important is its neutralization by normal blood or serum. A serum concentration of as little as 5 per cent causes a 50 per cent decrease in toxicity within an hour. Higher blood or serum concentrations completely neutralize the toxin. The toxic substance is not extractable in ether, acetone or alcohol. The extract is completely inactivated by heating to 75 C. for ten minutes. The product is nondialyzable through a cellophane membrane. The toxin is therefore presumably a protein and not the simple histamine-like substance described by previous investigators.[3]

During the course of this study 500 mice were injected with sublethal doses of the toxic extract from endometriums or placentas. Of these 175, or approximately 35 per cent, developed focal necroses of the liver.[4] The exact relationship between this toxin and the hepatic lesions has not yet been determined, since "spontaneous focal liver necrosis" in mice has been recently reported by other investigators.[5]

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[1] Obata, I.: J. Immunol. **4:** 111 (May) 1919.

[2] Yoshimura: Published only in Japanese.

[3] Krichesky, Boris, and Pollock, William: Am. J. Physiol. **130:** 319 (Aug.) 1940. Krichesky, Boris, and Mahler, Jeanne: Endocrinology **30:** 616 (April) 1942.

[4] Schneider, C .L.: Proc. Soc. Exper. Biol. & Med. **62:** 322, 325 (June) 1946

[5] Olitsky, P. K., and Casals, J.: Proc. Soc. Exper. Biol. & Med. **60:** 48 (Oct.) 1945.

FAT METABOLISM

Until recently comparatively little has been known about the part fats play in general metabolism. In spite of numerous carefully designed experiments, the question as to whether fat, once formed in the body, is available for carbohydrate or protein synthesis could not be settled until isotopes had become available as tracers for metabolic work. Weinhouse, Medes and Floyd,[1] working at the Lankenau Hospital Research Institute, Philadelphia, attempted to find whether there is a short chained unit of fat metabolism around which anabolic and catabolic processes center. They reasoned that such a unit might correspond in fatty acid metabolism to pyruvic acid in carbohydrate metabolism; it might constitute the fragment from which synthetic reactions originate and to which degradation reactions proceed and might also be the unit through which interconversions between fats and other classes of foodstuffs take place. By substitution of this unit for the unwieldy fatty acids and of pyruvic acid for glucose, in vitro experiments in this field could be enormously facilitated. These workers were able to verify the suggestion existing for some time in the literature that a 2-carbon fragment plays some part in fat metabolism. This was established by studying ketone body formation from octanoic acid which had C^{13} synthesized into its carboxyl carbon. The ketone bodies, acetoacetic acid and beta-hydroxybutyric acid were isolated after the isotopic octanoic acid had been incubated for five hours in the presence of liver slices. An exhaustive analysis of these bodies revealed that C^{13} was present in approximately equal amounts in carbon atoms 1 and 3. These results could have been obtained only if octanoic acid broke down completely into 2-carbon fragments and the latter were resynthesized to the final 4-carbon form through random redistribution of these fragments.

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[1] Weinhouse, Sidney; Medes, Grace, and Floyd, N. F.: Fatty Acid Metabolism: The Mechanism of Ketone Body Synthesis from Fatty Acids, with Isotopic Carbon as Tracer, J. Biol. Chem. **155:** 143 (Sept.) 1944. Medes, Grace; Weinhouse, Sidney, and Floyd, N. F.: Fatty Acid Metabolism: II. Breakdown of Carboxyl-Labeled Butyric Acid by Liver Tissue, ibid. **157:** 35 (Jan.) 1945. Weinhouse, Sidney; Medes, Grace, and Floyd, N. F.: Fatty Acid Metabolism: III. Reactions of Carboxyl-Labeled Acetic Acid in Liver and Kidney, ibid. **158:** 411 (April) 1945. Medes, Grace, Floyd, N. F., and Weinhouse, Sidney: Fatty Acid Metabolism: IV Ketone Bodies as Intermediates of Acetate Oxidation in Animal Tissues, ibid. **162:** 1 (Jan.) 1946.

The role of this 2-carbon unit in fat metabolism and its transference from fat to carbohydrate and to certain amino acids has been established through the work of many investigators in many laboratories. As a result of these investigations it appears that fat formation is not an irreversible process. Fat is no longer regarded as a final storage form of excess food which can only be burned and converted to carbon dioxide and water, but it is now known to be a part of the great metabolic pool of the body to which these active fragments are continually being added and from which they are continuously being withdrawn for a great variety of other uses.

The role of the vitamins in the structure of coenzymes essential to some of these reactions is also being investigated. It was shown, for example, that insulin operates at one such step in carbohydrate utilization. A high degree of precision is obtainable in these experiments through the use of isotopes, by which individual molecules can be labeled and traced. Great strides will probably be made in the next few years in the understanding of normal processes concerned in these fundamental reactions as well as in the pathologic conditions that arise when individual components of the system are missing.

Current Comment

THE ANTIVIVISECTIONISTS CELEBRATE A PYRRHIC VICTORY

The antivivisectionists are indulging themselves with hysterical manifestations of happiness over a bill recently passed by the New York legislature and signed by Governor Dewey. The new legislation makes it illegal to steal a licensed dog and offer the animal for sale. The passage of this bill has been hailed all over the country as an antivivisectionist victory. Actually no reasonable person objected to the bill and it was wholly unnecessary anyway. The bill really duplicated existing legislation. Under the general laws of New York State protecting property rights the stealing of dogs was already a crime. There may be occasional criminals that steal people's pets; what they could get out of it by selling such animals to laboratories would hardly pay for the trouble. Any reputable research institution does its utmost to avoid receiving such animals. Perhaps some of the members of antivivisectionist groups are beginning to wonder what is being done with the funds that the executive secretaries continuously solicit. Those interested in protecting research cannot relax their vigilance. The fanatics will try to put over restrictive legislation of real significance on unsuspecting legislators just as soon as they see an opportunity.

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect registration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in THE JOURNAL, this requirement is overlooked by some physicians and unpleasant consequences follow. Failure to register adds a penalty of 25 per cent to the tax payable and in addition subjects the physician to the possibility of a fine not exceeding $2,000 or to imprisonment for not exceeding five years, or to both. As an act of grace the Commissioner of Internal Revenue has in past years given some tardy registrants the choice between paying sums by way of compromise, a procedure authorized by law, or of accepting criminal prosecution. If this procedure does not produce the required promptness in reregistration, the commissioner will have no other alternative than to institute criminal prosecution.

VETERANS' MEDICAL CARE THREATENED BY REDUCED BUDGET

The tremendous advances made in the quality of medical services of the Veterans Administration in the past two years reflect the devotion of the new leaders to their ideals and the cooperation of the medical profession. When the war ended many physicians who could have returned to lucrative practice with full satisfaction for a duty well done elected to continue beyond the ordinary call of duty through service in the Veterans Administration. The enlistment of medical leaders meant more than appears on the surface, for it aided in causing many younger physicians to join the staff of the Veterans Administration. Thus the veteran himself benefited by the improved quality of medical personnel; less than 6,000 hospital beds have been closed for lack of staff. Even the closing of these beds was serious, but not nearly as serious as would have been the case had this program not advanced so well. Though the program was expanding in quality as well as in the number of patients to be served, the pace was maintained. An extensive outpatient program and a series of clinics were added, 25 per cent of whose patients would have otherwise had to seek hospitalization, even though outpatient treatment was more appropriate. The recent reduction by the Bureau of the Budget of the amount requested by the Veterans Administration to meet its needs seems to threaten alarmingly this whole achievement. Already the morale of staff is disturbed. The quality of service rendered by the Veterans Administration is today a leaven for the whole country. The budgetary needs to maintain that quality should be met to the full if far reaching disastrous effects are to be avoided.

ORGANIZATION SECTION

Medical Economics

ANALYSIS OF QUESTIONNAIRE ON MEDICAL CARE OF CIVILIANS DURING WORLD WAR II

FRANK G. DICKINSON, Ph D
Director of Bureau of Medical Economic Research
Chicago

FOREWORD

The Committee on National Emergency Medical Service requested Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research, to prepare a summary of the results of our Questionnaire on Medical Care of Civilians During World War II. The interpretations are those of Dr. Dickinson. The results of the questionnaire sent to 50,000 discharged medical officers will be presented at Atlantic City.

EDWARD L BORTZ, *Chairman.*

The statistics contained herein are a final report on the questionnaires sent to 5,000 doctors selected at random who did not enter the armed services during World War II and who graduated from medical college in 1939 or earlier.

This second questionnaire is reproduced herewith An IBM punch card was prepared for each returned questionnaire and our analysis was made through the use of these punch cards. The questionnaires were mailed late in January and early in February 1947 to approximately 5,000 physicians selected at random from our punch card files. It may be assumed that at least one fourth of them were not members of the American Medical Association. The method of making the random selection was:

1. From the entire file of cards those with a serial number ending in 5 were selected. This group totaled approximately 18,000.
2. The cards of men who had been discharged from military service were eliminated from this group of 18,000 cards At this stage an unsuccessful attempt was made to eliminate the cards of doctors who were not in active practice It failed because our records were not abreast of wartime changes.
3. The cards of all men who graduated from medical college in 1940 or later were removed from this group of cards Approximately 11,000 cards remained in our sample.
4. The cards with even serial numbers in the tens position were selected. This reduced our random sample to 5,600 cards

Because of changes of addresses not having been made in our punch card file, 550 addresses could not be quickly found in the Directory Department The final list, then, was 5,050, resulting from this process of selection, which was essentially random

Approximately one half of the questionnaires were returned Since 150 of the 5,050 were returned for incorrect address, we assumed that 4,900 doctors were reached The first mailing of the questionnaire brought approximately 1,900 returns; a follow-up was sent to approximately 2,900, some of whom had doubtless received and returned their questionnaire from the first mailing; a check could not be made because not all replies recorded the doctor's name and address Approximately 400 additional replies came in after the follow-up letters were sent; 228 returned questionnaires were not usable; most were from doctors who had retired from active practice who stated that they did not think they should answer the questionnaire (The random selection presumably obtained a cross section of retired doctors as well as those in active practice) We were able to use 2,322 of the returned questionnaires in this analysis

The number of usable replies was 47 per cent of the 4,900 doctors contacted. The usable plus the nonusable returned questionnaires was 52 per cent of the doctors contacted The number of usable replies was 50 per cent of the number of doctors contacted less the number of doctors who sent unusable replies. Approximately one half of the doctors reached did reply.

COMPOSITE REPLIES TO EACH QUESTION

In this analysis I shall use the question numbers as they appeared on the questionnaire. These numbers also refer to punch card columns. The first question, 5-8, asked for the name of the medical school from which the doctor graduated. More replying doctors gave Rush Medical College of Chicago than any other medical college. The first ten leading colleges are shown in table 1.

No future reference will be made in this report to the distribution of the colleges represented.[1]

On questions 9-10 and 11-12 the average (mean) year of graduation was 1918 and the average (mean) year of birth was 1892.

Starting with question 13 and continuing throughout the remainder of the questionnaire, I shall summarize the replies in terms of percentages of 2,322, the number of usable replies. Not all persons who answer any questionnaire will answer every question; this one was no exception to this rule. Hence I will show the percentage of No Answers. It will be necessary for the reader to compare each percentage against another percentage and not against 100 per cent if there was a percentage of No Answers to the particular question involved.

TABLE 1.—*Medical Schools from Which Doctors Graduated*

	Number	Per Cent of 2,322
1. Rush Medical College	92	4.0
University of Chicago	6	
	98	
2. University of Pennsylvania	76	3.3
3. Harvard Medical School	74	3.2
4. Columbia University College of Physicians and Surgeons	74	3.2
5 Jefferson Medical College	70	3.0
6 University of Minnesota Medical School	67	2.9
7. Northwestern University Medical School	57	2.5
8 University of Illinois College of Medicine	56	2.4
9. Johns Hopkins University School of Medicine	56	2.4
10 University of Michigan Medical School	54	2.3

Of the replying doctors in question 13, 81.2 per cent indicated that they were in individual practice during most or all of the war period, as shown in the facsimile. It was assumed that the overwhelming proportion of these doctors were in individual practice, so 81.2 per cent is not surprising. The number in group practice was rather high, 4.5 per cent, but I think that was due to interpretations of the question Doubtless two doctors in a partnership might have checked group practice, whereas the definition of group practice used by the Bureau requires at least three physicians as the minimum number for a group. Our punch card records have not been kept up to date; no comparisons of these percentages with the expected percentage for each activity could be made.

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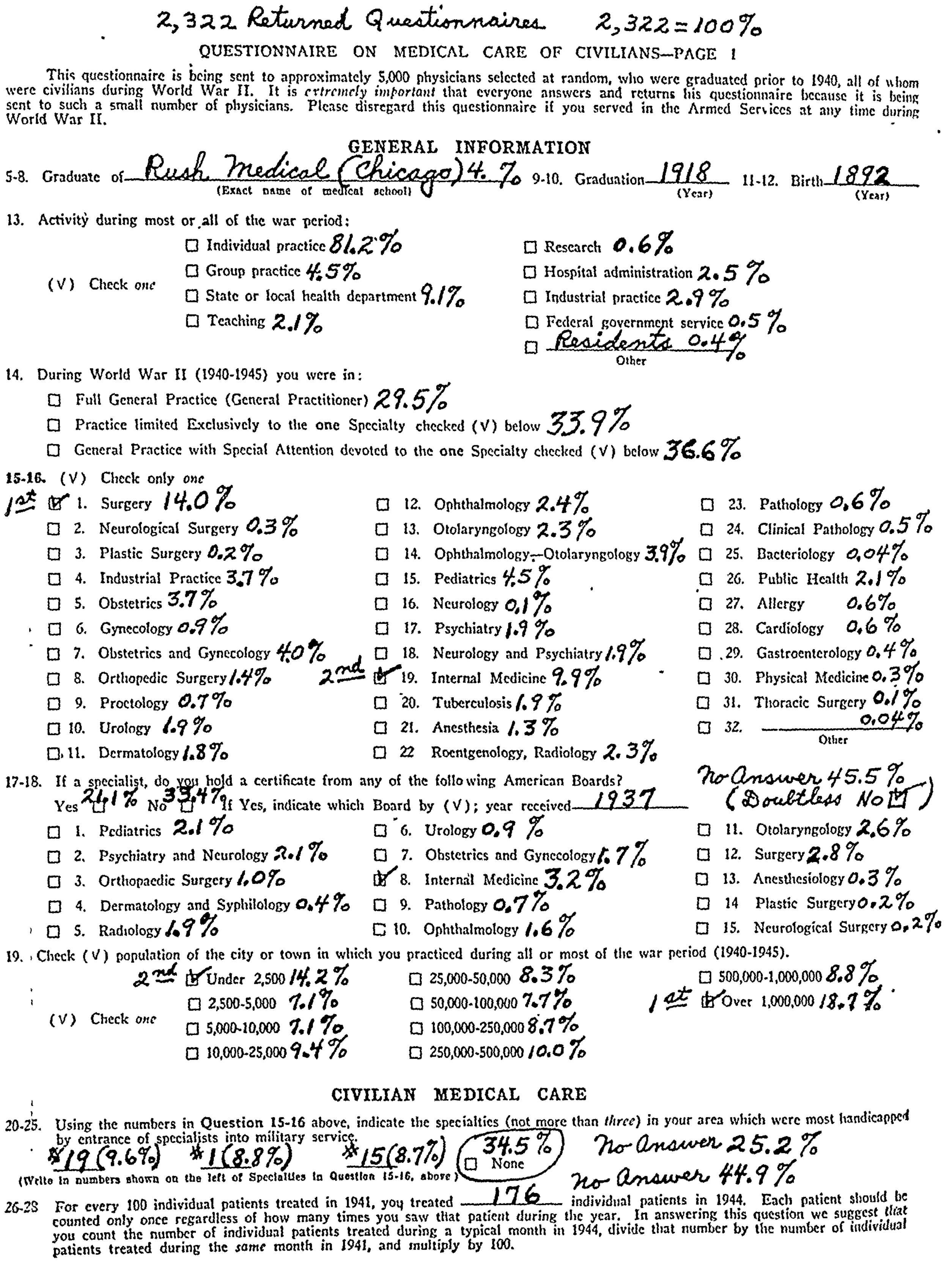
[1] The records permit reliable comparisons between the replies and the total number of doctors contacted only on the name of medical school, year of graduation and year of birth In other words, comparison can be made of the doctors who replied to this questionnaire with the doctors to whom it was sent on these three categories Of the ten medical schools from which the largest numbers of doctors of the 4,900 contacted graduated, nine of them were included in the first ten schools from which the 2,322 replying doctors graduated Therefore, on the basis of medical schools, the replies were representative of the entire random sample (4,900). The typical replying doctor graduated from medical school in 1918, whereas the typical doctor contacted graduated in 1916 This difference of two years introduces a bias which does not damage the results Contrariwise, it suggests that the replying doctors are a better sample of all civilian physicians in active practice than is the entire group of 4,900, many of whom are older and were not in active practice during the war. And that is precisely what the Reference Committee on Dec 10, 1946 wanted—a sample of those in active practice, not a sample of all M D's The percentage of replies from each state closely corresponds to the percentage of the national total of physicians in active practice in 1946, located in the state. The number of unusable questionnaires from retired physicians supports this statement. Something of the same situation exists regarding the year of birth The typical replying doctor was born in 1892, but the typical doctor in the random sample of 4,900 was born in 1889. Again this discrepancy suggests that the replying doctors are more representative of the physicians in active civilian practice during the war than the entire 4,900 contacted



2,322 Returned Questionnaires 2,322 = 100%

QUESTIONNAIRE ON MEDICAL CARE OF CIVILIANS—PAGE 1

This questionnaire is being sent to approximately 5,000 physicians selected at random, who were graduated prior to 1940, all of whom were civilians during World War II. It is *extremely important* that everyone answers and returns his questionnaire because it is being sent to such a small number of physicians. Please disregard this questionnaire if you served in the Armed Services at any time during World War II.

GENERAL INFORMATION

5-8. Graduate of Rush Medical (Chicago) 4.7% (Exact name of medical school) 9-10. Graduation 1918 (Year) 11-12. Birth 1892 (Year)

13. Activity during most or all of the war period:

(V) Check *one*

☐ Individual practice 81.2%
☐ Group practice 4.5%
☐ State or local health department 9.1%
☐ Teaching 2.1%
☐ Research 0.6%
☐ Hospital administration 2.5%
☐ Industrial practice 2.9%
☐ Federal government service 0.5%
☐ Residents 0.4% (Other)

14. During World War II (1940-1945) you were in:

☐ Full General Practice (General Practitioner) 29.5%
☐ Practice limited Exclusively to the one Specialty checked (V) below 33.9%
☐ General Practice with Special Attention devoted to the one Specialty checked (V) below 36.6%

15-16. (V) Check only *one*

1st ☑ 1. Surgery 14.0%
☐ 2. Neurological Surgery 0.3%
☐ 3. Plastic Surgery 0.2%
☐ 4. Industrial Practice 3.7%
☐ 5. Obstetrics 3.7%
☐ 6. Gynecology 0.9%
☐ 7. Obstetrics and Gynecology 4.0%
☐ 8. Orthopedic Surgery 1.4%
☐ 9. Proctology 0.7%
☐ 10. Urology 1.9%
☐ 11. Dermatology 1.8%
☐ 12. Ophthalmology 2.4%
☐ 13. Otolaryngology 2.3%
☐ 14. Ophthalmology—Otolaryngology 3.9%
☐ 15. Pediatrics 4.5%
☐ 16. Neurology 0.1%
☐ 17. Psychiatry 1.9%
☐ 18. Neurology and Psychiatry 1.9%
2nd ☑ 19. Internal Medicine 9.9%
☐ 20. Tuberculosis 1.9%
☐ 21. Anesthesia 1.3%
☐ 22 Roentgenology, Radiology 2.3%
☐ 23. Pathology 0.6%
☐ 24. Clinical Pathology 0.5%
☐ 25. Bacteriology 0.04%
☐ 26. Public Health 2.1%
☐ 27. Allergy 0.6%
☐ 28. Cardiology 0.6%
☐ 29. Gastroenterology 0.4%
☐ 30. Physical Medicine 0.3%
☐ 31. Thoracic Surgery 0.1%
☐ 32. 0.04% (Other)

17-18. If a specialist, do you hold a certificate from any of the following American Boards? No Answer 45.5% (Doubtless No ☑)
Yes 24.1% ☐ No 33.4% ☐ If Yes, indicate which Board by (V); year received 1937

☐ 1. Pediatrics 2.1%
☐ 2. Psychiatry and Neurology 2.1%
☐ 3. Orthopaedic Surgery 1.0%
☐ 4. Dermatology and Syphilology 0.4%
☐ 5. Radiology 1.9%
☐ 6. Urology 0.9%
☐ 7. Obstetrics and Gynecology 1.7%
☑ 8. Internal Medicine 3.2%
☐ 9. Pathology 0.7%
☐ 10. Ophthalmology 1.6%
☐ 11. Otolaryngology 2.6%
☐ 12. Surgery 2.8%
☐ 13. Anesthesiology 0.3%
☐ 14 Plastic Surgery 0.2%
☐ 15. Neurological Surgery 0.2%

19. Check (V) population of the city or town in which you practiced during all or most of the war period (1940-1945).

(V) Check *one*

2nd ☑ Under 2,500 14.2%
☐ 2,500-5,000 7.1%
☐ 5,000-10,000 7.1%
☐ 10,000-25,000 9.4%
☐ 25,000-50,000 8.3%
☐ 50,000-100,000 7.7%
☐ 100,000-250,000 8.7%
☐ 250,000-500,000 10.0%
☐ 500,000-1,000,000 8.8%
1st ☑ Over 1,000,000 18.7%

CIVILIAN MEDICAL CARE

20-25. Using the numbers in **Question 15-16** above, indicate the specialties (not more than *three*) in your area which were most handicapped by entrance of specialists into military service.

#19 (9.6%) #1 (8.8%) #15 (8.7%) 34.5% ☐ None No Answer 25.2%
(Write in numbers shown on the left of Specialties in Question 15-16, above)

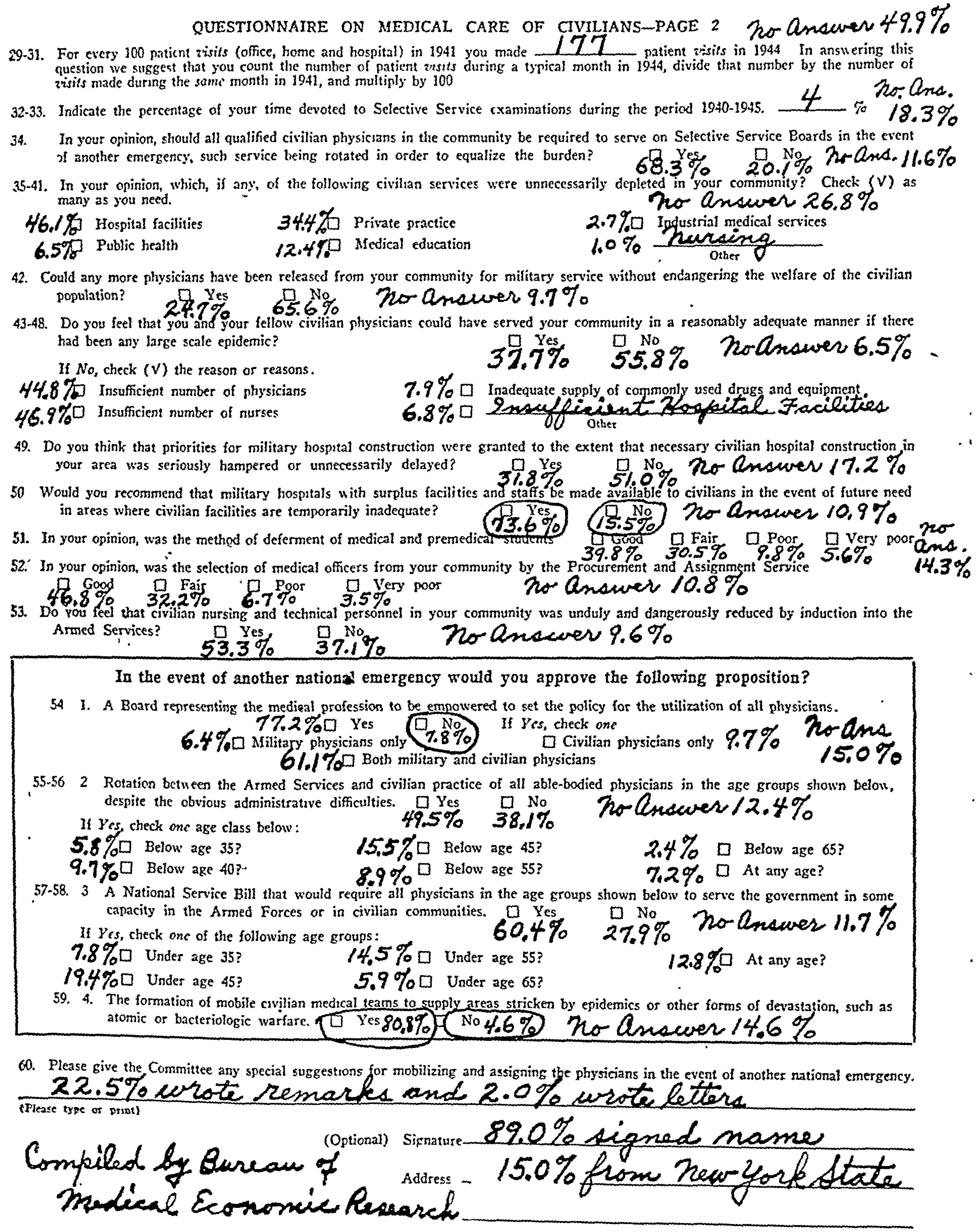
No Answer 44.9%

26-28 For every 100 individual patients treated in 1941, you treated 176 individual patients in 1944. Each patient should be counted only once regardless of how many times you saw that patient during the year. In answering this question we suggest that you count the number of individual patients treated during a typical month in 1944, divide that number by the number of individual patients treated during the *same* month in 1941, and multiply by 100.

In question 14, 29.5 per cent reported that they were in full general practice (general practitioners), 33.9 per cent reported that they were in practice limited to the one specialty checked (full time specialists), and 36.6 per cent reported that they had been in general practice with special attention devoted to the one specialty checked (part time specialists). The distribution here is remarkably even. The general practitioners plus the part time specialists constituted, therefore, 66.1 per cent of the replying doctors

Question 15-16 lists thirty-one specialties and asks the full time and part time specialists answering question 14 to check one of these thirty-one specialties. Fourteen per cent checked surgery and 9.9 per cent checked internal medicine. The percentages of replying doctors who checked each of these thirty-one specialties are shown in the facsimile on page 370. The reader is advised to ignore the smaller percentages, because 2,322 cards less those in full general practice (685) are insufficient for distribution into thirty-one specialties, particularly those specialties which few doctors checked.

In question 17-18 the replying doctor was asked to state whether he was a member of one of the fifteen American boards and to check the board; 21.1 per cent replied that they were members of American boards. The typical reply stated that the American board certificate had been received in 1937. It should be noted that 45.5 per cent did not answer this question. Most of the No Answers probably were No and the percentage of No Answers should be added to the percentage who checked No; 33.4 per cent checked No. The percentages for internal medicine and surgery are slightly higher than for any others.



QUESTIONNAIRE ON MEDICAL CARE OF CIVILIANS—PAGE 2 No Answer 49.9%

29-31. For every 100 patient *visits* (office, home and hospital) in 1941 you made 177 patient *visits* in 1944 In answering this question we suggest that you count the number of patient *visits* during a typical month in 1944, divide that number by the number of *visits* made during the *same* month in 1941, and multiply by 100

32-33. Indicate the percentage of your time devoted to Selective Service examinations during the period 1940-1945. 4 % No. Ans. 18.3%

34. In your opinion, should all qualified civilian physicians in the community be required to serve on Selective Service Boards in the event of another emergency, such service being rotated in order to equalize the burden? ☐ Yes 68.3% ☐ No 20.1% No Ans. 11.6%

35-41. In your opinion, which, if any, of the following civilian services were unnecessarily depleted in your community? Check (√) as many as you need. No Answer 26.8%

46.1% ☐ Hospital facilities
6.5% ☐ Public health
34.4% ☐ Private practice
12.4% ☐ Medical education
2.7% ☐ Industrial medical services
1.0% Nursing Other

42. Could any more physicians have been released from your community for military service without endangering the welfare of the civilian population? ☐ Yes 24.7% ☐ No 65.6% No Answer 9.7%

43-48. Do you feel that you and your fellow civilian physicians could have served your community in a reasonably adequate manner if there had been any large scale epidemic? ☐ Yes 37.7% ☐ No 55.8% No Answer 6.5%

If *No*, check (√) the reason or reasons.

44.8% ☐ Insufficient number of physicians
46.9% ☐ Insufficient number of nurses
7.9% ☐ Inadequate supply of commonly used drugs and equipment
6.8% ☐ Insufficient Hospital Facilities Other

49. Do you think that priorities for military hospital construction were granted to the extent that necessary civilian hospital construction in your area was seriously hampered or unnecessarily delayed? ☐ Yes 31.8% ☐ No 51.0% No Answer 17.2%

50 Would you recommend that military hospitals with surplus facilities and staffs be made available to civilians in the event of future need in areas where civilian facilities are temporarily inadequate? ☐ Yes 73.6% ☐ No 15.5% No Answer 10.9%

51. In your opinion, was the method of deferment of medical and premedical students ☐ Good 39.8% ☐ Fair 30.5% ☐ Poor 9.8% ☐ Very poor 5.6% no Ans. 14.3%

52. In your opinion, was the selection of medical officers from your community by the Procurement and Assignment Service ☐ Good 46.8% ☐ Fair 32.2% ☐ Poor 6.7% ☐ Very poor 3.5% No Answer 10.8%

53. Do you feel that civilian nursing and technical personnel in your community was unduly and dangerously reduced by induction into the Armed Services? ☐ Yes 53.3% ☐ No 37.1% No Answer 9.6%

In the event of another national emergency would you approve the following proposition?

54 1. A Board representing the medical profession to be empowered to set the policy for the utilization of all physicians. 77.2% ☐ Yes ☐ No 7.8% If *Yes*, check *one*
6.4% ☐ Military physicians only
☐ Civilian physicians only 9.7%
61.1% ☐ Both military and civilian physicians
No Ans 15.0%

55-56 2 Rotation between the Armed Services and civilian practice of all able-bodied physicians in the age groups shown below, despite the obvious administrative difficulties. ☐ Yes 49.5% ☐ No 38.1% No Answer 12.4%

If *Yes*, check *one* age class below:
5.8% ☐ Below age 35?
9.7% ☐ Below age 40?
15.5% ☐ Below age 45?
8.9% ☐ Below age 55?
2.4% ☐ Below age 65?
7.2% ☐ At any age?

57-58. 3 A National Service Bill that would require all physicians in the age groups shown below to serve the government in some capacity in the Armed Forces or in civilian communities. ☐ Yes 60.4% ☐ No 27.9% No Answer 11.7%

If *Yes*, check *one* of the following age groups:
7.8% ☐ Under age 35?
19.4% ☐ Under age 45?
14.5% ☐ Under age 55?
5.9% ☐ Under age 65?
12.8% ☐ At any age?

59. 4. The formation of mobile civilian medical teams to supply areas stricken by epidemics or other forms of devastation, such as atomic or bacteriologic warfare. ☐ Yes 80.8% ☐ No 4.6% No Answer 14.6%

60. Please give the Committee any special suggestions for mobilizing and assigning the physicians in the event of another national emergency.
22.5% wrote remarks and 2.0% wrote letters
(Please type or print)

(Optional) Signature 89.0% signed name
Address 15.0% from New York State

Compiled by Bureau of Medical Economic Research

In question 19 the replying doctor was asked to check the size of the city in which he practiced during most or all of the war period. There are two open-end classes, namely under 2,500 and over 1,000,000. Naturally these two open-end classes would be expected to record the largest number of doctors. At the upper extreme is 18.7 per cent and at the lower extreme 14.2 per cent of the replying doctors. It is interesting to note that no replying doctor passed up this question.

THE SECOND PART OF THE QUESTIONNAIRE

After the discussion of the composite replies to each question, a summary in footnote style at the end of the paragraph sets forth what group of replying doctors checked considerably more than their proportionate and considerably less than their proportionate number of Yes, No, No Answer, and so on. This device avoids printing approximately 150 tables developed by running the punch cards through the machines several times. If the replies were proportionate or the group of replying doctors was too small for comparisons, no comment (indicated by —) is offered. This procedure focuses attention on the unusual responses to each question. It serves to answer "Who wrote what?" And the fewer the comments, the more agreement there was among the different replying doctors on the Yes, No, No Answer, and so on. The abbreviations used are:

Question 13.—Individual practice, IPr; group practice, GrP; state and local health departments, SLHD.

Question 14.—Full general practice, GP; full time specialist, FTS; part time specialist, PTS.

Question 15-16.—One word, first three letters; two words, first three letters of each word.

Question 17-18.—Same as 15-16 but with prefix of "Bd"; non-board members, nonBd.

Question 19.—No abbreviations needed but "cities of" is omitted.

The first question in the second section of the questionnaire is 20-25, in which the doctor was asked to indicate the specialties in his area which were most handicapped by entrance of specialists into military service, using the numbers of the thirty-one specialties listed in question 15-16. The most depleted specialties were 19, 1 and 15, internal medicine, surgery and pediatrics. Of the replying doctors 34.5 per cent stated that there was no specialty which was especially depleted by entrance of specialists into the military service; 25.2 per cent gave No Answer.

Question 20-25 Specialty Mentioned	More than Proportionate	Less than Proportionate
1. No answer.......	GP	IPr
2. None............	IPr	FTS
3. Surgery.........	FTS	GP, PTS, age 70-74
4. Pediatrics.......	IPr, FTS, 50,000 to 250,000, ages 35-39 and 45-49	GP, age 65-74
5. Internal Medicine	FTS	IPr, GP, under 2,500

Question 26-28 was designed to indicate the increase in the patient load of these replying physicians who maintained civilian practice during the war period. The doctor was asked to state the number of patients treated in 1944 for every hundred patients treated in 1941. The mean or average of the replies was 176. This implies that the doctor treated 76 per cent more patients in 1944 than in 1941. The high percentage of No Answer; 44.9, indicates the difficulties involved in answering the question. The first question on the top of the second page is quite similar. This question, 29-31, required the replying doctor to indicate the increase in the number of patient visits rather than in the number of patients. The mean or average was 177, and No Answers constituted 49.9 per cent. This indicates that one half of the replying doctors in civilian practice reported 77 per cent more patient visits in 1944 than in 1941. The exact percentage increase for all civilian doctors may not be too clearly defined because of the wording of the question and the large percentage of No Answer. Nevertheless it strongly suggests that the typical civilian doctor was called on during this period to see approximately three fourths more patients in 1944 than in 1941.

Question 26-28	More than Average Increase	Less than Average Increase
	GrP, PTS, 2,500 to 25,000, 50,000 to 100,000, BdRad, BdObs&Gyn, BdSur, age 30-39	GP, 25,000 to 50,000, over 500,000, BdOto, age 65-74

Question 29-31	More than Average Increase	Less than Average Increase
	GrP, PTS, 2,500 to 25,000, 50,000 to 100,000, 250,000 to 500,000, BdPed, BdOrtSur, BdUro, BdSur, age 30-44	GP, 25,000 to 50,000, over 500,000, BdPsy&Neu, BdOto, BdRad, ages 45-49 and 60-74

The replies to these two questions provide a significant economic commentary on the practice of medicine by civilian doctors during the war. I do not believe that it means that the work week of the civilian doctor during this period was increased from, let us say, forty-four hours to seventy-seven hours. Probably the doctor treated more patients per hour. It presents an economic rationalization of the increase in the average income of physicians during the war period. If the volume of practice they did during the war period increased by three fourths, an increase in income by approximately the same ratio indicates no changes in fee scales. It must be remembered that something more than 40 per cent of the practicing physicians were taken into military service, leaving 60 per cent or less of the practicing physicians to take care of the 91 per cent of the population which remained civilian. On this basis alone one would have expected an increase of at least one half in the patient load of the average physician in civilian practice. It is also likely that the increase in the purchasing power of the people induced them to call on doctors more frequently than they had been accustomed to in less prosperous times. So rule-of-thumb national averages seem to warrant a conclusion that the increase in the patient load must have been at least two thirds. I cannot avoid asking the question: How many other people in civilian life were called on to carry a load three fourths greater than in peacetime?[2]

Question 32-33 asked the doctor to indicate the percentage of his time devoted to Selective Service Board examinations during the war period. The typical reply was 4 per cent, although the number of doctors who failed to answer was 18.3 per cent. This percentage of 18.3 per cent No Answer can be counted as zero or can be excluded; it makes a difference of only a fraction of 1 per cent, so that the typical reply is still that 4 per cent of the doctor's time was devoted to Selective Service Board examinations.

Question 32-33	More than Four Per Cent	Less than Four Per Cent
	SLHD, over 1,000,000, age 65-69	GrP

In question 34 the doctor was asked to express an opinion as to whether all qualified civilian physicians in his community should be required to serve on Selective Service Boards in the event of another national emergency with such service being rotated in order to equalize the burden—a fair question; and the response was clear, 68.3 per cent of the doctors answering Yes, 20.1 per cent answering No and 11.6 per cent giving No Answer. This indicates that at least two thirds of the doctors believe that in the event of another national emergency all qualified civilian physicians should be required to serve on Selective Service Boards, such service being rotated in order to equalize the burden.

Question 34 Reply	More than Proportionate	Less than Proportionate
1. Yes.............	——	——
2. No..............	——	——
3. No answer......	GP, under 2,500, non-Bd, BdPsy&Neu, BdOph, age 65-74	IPr, over 1,000,000, Bd, BdIntMed, age 40-44

In question 35-41 the doctor was asked to state his opinion as to which of the listed civilian services were unnecessarily depleted in his community; 46.1 per cent checked hospital facilities as being unnecessarily depleted, 34.4 per cent checked private practice, 12.4 per cent checked medical education, 6.5 per cent checked public health, 2.7 per cent checked industrial medicine and 1 per cent wrote Nursing in the blank for Other. The fact that 1 per cent wrote in Nursing should rate it much higher than 1 per cent, because Nursing was not printed as an item to be checked.

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[2] Some day when the Bureau completes its study of the number and causes of deaths of physicians during this war period and converts the data into the form of a mortality table, there may be even clearer evidence of the tremendous load carried by the civilian doctor in wartime.

Question 35-41 Reply	More than Proportionate	Less than Proportionate
35. Hosp. Facil....	Over 1,000,000	GP
36. Pub. Health....	SLHD, nonBd, BdPsy &Neu, BdOrtSur, BdRad	IPr, FTS, Bd, age 60-64
37. Private Pr.....	———	———
38. Med. Educ......	FTS, over 1,000,000, Bd	IPr, GP, PTS, nonBd
39. Indus. Med. Serv.	2,500 to 5,000	IPr, 10,000 to 25,000
40. Nursing........	IPr, 50,000 to 100,000, over 1,000,000, age 30-39	Age 40-44 and 60-64

Question 42 was probably the most important single question in this questionnaire. It is, in fact, the key question on the two questionnaires taken together. It asked this random sample of civilian physicians point blank if more physicians could have been released from their communities for military service without endangering the welfare of the civilian population; 24.7 per cent wrote Yes and 65.6 per cent No; 9.7 per cent passed up the question without answering it. In the opinion of the physicians who remained at home, too many physicians were removed from civilian practice from the standpoint of community welfare. This, of course, does not fully answer the question of military necessity.

Question 42 Reply	More than Proportionate	Less than Proportionate
1. Yes..............	IPr, over 1,000,000, age 50-54	Under 2,500
2. No...............	Under 2,500	———
3. No answer.......	FTS, over 1,000,000, BdIntMed, age 35-39 and 50-79	PTS, BdOto

In question 43-48 the doctor was asked whether he felt that he and his fellow physicians could have served his community in a reasonably adequate manner if there had been a large scale epidemic; fortunately none occurred. Six and five-tenths per cent of the doctors passed up this question, 55.8 per cent checked No and 37.7 per cent checked Yes. If the doctor answered No he was asked to check the reason or reasons for his statement. Of the 55.8 per cent who checked No 44.8 per cent, or about four fifths, gave as one reason the insufficient number of physicians. A slightly larger number, 46.9 per cent, gave an insufficient number of nurses as the reason. A much smaller percentage, 7.9, gave inadequate supply of commonly used drugs and equipment. A blank space was provided for them to write in other reasons; it is significant that 6.8 per cent wrote in Insufficient Hospital Facilities.

Question 43-48 Reply	*More than Proportionate*	*Less than Proportionate*
43. Yes..................	———	———
43. No...................	———	———
(a) Insufficient Phys.	———	Over 1,000,000
(b) Insufficient Nurses	———	———
(c) Insufficient Drugs	BdUro, BdSur	BdIntMed
(d) Hosp. Facilities..	100,000 to 250,000, 500,000 to 1,000,000, Bd, BdSur	Under 2,500, over 1,000,000, nonBd, BdPsy&Neu
43. No answer...........	GP, over 1,000,000, BdPsy&Neu, BdOph, age 75-79	IPr, PTS, BdInt Med, age 50-54

In question 49 the doctor was asked to express an informed opinion as to whether the priorities for military hospital construction were granted to such an extent that necessary civilian hospital construction in his area was seriously hampered or unnecessarily delayed. Here 17.2 per cent failed to answer the question; 51 per cent replied No and 31.8 per cent Yes. I interpret this response to mean that the doctors felt that military hospital construction was reasonably well handled from the standpoint of civilian medical care, although it interfered with their civilian programs.

Question 49 Reply	More than Proportionate.	Less than Proportionate
1. Yes.............	BdSur	GP
2. No..............	IPr	———
3. No answer.......	FTS	PTS

Question 50 is allied to question 49. The doctor was asked whether he would recommend that military hospitals with surplus facilities and staffs be made available to civilians in the event of future need in areas where civilian facilities were temporarily inadequate. The reply to this question was 73.6 per cent Yes and 15.5 per cent No; 10.9 per cent did not answer the question. The replies indicate that the great majority of civilian doctors felt that in trying to take care of their civilian communities during World War II the local military hospitals, which were overstaffed and had many idle beds, should have been opened up to civilians.

Question 50 Reply	More than Proportionate	Less than Proportionate
1. Yes.............	———	———
2. No..............	IPr	BdPed, BdPsy&Neu
3. No answer.......	Age 75-79	PTS, BdPed

In the next question they were asked to rate the method of deferment of medical and premedical students. Here 39.8 per cent checked Good, 30.5 per cent Fair, 9.8 per cent Poor and 5.6 per cent Very Poor; 14.3 per cent did not answer the question. I interpret this to mean that the civilian doctors were, on the whole, rather well satisfied with the deferment of medical and premedical students. At least it certainly implies no severe criticism of the procedures and practices of those in authority.

Question 51 Reply	More than Proportionate	Less than Proportionate
1. Good............	———	———
2. Fair.............	———	———
3. Poor............	PTS, BdIntMed, BdSur	GP
4. Very poor.......	FTS, Bd, BdRad, age 50-54	NonBd, BdIntMed
5. No answer.......	GP, nonBd, age 70-79	PTS, Bd, age 50-54

In question 52 the doctor was asked to express his opinion regarding the selection of medical officers from his community by the Procurement and Assignment Service. Here again one finds what was on the whole a favorable reply, since 46.8 per cent checked Good, 32.2 per cent Fair, 6.7 per cent Poor and 3.5 per cent Very Poor; 10.8 per cent did not answer this question. It would be fair to conclude that the civilian practitioner was rather favorably impressed with the work of Procurement and Assignment.

Question 52 Reply	More than Proportionate	Less than Proportionate
1. Good............	———	———
2. Fair.............	———	———
3. Poor............	25,000 to 50,000, BdPat, BdSur	BdIntMed, BdOto
4. Very poor.......	IPr, PTS, 10,000 to 25,000, nonBd, BdPsy &Neu, BdRad, BdObs&Gyn	FTS, Bd
5. No answer.......	GP, under 2,500, nonBd, BdOph, age 70-79	FTS, Bd, age 50-54

Question 53 asked the doctor to appraise the availability of civilian nursing and technical personnel in his community as to whether it was unduly and dangerously reduced by induction into the armed services: 53.3 per cent checked Yes, 37.1 per cent No and 9.6 per cent passed up this question without answering it.

Question 53 Reply	More than Proportionate	Less than Proportionate
1. Yes.............	———	———
2. No..............	———	FTS
3. No answer.......	GP, BdPat, age 75-79	PTS, BdObs&Gyn

THE FOUR PROPOSITIONS

Now come four important propositions on which the civilian doctor was asked to vote. Question 54, proposition 1, asked the doctor if he would favor, in the event of another national emergency, a board representing the medical profession to be empowered to set the policy for the utilization of all physicians, to which 15 per cent of the doctors did not reply; but only 7.8

per cent checked No, and 77.2 per cent checked Yes; 6.4 per cent indicated that this board should set the policy for the utilization of military physicians only, 9.7 per cent indicated that this board should set the policy for civilian physicians only but 61.1 per cent, the overwhelming majority (four fifths of the Yes checks), said that this board should set the policy for the utilization of both military and civilian physicians. Evidently the civilian doctor believes that a board representing the medical profession itself should be empowered to set the policy for the utilization of all physicians in the event of another national emergency.

Question 54	More than Proportionate	Less than Proportionate
Reply		
1. Yes....................	——	——
1a. Military Phys. only	IPr, GP, age 40 44	FTS
1b. Civilian Phys. only	IPr, age 60-64	——
1c. Both..	——	——
2. No....................	PTS, nonBd	Bd
3. No answer............	GP	——

Proposition 2, that is, question 55-56, asked the doctor whether he believed that rotation between the armed services and civilian practice of all able bodied physicians in the age groups shown below should, despite the obvious administrative difficulties, be required. This question was passed up by 12.4 per cent of the doctors; 38.1 per cent checked No and 49.5 per cent checked Yes. Apparently the replying doctors are not appalled by obvious administrative difficulties or they think the next war will be quite different; 15.5 per cent checked Yes provided it was for physicians below age 45, 9.7 per cent specified below age 40 and 8.9 per cent specified below age 55, and so on.

Question 55-56	More than Proportionate	Less than Proportionate
Reply		
1. Yes..............	——	——
1a. Under age 35	Under 2,500, age 30-34	FTS, 250,000 to 500,000, age 55-59
1b. Under age 40	Age 35 39	——
1c. Under age 45	——	——
1d. Under age 55	Age 50-54	——
1e. At any age..	——	FTS, age 50-54
2. No...... .. .	——	——
3. No answer.......	Age 70-79	Age 40-44 and 50-54

Proposition 3 invited the doctor to vote on the question of whether he would favor a national service bill that would require all physicians to serve the government in some capacity in the armed forces or in civilian communities; 11.7 per cent passed up this question without reply, 27.9 per cent checked No and 60.4 per cent checked Yes. Those who checked Yes were asked to specify the age group to which this national service bill should apply; 19.4 per cent specified under age 45, 14.5 per cent specified under age 55 and 12.8 per cent specified at any age. It seems to me that proposition 3 might possibly have secured a majority vote of 60.4 per cent because the replying doctor read it in connection with proposition 1, on which he had already voted. Of those who approved 1, 67 per cent also checked Yes on 3, 28 per cent checked No and 5 per cent passed up 3. I do not know how much weight should be given to this consideration, but I believe that a separate interpretation of proposition 3 while ignoring proposition 1 might provide some rather questionable conclusions. The four propositions were enclosed in a box. The replying doctor may have been thinking in terms of a national service bill with a board representing the medical profession being empowered to set the policy for the utilization of all physicians. I cannot really determine just what the score is on this point, but I do conclude in general from the answers to question 3 that civilian doctors do think that there should be a national service bill of some sort in the event of another national emergency and that all physicians of a reasonable age should be required to serve the government in some capacity and that this board, representing the medical profession, should be empowered to set the policy for the utilization of all physicians. It is a question for the Committee to determine just how strong an interpretation it will want to place on these two propositions, 1 and 3, separately or combined.

Question 57-58	More than Proportionate	Less than Proportionate
Reply		
1. Yes..............	——	——
1a. Under age 35	——	——
1b. Under age 45	——	——
1c. Under age 55	——	GP
1d. Under age 65	Age 60 64	——
1e. At and age..	——	Age 50 54
2. No..............	——	——
3. No answer.......	Age 70 79	——

In the last of the four propositions the physician was asked to cast a vote on the question of the formation of mobile civilian medical teams to supply areas stricken by epidemics or other forms of devastation such as atomic or bacteriologic warfare. Although 14.6 per cent passed up this question, it is most significant that only 4.6 per cent checked No and 80.8 per cent Yes. A much stronger question than this might have been asked, but in the framing of questionnaires it is always desirable to avoid what statisticians like to call a leading question. It seems clear that if 81 per cent of the doctors are willing to support the formation of mobile civilian medical teams they are certainly aware that in the next war the task of taking care of civilians "after the storm" may be a greater medical problem than the medical care of military personnel. The vote on this question clearly indicates that the civilian doctors of America are aware of the serious implication of possible atomic and bacteriologic warfare.

Question 59	More than Proportionate	Less than Proportionate
Reply		
1. Yes..............	——	——
2. No..............	PTS, 25,000 to 50,000, nonBd	FTS, over 1,000,000, Bd
3. No answer.......	Age 70-79	——

The last question, 60, merely called for special comments. Replies were received from 523, 22.5 per cent of replying doctors. The number of letters attached was 2 per cent of the number of replies, although no letter was requested; 15.0 per cent of the replying doctors were from the state of New York, and 89 per cent of the replying doctors signed their names to their questionnaire.

A SUPPLY RIDDLE

The combined results of the two questionnaires pose a riddle. More doctors than necessary in the opinion of 26,000 discharged medical officers were inducted into military service and too few remained at home in the opinion of the doctors in the random sample. Yet the general health of civilians (and of military personnel) was at an all time high. This coincidence may cast doubts on the claim that the nation is suffering from a serious shortage of doctors; that is, inadequate to maintain our unequaled rate of health progress. The full effects of complete demobilization of doctors will not be felt until late 1948, because so many discharged doctors (perhaps 20,000) chose to pursue graduate training before going into active practice. How much lower would the general death rate among civilians have fallen *with an adequate supply of civilian doctors not working overtime*, aided by the full impact of the new drugs, war plant industrial medicine, helpful food and gas rationing, and the healthy participation of citizens in wartime activities which made them impervious to diseases caused by self pity?

The exact percentages shown for the replies to each question can be forgotten. The overall results of the replies to the second questionnaire from a random sample of civilian physicians present a challenge to organized medicine to initiate now a well rounded, wise and carefully prepared program designed to provide for quick mobilization of our nation's medical resources preparatory to another national emergency.

JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Report of Meeting in Chicago, February 22

The Joint Committee for the Coordination of Medical Activities met in the Board of Trustees Room of the American Medical Association Building in Chicago, Saturday, February 22, and was called to order by the Chairman, Dr. Ernest E. Irons, at 10:05 a. m. Members and guests present were:

Dr. Irvin Abell
Col. George E. Armstrong
Dr. Walter L. Bierring
Dr. W. Palmer Dearing
Dr. Warren F. Draper
Capt. William E. Eaton
Dr. Morris Fishbein
Dr. John H. Fitzgibbon
Dr. Evarts A. Graham
Dr. Johnson F. Hammond
Dr. E. L. Henderson
Dr. Hugo V. Hullerman
Dr. Ernest E. Irons
Dr. Edwin P. Jordan
Dr. George F. Lull
Dr. J. J. Moore
Dr. H. B. Mulholland
Dr. Carl M. Peterson
Lt. Col. William N. Piper
Dr. R. L. Sensenich
Dr. H. H. Shoulders
Dr. Leroy P. Sloan
Dr. Austin E. Smith
Miss Mary Switzer

SURPLUS PROPERTY

Miss Switzer, member of the Subcommittee on Surplus Medical and Hospital Supplies, reported that, pursuant to suggestions made at the January meeting, she had investigated the status of directive 23 issued by the War Assets Administration. She said it had been possible to get the directive reactivated within the authority under which it was originally issued until March 31, at which time many of the basic authorities of the Civilian Production Administration, including the one that is dealt with in directive 23, expire. Miss Switzer recommended that the subcommittee be discharged, and the Committee so voted.

GRADUATE EDUCATION OF PHYSICIAN VETERANS

Dr. Lull presented a question which had been propounded to him by a chief of staff of a hospital. This person had stated that only veterans were in training as residents, with tuition paid by the Veterans Administration, in that hospital, and that there is one vacancy for which no veteran is obtainable. He asked whether, if a well qualified nonveteran was appointed to this vacancy, it would cause the hospital to lose the tuition payments of the veteran residents. Dr. Lull said he had understood that tuition was paid to hospitals as a result of their making extra residencies available. Miss Switzer said such tuition was made available if it was demonstrated that the hospital had to increase its teaching staff to provide for the extra residencies and thereby was subjected to extra expense. The Chairman suggested that the inquirer be told to contact the local office of the Veterans Administration, and Dr. Hullerman thought that definite information could be obtained quickly through the Washington office of the American Hospital Association, which is keeping in close touch with these matters.

ARMY SPECIALIZED TRAINING PROGRAM AND WAR DEPARTMENT DEFERMENT POLICY

Dr. Shoulders read the following letter, which he said was representative of a number of communications he had received as President of the American Medical Association:

> Dear Dr. Shoulders:
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> This letter is directed to you in the hope that some perplexing statements and situations may be clarified by being brought to the attention of some one who is interested and influential in the medical profession and the people concerned. The desire to correspond with you was given added impetus when it was realized that you do receive and acknowledge other letters similar in content to this. This was learned while reading the proceedings of the Committee on Postwar Medical Service, as published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Jan. 4, 1947. Reference was made to letters you had received from a certain group of physicians in the Navy.
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> Whether or not you have received or will receive letters presenting the same material as this one, I, of course, am unable to state. Nevertheless, I am confident that the matter which I wish to present to you is in the minds of several thousand young physicians in the Army, recently separated from the services, as well as those expecting eventual call into the services. It is the subject matter of a great many conversations among us who are concerned. It appears appropriate, then, that these facts be brought to the American Medical Association, with which the vast majority of us have been affiliated in one way or another since we pursued medicine as a profession—and to which we look for policies, direction and aid in problems that confront us. It is with such an attitude that this letter is submitted for your consideration.
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> Many of us now serving in the Army were deeply perplexed when we read in the Dec. 21, 1946 issue of THE JOURNAL that 1,500 of the current intern group would be deferred for from six to twelve months beyond the normal termination of their internships in order that they might continue in civilian hospitals as interns and residents. The reasons given for this action were (1) because of the "need of civilian hospitals for junior residents and/or interns" and (2) "the desirability of continuing the deferment of as many officers as possible so they might continue their training."
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> Our perplexity stemmed from the impression that there is still a surplus of applicants from veteran physicians seeking residency training in civilian hospitals. We have seen many references to the splendid efforts of committees of the American Medical Association who are trying to solve the problem of great demand for such training. Most of us have friends who are waiting or searching for a hospital residency; knowing this, it is most difficult to understand wherein there could be any "need of civilian hospitals for junior residents." Similarly, by July 1, 1947 there will be a new group of medical graduates available for internships. This group should be of equal size to the present group of interns and could completely replace it as an intern group. Why, then, should there be any need for continuing any of the current group on an intern basis?
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> Indeed, we do agree that it would be desirable for the present intern group to continue their training, but it can hardly be denied that others are more deserving of such an opportunity at this time, namely the veteran physicians and those who are currently in military service. In the latter two groups are physicians who have not had that opportunity as yet, even though they are older than those for whom further deferment is being permitted. It is pertinent to point out at this time that the group to be further deferred will automatically receive longer hospital service as interns than was permitted some veterans and practically all who are now in service. This was the result of conversion from the 9-9-9 program to the prewar twelve month internship. Because of this transition, a large portion of the present intern group will serve fifteen months as interns in contrast to the nine month period in effect during the war. Hence they will receive six months' more training as interns than did most of us who are now in service. Yet we are retained in service for a designated twenty-four months, while 1,500 interns eligible for service in the Army and who will automatically get six months' more internship than we did will be permitted a still longer immunity from military service, ranging from six to twelve months.
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> Another source of contention is the fact that the current group of interns received the maximum benefits under the Army Specialized Training Program. They were the group who enjoyed free tuition, books, clothing, board and room, and a salary during the entire time that the program was in operation. This amounted to more than thirty months of the approximately thirty-six months required by most medical schools. Not only did this group receive the maximum financial benefits, they also received the maximum acceleration of their professional studies and are therefore relatively and actually younger than those of us now in service, and certainly they are younger than the veteran physicians with whom they will compete for civilian hospital training under the War Department directive to which reference is being made. Certainly no group is more obligated to military service than the present interns in view of the very considerable government sponsored benefits they have received. Likewise, no other group can serve in the military services with so few personal sacrifices, for they are younger, not in debt for their professional education, and automatically are receiving a longer internship than was permitted during the war. Does it not seem more desirable and just to permit others "to continue their training" rather than to prolong the length of service for those still in service, and to increase the difficulties some veteran physicians are encountering in obtaining residencies—while a favored group receives still greater benefits than those they already have been granted?
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> At least one group was suitably organized and adequately incensed to register a complaint to the source of this policy. In the Jan. 18, 1947 issue of THE JOURNAL on page 184 is an item referring to the action of a group of physician veterans who were termed "Docvets." Their complaint dealt with only one aspect of the complete picture apparently. They protested to the Surgeons General of the Army and Navy that the positions in civilian hospitals should be filled by veteran physicians rather than those who have had so many other government benefits, who are already receiving a fifteen month internship and who have thus far had no military service. As reported in this article, "the Army Surgeon General explained that 3,000 medical school graduates whose

tuition was paid by the government are available for army service. The Army can't use them now, which is the reason for deferments." With this statement, a third reason for the deferment policy was given, and it is in no apparent way associated with the implications of the previously stated two reasons. While giving this revised reason for the deferment policy previously published, the same source commented that hospitals should employ veterans rather than younger doctors without military service. The latter statement is indeed commendable and was perhaps adequate to appease the "Docvets" who made the complaint. However, the composite of reasons and statements still leaves much to be desired by those who are at present in service and have been anxiously awaiting an announcement that some relief from the twenty-four month requirement of service might be forthcoming.

In the August 1946 Educational Number of THE JOURNAL is a numerical breakdown of all four classes in medical schools throughout the country. One statistical table shows there were 3,567 Army Specialized Training Program students in the senior class of the year 1945-1946. *This is the group now interning. This figure is incongruous* with the one used in reply to the "Docvets." One might reasonably ask what has become of more than 500 able bodied men who were in their senior year in medical school during 1945-1946? Likewise, one might ask why physicians who have received little or no medical education at government expense are retained in service for twenty-four months if a surplus does exist, as is indicated by the more recent statement regarding the justification of the deferment policy. Why can't physicians who had from none to twelve months A. S. T. P. training be replaced by those surplus, government educated, fifteen month interns? Or why couldn't they be used to replace physicians who were taken into the service with disqualifying defects and diseases? Not only does the latter group constitute a potential source of government claim for disability, but they also tend to increase the needs for greater medical care and hospitalization, to say nothing of their own physical and mental welfare while subjected to two years of military service. Surely if an overabundant supply of fully qualified physicians is available, it would be well to have them replace those physicians who are serving in spite of chronic diseases and disabling defects.

If the first two reasons given for the deferment policy are to be given credence, then it is suggested as a means of increasing the training periods of young physicians, a policy could be adopted whereby physicians now in the service would be relieved from active duty on presentation of evidence of having an approved residency appointment. After all, it is this group whose training was interrupted early by military service, and who are now older, and time for residency training is becoming increasingly short and valuable. Many have financial obligations dating back to their school years which were financed partially or wholly from private sources and not entirely by government programs. Then too, by this arrangement the too frequent long period of waiting for a residency to begin after separation from service would be obviated, thus eliminating a further waste of time, ability and knowledge. In this way the surplus of eligible young physicians could be utilized to replace those who were separated from service to avail themselves of a desired and earned opportunity for further hospital training in accredited civilian institutions. Such a program was in effect for selectees during the past fall, at which time they were discharged if they had proof of acceptance from a college. Could not the same privilege be extended to the professional man in service who is seeking advanced training and whose age makes his time at least equally if not more valuable than that of the recent high school graduate?

As a final suggestion for a more desirable alternative than the present policy, if an appreciable surplus of physicians exists who are eligible and undeniably obliged to military service, why can't the overall requirement of twenty-four months' service for physicians be reduced? Complaints are commonly heard from physicians in service who are not doing professional work or whose abilities have not been utilized in any capacity for appreciable periods of time. Add to these extravagances of professional talents an excess of available personnel, it is difficult to understand why two years of service remains the inflexible requirement. Certainly it would create better morale than the present policy of declaring a certain few doctors "surplus to the needs of the service" and discharging them, while others with precisely the same qualifications and same length of service are retained to fulfil the twenty-four month requirement.

It is my sincere hope, Dr. Shoulders, that you will give some consideration to the facts, impressions and suggestions offered in this letter. The content has been given much serious thought and is representative, I am confident, of the attitudes and bewilderment of a great portion of us who are now in service. A reply from you will be most welcome, and any information you may offer to clarify our position and our future will be most gratefully accepted.

In view of the fact that I am now in service and not desirous of provoking any retaliation on myself or my associates, it is my urgent request that my name be held in your confidence. I sincerely appreciate your indulgence and consideration.

Respectfully submitted,

Dr. Shoulders asked Colonel Armstrong, as chief of personnel in the Office of the Surgeon General of the Army, to give him some information on which he might base a satisfactory reply.

Colonel Armstrong replied at length and promised to send for publication a statement covering his remarks. That statement follows:

1. The Office of the Surgeon General, War Department, and the American Medical Association *have recently been in receipt of* numerous letters, indicating that confusion and misunderstanding exists at present regarding the current deferment policy for graduates of the Army Specialized Training Program now completing internships and who, unless deferred, will be called to active military service on or about 1 July 1947.

2. The Army Specialized Training Program was initiated in July 1943 in an effort to guarantee an adequate source of physicians for duty with the armed services. Under the provisions of this program 12,300 students were graduated from medical schools, such education being wholly or in part at government expense. These graduates represent only those physically qualified for commissioning in the Army of the United States, in that 20 per cent of the graduates of medical schools were found to be physically disqualified for service with the Medical Corps.

3. Of this number approximately 9,300 have served on duty with the Army, of which approximately 4,300 have been separated from active military service under the current separation criteria. During this same period the Navy under the provisions of their V-12 Program graduated 5,053 physicians from medical schools for active service with the Navy.

4. The 9-9-9 Deferment Program was established in an effort to provide sufficient resident physicians for civilian hospitals during this period, and to provide for the armed services a continual flow of physicians with additional specialty training. Under the provisions of this deferment policy all of the 9,300 A. S. T. P. graduates received nine months' internship training. Of this number one third, or approximately 3,100, were deferred an additional nine months in order to serve a junior residency; of the later group one half, or approximately 1,550, were deferred an additional nine months for the purpose of serving a senior residency (a total of twenty-seven months, the maximum allowable deferment). *Stated otherwise, 50 per cent of the A. S. T. P. graduates* who have served on active duty were deferred for additional training following the completion of internships.

5. To date, the Army has separated approximately 48,000 Medical Corps officers from active military service since VE day, including approximately 4,300 former A. S. T. P. graduates. Of this number 1,907 Medical Corps officers, ineligible under current separation criteria, were separated on the basis of their essentiality to communities requiring medical service, and 942 were separated from active military service on the basis of individual undue hardship. In addition, the Surgeon General has declared 2,907 Medical Corps officers surplus to the needs of the Army for subsequent separation. These separations have been restricted to officers returning from extended overseas service and to those who are available for reassignment. Only after a careful review of the officer's qualifications and the needs of the Army, and it has been determined that reassignment is not warranted, was an individual officer separated. This is consistent with the Surgeon General's policy of expeditiously returning the maximum number of physicians possible to civilian life.

6. On 28 February 1947 there were currently on duty approximately 7,500 physicians made up of the following categories:

Regular Army	1,125
A. S. T. P. graduates	5,050
Volunteers	
Cat. I (duration and 6 months)	650
Cat. II (until 30 June 47)	500
Other	175
Total	7,500

7. Approximately 3,200 interns, who will be called to active duty on or about 1 July 1947 unless deferred, constitute the remaining reservoir of physicians available for military service. The Surgeon General in a study determined that if 3,200 interns were called to active duty on that date the Army would possess, for several subsequent months only, a temporary excess of Medical Corps officers. It was likewise determined that subsequent to 1 January 1948 there would continue to be a shortage of approximately 1,000 Medical Corps officers for military service with the Army. The Surgeon General, therefore, recognizing the need of civilian hospitals for both junior residents and/or interns, the desirability of continuing the deferment of as many officers as possible, so that they might continue their training for subsequent military utilization, and the future shortage of Medical Corps officers for service with the Army, established the following deferment policy with the approval of the American Medical Association and related medical agencies. This deferment policy is briefly as follows:

1,200 to be deferred an additional six months from 1 July 1947, to 1 January 1948.

300 to be deferred an additional twelve months from 1 July 1947 to 1 July 1948. Priority is being given to university and teaching hospitals only.

The deadline for the submission of all requests for deferments was established to be 1 March 1947. No requests for additional deferments will be considered after this date. On 28 February 1947, 350 deferments for the additional six months, or until 1 January 1948, and 300 for the *additional twelve months, or until 1 July 1948* have been approved.

8. Officers deferred under this policy will be required to serve on active duty under the provisions of the current separation criteria coordinated and established with the Navy for Medical Corps officers, which is as follows:

a. General duty medical officers and noncritical specialists, twenty-four months' service.

b. Critical Medical Corps specialists, thirty-six months' service.

c. Terminal leave must be completed on completion of months of service as *enumerated*.

9. The Surgeon General, desiring to clarify any misunderstanding regarding current policies affecting commissioned Medical Corps officers, stresses the following points

a That veteran physicians be given priority for residency training in civilian hospitals

b Under the provisions of the current deferment policy, only 300 officers will be deferred for additional junior residency training and will thus occupy only 300 of the approximately 10,000 existing junior and senior residencies available in civilian hospitals

c That Medical Corps officers so deferred under the provisions of the deferment policy will be required to serve on active duty for the period established by the current separation criteria It is not anticipated that this will be reduced at any time in the future, in that it is neither economically or professionally feasible to utilize the services of recent graduates for a shorter period of service

d That while the combat phases of the war are at an end, the emergency is far from over On 14 February 1947 there were 43,839 patients in army hospitals, of which 6,124 were battle casualties In addition, major peace treaties are yet to be worked out, and if our country is to provide an army the size that our international commitments make necessary, medical officers must be made available to service that army

Colonel Armstrong's remarks were discussed by Miss Switzer, Dr. Abell, Lieutenant Colonel Piper, Dr. Fishbein, Dr. Shoulders, Dr Bierring, Dr. Lull and the Chairman

Dr Graham brought up the point of young physicians who had been assigned from the Army to the Veterans Administration and who found themselves, after having prepared for surgical careers, assigned to neuropsychiatric services. He thought it would be wise on the part of the Veterans Administration to make more judicious assignments of its physician personnel to the end that both the physicians and the patients would be benefited He said that he had written the Veterans Administration about the situation. Dr. Bierring thought that where "deans' committees" were in the picture in connection with veterans' hospitals such situations were not likely to occur. Dr. Lull stated that he had talked with officials of the Veterans Administration He said that the men are transferred in a block to the Veterans Administration, which assigns them; that in any given hundred men assigned there will be plenty with training in surgery or medicine but not nearly enough to handle all the vacancies in the neuropsychiatric hospitals, and that for that reason those who have had the least training in a specialty are assigned to the neuropsychiatric services

AMERICAN RED CROSS BLOOD BANK PROGRAM

Dr. Draper presented the following statement concerning the blood bank program of the American Red Cross:

The blood plasma that was surplus from the Army and Navy during the war has been distributed among the states through the state health departments, hospitals, doctors and the like and is now being used for civilian purposes The plasma, of course, is without cost to any of the agencies or individuals using it, although the cost of administration is met The supply available at the present time will be completely exhausted in about two years The rate of replenishment is not in proportion to its use, and there will be a definite shortage when the present surplus is used Owing to the experience with blood during the war, it is in increasing demand as more physicians learn how to use whole blood and to understand its methods of administration Furthermore, blood derivatives are now being discovered, and as their value is determined there will be greater demands for them Some of the best research minds of the country are working in clinical research developing new uses for blood and possible purposes for which new derivatives may be useful With that situation, the question has arisen as to what the responsibilities of the Red Cross may be According to all the figures it has been possible to gather, an adequate supply of blood for the whole nation cannot possibly be furnished through commercial sources The Executive Committee of the Red Cross Advisory Committee discussed the matter in detail and endorsed a program by the Red Cross whereby blood will be made available to people who otherwise would not be able to obtain it

There are a few state blood programs, some city programs and some private hospital blood banks The action of the Advisory Committee will be made known to the Central Committee of the Red Cross in due time In the meantime, the matter is being discussed with agencies and individuals concerned who may have helpful advice to offer

Members of the Committee asked various questions, to which Dr. Draper replied as follows·

So far there seems to be no difference of opinion as to the value of the program, the medical people feel it should be based on community needs and should receive the approval of the local medical societies for its operation in a community The Red Cross has no intention of changing a good program with adequate means for providing blood that is already in existence Consideration has been given to the possibility that without the war as a stimulus it might be difficult to obtain a large number of blood donors In the state and city programs now in operation the Red Cross is procuring donors, and there has been no difficulty in getting them, state health department officials in Massachusetts said they have been able to recruit more donors than are necessary at the present time The program being voluntary, with the Red Cross insisting that the people give their blood free of charge, no charge can be made for the product No one can tell exactly how many donors it will be possible to recruit all over the country, but people are willing to give their blood if they are convinced that it will be used to save life in the same spirit as given The Veterans Administration has priority in the distribution of blood plasma now in storage and receives what it requests The Army and Navy are paying their whole blood donors and getting their supply in that manner No consideration has yet been given to the provision of grants in aid to local agencies in the processing of the plasma program Commercial concerns are entirely willing that the Red Cross program shall proceed; they will receive payment from the Red Cross for processing the blood It will be furnished to the recipient free except for the cost of administration

Dr. Henderson stated that the Red Cross plan had been presented to the Board of Trustees of the American Medical Association and that the Board of Trustees had endorsed it in principle on the basis of community need and administration with the agreement of the local county medical society

REPORT OF SUBCOMMITTEE ON SPECIALTY BOARD FOR GENERAL PRACTITIONERS

Dr. Bierring, chairman of the Subcommittee on Specialty Board for General Practitioners, presented the following progress report·

The Subcommittee has become more and more impressed with the magnitude of this problem It is not in sympathy with the terminology "Specialty Board for General Practitioners" When specialty boards were first begun there was a background of special training in a special field There is no such background with respect to general practice and, while there is a general concept of what it means, it never has been established by an organization of physicians and surgeons in that particular field The first step has been taken in that a Section on General Practice of Medicine has been created as a part of the Scientific Assembly of the American Medical Association Certification on a national basis would not appear to be practical or advisable at this time It will require considerably more deliberation and experimentation

The recently established Indiana Board of General Practice of Medicine was described rather fully in this subcommittee's report at the last meeting However, the stated purposes for which the Indiana Board was organized were not included They are "to encourage the study, improve the practice, elevate the standards and advance the cause of the general practice of medicine by (1) creating incentive and inducement, through the prestige and distinction that accompanies recognition of achievement, to physicians to attain proficiency in the general practice of medicine, (2) developing a sense of unity and cooperation among those engaged in the general practice of medicine, (3) improving the educational opportunities of general practitioners, and (4) determining, by examination and otherwise, the competency of general practitioners who desire special recognition "

The inference is that examination should come after the other factors have been established The essential thing—and the essential thing in this Indiana plan—is first to establish a "founders' group" and to promote graduate courses in general medicine Therefore it would seem that the product is not available for certification A pattern may be found in the examination of the National Board of Medical Examiners, which is that the intern year completes a very comprehensive examination

It appears to the subcommittee that the first problem is to establish some standard to signify or specify what general practice is It should be established that there is a distinct field of medical practice referred to as general practice, and this can best be accomplished by extension courses If a program of extension courses on a national scale is considered, it should be established by the American Medical Association in cooperation with the American College of Physicians, the American College of Surgeons, the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, the American Society of Clinical Pathologists and possibly some others Then it might be possible to determine a plan for extension courses taking in the various stages general practice, diagnosis, the application of therapeutics, pharmacology, recognition of complications, minor surgery, and so on After that, certain activities could be carried on to encourage the establishment of services of general practice in the hospitals so that members of the staffs could be designated as those concerned mostly with the general practice of medicine Then there must be extended in intern service more opportunity for general practice

This attempt to "separate the sheep from the goats" is a question for much concern There is a question as to whether any very radical program developed at this time to include national certification by examination may not tend to cause a cleavage in the profession that would be most unfortunate

Dr. Sensenich, also a member of the subcommittee, presented the following statement:

> The pressure at present leaves no time for the development of a long drawn out program. The fact is that the general practitioner is being excluded from the hospitals. That is an unjustified position. There are about 21,000 diplomates of the specialty boards and about 131,000 other practicing physicians; all of the people must be taken care of and they cannot be taken care of exclusively by specialists. There is the necessity of giving the best kind of care to patients who obviously do not fall in the special groups. Some kind of action is bound to be taken somewhere. This subject has been introduced in the House of Delegates of the American Medical Association on two occasions already. It undoubtedly will be introduced again. The desire of the general practitioners to gain recognition as specialists is due in part to the Veterans Administration giving special advantage and emolument to specialists. I am confident that the thinking on this matter must be pursued further, perhaps to the standpoint that there must be less emphasis on the diplomate of the board and more on the reasons for setting up a board. It must be admitted that there is not a place for all who now aspire to specialties. The emphasis will have to be taken off the examination and the boards so that a physician is permitted to practice within reasonable bounds. It should be possible to place more emphasis on the whole program of improving the quality of medical care and to provide courses in the various states, acceptable to some national standard, for which credit—not necessarily certification—could be given, thus stimulating the general practitioner to keep his work up to date. That is a responsibility of the profession as a whole. It is being done in Colorado and in Michigan. The whole situation should be covered with a program that is practical, in which every physician will be stimulated to continue his study, will be provided with the means to that end and will receive recognition. If there is a group that wishes to provide its members with an examining board giving certification, that is incidental. It would seem to be perfectly possible and, in fact, probably should be done. To take another 10,000 off the general practitioner group and certify them, leaving the rest, is not going to solve the problem. It must be insisted that hospitals provide facilities for the care of patients by those physicians as well as by the specialty groups. It is perfectly reasonable to believe that a plan can be worked out that will provide for every one.

The subject was discussed by Miss Switzer, Dr. Sensenich and Dr. Abell. Dr. Bierring stated that the subcommittee would appreciate suggestions or advice as to how best to pursue the matter in the future. He agreed that something should be done but reminded the Committee that this is a far different problem than that of certifying limited specialists. As stated before, he said, there is no background of a special organization for general practice, although it keeps the key position in the practice of medicine. He asked if there should be thought of a council on a national basis which would establish some background of certification for general practice and of leaving the matter of certification for a later time.

It was Dr. Fishbein's opinion that the problem of how to set a standard for a general practitioner is insoluble. He thought that the key to the whole thing is hospital organization and control.

Dr. Fitzgibbon thought the first step should be to show the general practitioner that the present leaders of medicine have his welfare at heart, and that through some competent body recognition be made that a certain percentage of a hospital staff should be general practitioners.

The Chairman asked if the Joint Committee might not suggest to hospitals that they review their requirements for staff positions and, if they now limit them to certified men, whether they would not consider changing their regulations so that general practitioners will not be excluded. Dr. Bierring suggested that hospitals be informed of the situation that exists and that they be asked to reclassify or reconsider their attending staffs with a view to separating or designating a definite service in general practice. Dr. Fishbein pointed out that the members of the Joint Committee were supposed to report back to the organizations they represent and that thus there is a question as to what body should inform the hospitals. Dr. Hullerman stated that the Council on Professional Practice of the American Hospital Association has given much consideration to this subject and has not found a solution. He said that where there are boards and specialties there is a related idea that better service is obtained, and the hospitals cannot avoid recognizing that in distributing staff appointments, and that if there is an answer to the problem perhaps it could be worked out with a little more thought between the people administering the hospitals and this Joint Committee.

The Chairman asked the subcommittee to continue its study and report at the next meeting. He suggested that a report on the same subject from the American Hospital Association, the American College of Surgeons and the Catholic Hospital Association would be of interest in connection with the subcommittee's next report. After further discussion by Colonel Armstrong, Miss Switzer and Dr. Abell, the progress report of the subcommittee was accepted with appreciation.

CERTIFICATION OF GRADUATES OF FOREIGN MEDICAL SCHOOLS

The Chairman presented for the information of the Committee the following regulations promulgated by the American Board of Internal Medicine with respect to requirements for certification of graduates of foreign medical schools:

> Graduates of medical schools outside of the United States and Canada who request evaluation of their qualifications for admission to the examinations of the American Board of Internal Medicine cannot be given official consideration at this time. There is no prescribed mechanism by which the Council on Medical Education and Hospitals of the American Medical Association or any other educational agency can evaluate the quality of foreign medical education. It will therefore require, at some future date, a careful inquiry into the qualifications of each (individual) candidate who applies for consideration. It is not contemplated that individual foreign schools will be recognized.
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> It may be possible, however, that consideration of the applications of individual physicians will be given provided the following conditions are satisfied:
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> 1. The physician must be a citizen of the United States.
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> 2. The physician must furnish adequate official proof that he (she) has graduated from a medical school after completing a four year full time course in medicine.
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> 3. The physician must have a license to practice in one or more states of the United States and have been in active practice confined to internal medicine within the state of legal residence.
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> 4. The physician must be an active member of the county and state medical societies in which he (she) has established his legal residence.
>
> 5. Graduates of foreign schools in 1930 and thereafter must, in addition to all other requirements, satisfy the requirements of one year of approved internship, three years of approved residency or fellowship in the United States, and at least two years of practice limited to the field of internal medicine.
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> 6. Satisfaction of all the aforementioned requirements by graduates of foreign schools does not insure admission to examination any more than it does candidates graduating from approved medical schools in the United States. In all instances the Board exercises its privilege of careful investigation of all candidates. Standards of achievement and satisfactory performance will be required of all.

REPORT OF SUBCOMMITTEE TO STUDY TAFT-FULBRIGHT BILL

The members of the Subcommittee to Study the Taft-Fulbright Bill, Dr. Bierring, Chairman, Miss Switzer and Dr. Sensenich, reported as follows:

DR. BIERRING: It has been announced that the first hearings on S. 140, the Taft-Fulbright bill, will be held on Feb. 28, 1947. A companion bill, H. R. 573, has been introduced in the House by Representative Harris of Arkansas. The purpose of the Taft-Fulbright bill is to create an executive department of the Government to be known as the Department of Health, Education and Security, with a Secretary who will have Cabinet rank and three under secretaries for Health, Education and Security. The bill provides that the Under Secretary for Health shall be a doctor of medicine licensed to practice medicine or surgery in one of the states or territories of the United States or in the District of Columbia. It also provides that Freedman's Hospital, the U. S. Public Health Service, the Food and Drug Administration and the Federal Board of Hospitalization shall be transferred to the Division of Health. The new department would be authorized to promote the general welfare by aiding and fostering programs in the field of health, education and security and related services contributing to individual, family and community well-being. The use of state and local agencies, including both public and voluntary, is more fully designated in this bill than in any previous one of the kind.

MISS SWITZER: There is some difference of opinion on the provisions of S. 140 as now drafted. The Federal Security Agency feels it is a mistake to have three rigid divisions set by statute and would prefer more flexibility. For example, the Children's Bureau is at present intact and a part of the Social Security Administration. Should it remain there, thus giving much more emphasis to its welfare programs, or should it go into the new Division of Health? As far as money goes, as you know, the major part of its program is in the health field. Then there is the Office of Vocational Rehabilitation: Should that go to the Division of Education or of Health? It is felt that it would be hampering and a great disadvantage to freeze a new department of such importance as this would be with three rigid statutory divisions. Also it is rather questionable as to whether or not the professional qualifications of political officers should be written into a statute as is done in this bill. Such requirements do not exist in any other department, and it would be much better in the long run to have this new department follow traditional lines. It is felt that if a Cabinet post is created it ought to be with the general agreement of all groups concerned. Unless that can be accomplished, there may be stirred up competition and bitterness which would impede a good program. It is thought, too, that the mandatory provisions in this bill about dealing with state and local public and voluntary organizations are very questionable; it would be preferable to have a strong statement of the intent of Congress that the Department work with professional and voluntary groups; the way it is now written it would be mandatory that quacks and borderline organizations have the same relationship with the Department as agencies of a different type. One other provision which it is felt is not wise gives the Secretary power to abolish bureaus and to transfer to himself the function of the established bureaus. That is extremely dangerous.

In the field of health and education, there is a feeling that this movement for a new department has been sponsored by people in the welfare field, who will have dominance. The movement for separation in the health and education groups is strong. One organization that is doing more than any of the others to try to coordinate is the National Social Welfare Assembly, which has combined with the American Council on Education and has set up a committee that is trying to develop a consensus among its members. Dr. Lull and Dr. James R. Miller of Hartford, Conn., are representing the American Medical Association on this committee. Other members in the medical field are Dr. Vlado A. Getting, Dr. Ernest L. Stebbins, Dr. Ira V. Hiscock and Dr. Robin C. Buerki. The committee is preparing a rather good statement, which tries to set forth the pros and cons of the controversial reports.

Dr. Sensenich: The American Medical Association was approached to send representatives to the conference called by the National Social Welfare Assembly and the American Council on Education on January 31, at which the committee mentioned by Miss Switzer was set up. Dr. Miller and Dr. Lull represented the Association at the conference. After the meeting of this Joint Committee on January 11, when I was appointed a member of the Subcommittee to study the Taft-Fulbright bill, it was decided that I should attend the conference. Most of the time was taken up with feeling out the various groups as to what their attitudes would really be. They were very cautious. No one spoke out openly for the proposal, and the only one who spoke definitely was Mr. Nelson H. Cruikshank, Director of Social Insurance Activities of the A. F. of L., and he was against it. He stated that the American Federation of Labor would have nothing to do with it; he thought that all of social security and health which have to do with industry should be in the Department of Labor. Education apparently was not too much interested either, and the hospital group I think were not too much for it either. However, these are just impressions.

Federal security asserts that the head of medical affairs need not necessarily be a physician and that the head of the Education Division need not be an outstanding educator. It is a political structure. From that point on, the bill is definitely a welfare bill to which there will be objection.

RURAL MEDICAL SERVICE

Dr. Mulholland presented the following statement on the activities of the Committee on Rural Medical Service:

Since the January meeting of the Joint Committee, the second National Conference on Rural Health has been held. The attendance at the conference was above expectations, registration being over three hundred. The discussions pertinent to the subject and the cooperation between representatives of rural organizations and physicians were excellent. Definite recommendations were sent to the Board of Trustees of the American Medical Association and will be briefly sketched. It should be noted that in many instances different panels naturally arrived at the same conclusions.

It was suggested that there be clarification of the term "health center," but in the discussions it was brought out that no one definition would fit because of the various types of health centers. It was repeatedly suggested that the population in rural areas be educated with reference to the problems incident to rural medical practice and the important part that communities must play in getting and maintaining medical facilities in these rural communities. This can be brought about only by concerted community action. It was suggested, and indeed it seems highly important, that the American Medical Association stimulate the formation of state and county health centers, composed of physicians, dentists, farm groups and others interested in the health problem, to study the needs and develop definite plans.

In order to retain physicians and dentists in rural areas, it was felt that there should be provision of adequate medical facilities and a reasonable income for physicians and dentists, stimulation of practice in groups and a concomitant improvement of community educational and cultural facilities and extension of good roads. It was recognized that the problem was tied in with the economic status of these areas. It was urged that medical schools place more emphasis on the economic problems of medicine in the medical school curriculum, and that students be given practical experience in rural medicine. A successful rural medical organization should include rotation of interns through a coordinated hospital system.

Voluntary medical prepayment plans were discussed at some length, and it was urged that, in addition to extension, enrolment policies be considerably broadened and serious attention given to the possibility of these plans covering services for the medically needy.

With reference to nursing, emphasis was placed on education in the home, expansion of home nursing courses in high schools, development of practical nursing services and improvement of the status and compensation commensurate with the education required.

Panel discussions on medical care for lower income groups suggested that state and local funds implemented by federal grants be urged. It was stated that this lower income group would include about 85 per cent of the total population, which points up the importance of this problem. A suggestion was made that the various effective tax supported medical care plans now in operation be given careful study and that cooperative health associations be expanded and developed on a community level.

The Chairman thanked Dr. Mulholland for his presentation and stated that the report shows important progress and that it is gratifying to note the interest of the farm organizations.

EVALUATION AND DEVEOPMENT OF RESEARCH PERSONNEL

Miss Switzer informed the Committee that she was working with two committees in Washington which have to do with scientific personnel, including medical; two very exhaustive studies are under way on how to insure the development of a sufficient number of competent students in research fields; the President's Board in cooperation with the National Research Council is trying to survey existing personnel and project the need for the future; another committtee is trying to take a long range veiw of what ought to be done in continued stimulation of scientific personnel and has a responsibility to the War and Navy departments based on the experience in this war as to adjustments necessary.

Dr. Dearing stated that the U. S. Public Health Service is busily engaged in recruiting both physicians and scientists and is emphasizing in the universities the opportunities for scientists in the Public Health Service and the Fellowship program, which it is expected will be expanded next year.

SHORTAGE OF NURSING PERSONNEL

Dr. Hullerman brought the matter of a shortage of nursing personnel to the attention of the Joint Committee, as follows:

During the past year and a half the Committee on Careers in Nursing, under the auspices of the National Nursing Council, has been responsible for what recruitment there has been of student nurses. The work of the committee was done without the expenditure of much money and largely by means of national radio programs, prepared advertisements sent free on request to newspapers, some paid magazine advertising, some distribution of literature and answering of inquiries. It was evident last summer that when this committee would go out of existence because of the dissolution of the National Nursing Council there would be no program this year.

A plan has been drawn up, with no representation of professional people, providing for the establishment of a committee to be empowered to collect funds and conduct the recruitment program. The Board of Trustees of the American Hospital Association took no action on the Careers in Nursing Committee. The National League of Nursing Education did appropriate a small sum. The Council on Professional Practice and the Board of Trustees of the American Hospital Association are of the opinion that the matter of student nurse recruiting is of utmost importance to the public. The American Hospital Association consulted last week with the National Nursing Council and has appropriated a sum of money to carry on immediately a nurse recruitment program and expects to go to the schools and hospitals for further funds. There should be on the recruitment committee representatives from the Joint Committee for the Coordination of Medical Activities—or from the American Medical Association—as well as from the various nursing organizations.

In addition, there is a possibility of the establishment of an assistance program to hospitals in the form of short, two day institutes.

For the first time in months a definite program is in the offing, and it has been thought that the Joint Committee might wish to support it and to give financial aid as well, because it is going to require a considerable outlay of money.

Dr. Sensenich asked if the proposed fund would be largely consumed in the national spread or if it would be used to help local areas, and Dr. Hullerman replied that local areas would have to carry on their own programs.

It was the opinion of the Chairman that the Joint Committee could help to promote the project in its liaison capacity with the organizations its members represent.

TIME AND PLACE OF NEXT MEETING

It was voted to hold the next meeting at American Medical Association Headquarters in Chicago on Saturday morning, April 26, 1947.

The meeting adjourned at 1:20 p. m.

Washington Letter

(From a Special Correspondent)

May 22, 1947.

Restoration of Million Dollars Asked for Psychiatric Training and Research

Eugene Meyer, owner of the Washington *Post* and former president of the National Committee on Mental Hygiene, asked the Senate Appropriations Committee to restore a House cut of $1,100,000 in funds for psychiatric training and research. Witnesses described national facilities in the field as totally inadequate. Mr. Meyer said that elimination of this item from the training and research activities of the U. S. Public Health Service would be harmful. He said there was less training and research in mental health problems than in other medical fields.

Elimination of Tuberculosis Within Generation Predicted

Tuberculosis, chief cause of death among Americans during their most productive years, 15 to 40, could be eliminated within a generation with medical weapons recently acquired, health experts report. Dr. Herman E. Hilleboe, assistant surgeon general, U. S. Public Health Service, believes that a national program against the disease should set up a nationwide case finding program along the lines of those used in cities like Chicago, care for disease victims, find jobs for "cured" patients or patients with the disease in an arrested form or place them where they will not be subjected again to the disease. Dr. Hilleboe says that the new high speed x-ray equipment using small film is one of the greatest developments in controlling the disease. Chests of the entire adult population could be x-rayed in a short time with this equipment.

President Truman Speaks on Observance of National Hospital Day

In a letter to the American Hospital Association on the twenty-seventh annual observance of National Hospital Day, President Truman declared that it was "an appropriate time to focus public attention on the inadequacies of our present hospital facilities . . . and to rally public support for the hospital program recently authorized by Congress under the Hospital Survey and Constitution Act." Mr. Truman explained that the measure authorizes expenditures of $1,250,000,000 for hospital building with federal aid in the next five years, adding that "we are looking forward to the day when hospital service will be expanded and to a program of hospital management whereby more citizens can be treated at a cost within their means."

Penicillin Reported to Be Cure for Seventy per Cent of Syphilitic Cases

A U. S. Public Health Service conference attended by 150 leading doctors and research experts was informed that penicillin is now a cure for 70 per cent of cases of infectious syphilis, and the drug will prevent syphilis in all but 5 per cent of babies born to syphilitic mothers. Effectiveness of penicillin in treating syphilis in thirty-six "rapid cure" clinics throughout the nation was reported by Dr. Margaret Merrell of Johns Hopkins University.

Dr. Parran Calls for Unified Attack on Pollution of Waterways

Surg. Gen. Thomas Parran of the U. S. Public Health Service informed the Senate Public Works Committee that there should be a unified attack against pollution of the nation's waterways to produce a "healthier America." He spoke on behalf of a bill calling for a federal outlay of $100,000,000 annually over a ten year period to give federal assistance to communities in combating pollution.

Surplus Anesthetic Agents Offered for Sale by War Assets Administration

The War Assets Administration has announced that $220,000 worth of government surplus anesthetic agents have been offered for sale in a fixed price sale to hospitals, hospital and surgical supply houses, pharmaceutical, drug and chemical manufacturers and exporters. Brochures are available from WAA regional offices.

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Association for the Surgery of Trauma, Atlantic City, Hotel Claridge, June 5-7. Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston 15, Secretary.

Aero Medical Association of the United States, Atlantic City, Ritz-Carlton Hotel, June 4-6. Dr. David S. Brachman, 1016 Dime Bldg., Detroit 26, Secretary.

American Association for Thoracic Surgery, St. Louis, May 28-30. Dr. Richard H. Meade Jr., 55 E. Washington St., Chicago 2, Secretary.

American Association of Genito-Urinary Surgeons, Absecon, N. J., June 4-6. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland 6, Secretary

American Association of the History of Medicine, Cleveland, May 25-26. Dr. Howard Dittrick, 2020 E. 93d St., Cleveland 6, Secretary.

American Association on Mental Deficiency, St. Paul, Minn., May 28-31. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American College of Allergists, Atlantic City, Hotel Senator, June 6-8. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 5-8. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7-8. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Dermatological Association, Murray Bay, Quebec, Can., June 1-5. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Wis., Secretary.

American Diabetes Association, Atlantic City, Chalfonte-Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Geriatrics Society, Atlantic City, Hotel Brighton, June 5-7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Heart Association, Atlantic City, Hotel President, June 6-7. Dr. Howard B. Sprague, 50 W. 50th St., New York, Secretary.

American Medical Women's Association, Atlantic City, Hotel Claridge, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N. J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Marlborough-Blenheim Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E. Bacon, 2031 Locust St., Philadelphia 3, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Rheumatism Association, Atlantic City, Ritz-Carlton Hotel, June 7. Dr. Richard H. Freyberg, 321 E. 42d St., New York 17, Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7-8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Clinical Pathologists, Atlantic City, June 4-8. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough-Blenheim Hotel, June 13-14. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Therapeutic Society, Atlantic City, Chalfonte Hotel, June 6-7. Dr. Oscar B. Hunter, 1835 I St., N. W., Washington 6, D. C., Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 6-7. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Medical Library Association, Cleveland, Wade Park Manor, May 27-29. Miss Heath Babcock, New York State Medical Library, Albany 1, New York, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Gastroenterological Association, Atlantic City, Hotel Chelsea, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

New York State Association of Public Health Laboratories, Syracuse, May 27. Miss Mary B. Kirkbride, New Scotland Ave., Albany 1, Secretary.

North Dakota State Medical Association, Fargo, May 25-27. Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary.

Society of Surgeons of New Jersey, Atlantic City, Seaview Country Club, May 28. Dr. Walter B. Mount, 21 Plymouth St., Montclair, N. J., Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

Medical Legislation

STATE LEGISLATION

California

Bills Passed.—S. 353, which passed the house May 6, proposes the enactment of a **hospital survey and construction act** for the purpose of causing a statewide survey of hospital facilities and the formulating of a plan for the construction of additional needed facilities as well as the establishment of an advisory hospital council. The survey would be administered by the state department of public health, which would be appointed as the state agency to accept money received from the federal government for state assistance in either survey or construction programs. S. 1071, which passed the house May 5, proposes that the use or prescribing for or administering to himself of cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, chloral hydrate, paraldehyde or barbituric acid, **any of the narcotics or alcoholic beverages** to an extent which is injurious to his practice, by any person licensed under the provisions of the business and professions code shall constitute unprofessional conduct.

Bills Enacted.—S. Con. Res. 31, which has become resolution chapter 98 of the Laws of 1947, authorizes the director of the state department of public health to investigate the problem of **rheumatic fever** and rheumatic heart disease as it affects the children in the state who are in need of diagnostic treatment and hospital and convalescent care, including occupational therapy, medical social services and school health programs related to this disease and the costs of such care, the facilities needed to provide for them. S. 348, which has become chapter 199 of the Laws of 1947, amends the health and safety code relating to poisons by including **osteopaths** within the definition of the term "physician." S. 972, which has become chapter 151 of the Laws of 1947, authorizes the state **board of chiropractic examiners** to approve chiropractic schools and colleges whose graduates may apply for licenses in the state and to set forth certain requirements which schools must meet in order to be eligible for such approval.

Connecticut

Bill Passed.—H. 953, which passed the house May 7, proposes to authorize licensed physicians to prescribe means or methods for the **temporary prevention of pregnancy** in a married woman when, in the opinion of such physician, pregnancy would endanger the life or injure the health of such woman.

Florida

Bills Introduced.—S. 358, to amend the existing law requiring physicians, osteopaths and dentists to designate properly their school of practice in a **sign at the entrance of their office**, proposes that any one engaged in the practice of any of the other healing arts, including naturopathy and chiropractic, must do the same thing. The proposal would exclude those engaged in the practice of the religious tenets of any church. S. 437 proposes the creation and establishment of a University of **Florida School of Medicine** and Dentistry to be located in Hillsborough County.

Bills Passed.—S. 151, which passed the senate May 6, to amend the law relating to the practice of massage, proposes to redefine the meaning of the practice so as to include the use of electrical apparatus. S. 245, which passed the house May 7, proposes to authorize the superintendent of the Florida State Hospital, when unable to obtain **necessary medical personnel** from within the state, to employ competent, experienced medical personnel from outside the state of Florida and proposes further that personnel so employed shall be exempt from existing requirements of law as to time of residence in the state and also as to requirements relating to the passing of an examination in the basic sciences.

Illinois

Bill Introduced.—H 514 proposes the issuance of **chiropractic licenses** by the department of registration and education Chiropractic is defined to be "the science of palpating and adjusting the articulations of the human spinal column, correcting interference with nerve transmission and expression, to restore health, without the use of drugs or surgery."

Iowa

Bill Enacted.—H. J. R. 10, which was approved April 29, 1947, designates a **mental health authority** in the state, to consist of at least one practicing psychiatrist, for the purpose of directing the benefits of Public Law 487 of the Seventy-Ninth Congress of the United States.

Maine

Bills Passed.—S. 449, which passed the house April 29, proposes to authorize the governor to appoint an advisory hospital council to advise and consult with the department of health and welfare in carrying out the administration of the existing **hospital survey act.** S. 529, which was approved May 10, 1947, requires an **annual examination for tuberculosis** of all superintendents of schools, supervisors, teachers, school nurses, janitors, school bus drivers and persons employed in the preparation of school lunches.

Maryland

Bill Enacted.—H. 69, which has become chapter 906 of the Laws of 1947, provides for the creation of a state board of **physical therapy examiners** and defines physical therapy as "the treatment of human injuries, diseases or disabilities by means of the healing properties of exercise, massage, ultraviolet rays, mechanical devices, heat, cold, air, light, water and electricity, but not by means of roentgen rays, radium, surgery or drugs." Among other things, the law also states that a physical therapist is one who treats only patients diagnosed and referred by licensed medical doctors.

Massachusetts

Bill Introduced.—S 308 proposes the enactment of a nonoccupational accident and **sickness benefits law.**

Bill Enacted.—H. 1919, which has become chapter 369 of the Laws of 1947, provides that any person who was a resident of the commonwealth for a period of five years prior to July 1, 1941 who matriculated at any medical school in the commonwealth prior to said date and who since that time received a degree of doctor of medicine from such school shall be eligible to apply for registration as a qualified physician, shall be **examined by the board of registration** in medicine and shall be subject to all the provisions of the law relating to such eligibility and examination.

Michigan

Bills Introduced.—H. 204 proposes the enactment of a licensing law for **privately owned hospitals**, homes and institutions for the care and treatment of mentally diseased persons. H. 378, to amend the law relating to marriage, proposes that any person seeking **a marriage license** shall present either a certificate showing graduation from the eighth grade or the certificate of a practicing physician or psychologist that the applicant is not feebleminded. H. 500 proposes the creation of a state **department of mental health** for the humane, curative, scientific and economical treatment of persons mentally ill. S. 378 proposes to require that all children prior to registration for the first time in any of the public or private schools, kindergartens, day nurseries or any other preelementary schools in the state shall give evidence that they have been **properly immunized** against diphtheria, whooping cough and smallpox. Exempted from the act are children whose parents or legal guardian have religious objections to such immunization.

Bill Passed.—S. 215, which passed the senate April 29, proposes to amend the law relating to mentally diseased persons so as to authorize **osteopaths** to execute the required certificates of insanity, feeblemindedness or epilepsy.

Missouri

Bills Introduced.—S. 117, which was approved May 6, 1947 to amend the law relating to the practice of medicine and surgery, requires the **biennial registration** of all physicians in the state. S. 121, which was approved May 6, 1947, requires the annual registration of all persons licensed to practice **osteopathy.** At the time of such annual registration the applicant must present evidence that he has attended at least one of the two day educational programs conducted by the Missouri Association of Osteopathic Physicians and Surgeons, or its equivalent, during the prior year.

New Hampshire

Bill Passed.—H. 448, which passed the house May 6, proposes to require every physician attending **a pregnant woman** for conditions relating to the pregnancy to take or cause to be taken a sample of blood of such woman at the time of the first examination and to submit such sample to an approved laboratory for a standard serologic test for syphilis

Ohio

Bill Passed.—H. 294, which passed the senate May 8, proposes to amend the law relating to the **practice of chiropody** by authorizing the state board of medical examiners to adopt rules and regulations permitting in the practice of chiropody the use of such drugs as are necessary to such practice.

Oklahoma

Bill Enacted.—H. 226, which was approved May 5, 1947, prohibits **advertising of prices** by any professional group within the state.

Pennsylvania

Bill Introduced.—H. 1321 proposes an **appropriation** to the Lancaster Heart Association for the purpose of research, study, prevention and care of rheumatic fever and diseases of the heart.

Bills Enacted.—H. 905, which has become Act No. 73 of the Acts of 1947, amends the law relating to the **practice of osteopathy** by extending until June 30, 1948 the requirement of a nine months internship prior to examination. H. 917, which has become Act No. 72 of the Acts of 1947, amends the medical practice act by repealing the 1943 law which reduced for a limited period of time the training period of medical **internship in hospitals.** H. 921, which has become Act No. 74 of the Acts of 1947, amends the medical practice act by repealing the 1943 law authorizing the issuance of **temporary permits to practice** medicine under certain conditions.

South Carolina

Bills Passed.—H. 300, which passed the house May 6, proposes the establishment of **ten annual medical scholarships** of the annual value of $550 each to be given to bona fide residents of the state of South Carolina who agree, after the completion of their medical training, to begin promptly and thereafter engage continuously in the general practice of medicine in a rural community in the state for a period of years equal in number to the years that he has been a beneficiary of such scholarship. S. 721, which passed the house May 9, proposes a law requiring the licensing, inspecting and **regulating of hospitals** and related institutions within the state.

Wisconsin

Bill Passed.—S. 162, which passed the house May 1, proposes to require all physicians to report immediately to the local health officer the name, age and address of every person diagnosed as afflicted with **epilepsy** or similar disorders characterized by lapses of consciousness.

Bill Enacted.—S. 159, which has become chapter 68 of the Laws of 1947, authorizes counties to **purchase and equip ambulances** for conveyance of the sick or injured and to make reasonable charges for the use thereof.

GOVERNMENT SERVICES

ARMY

CASE OF SMALLPOX ON ARMY TRANSPORT

A Puerto Rican mess steward suffering from smallpox was removed from an army transport at Bremerhaven, Germany, March 27, following the voyage from New York The 23 year old whose residence is in Manhattan was aboard the ship in New York from March 4 to 14, when the transport sailed for Germany, during which period he visited relatives The transport was held in quarantine for fourteen days in Germany and then embarked for the return to the United States carrying 1,760 passengers, of whom 1,230 were vaccinated against smallpox during the return voyage

SYMPOSIUM AT ARMY MEDICAL CENTER

The Surgeon General, Major Gen Norman T. Kirk, has sent out invitations to a symposium to be held at the Walter Reed General Hospital, Army Medical Center, Washington, D. C, June 3-5. Among the subjects to be discussed will be.

"U. S. Army Experiences with Streptomycin," by Major Edward J. Pulaski, chief, Surgical Research Unit, Brooke General Hospital, Fort Sam Houston, Texas.

"Medical Aspects of the Atomic Bomb," by Col James P. Cooney, medical director, Military Application Division, Atomic Energy Commission, Washington, D. C.

"The Newer Concepts of Amputations and Prostheses," by Col. August W. Spittler, Orthopedic Section, Walter Reed General Hospital, Washington, D. C.

"Results of 100 Cases of Plastic Surgery," by Dr. Donald W Macomber, consultant in plastic surgery, Fitzsimons General Hospital, Denver.

"Recent Advances in the Treatment of Lung Abscess," by Dr. Brian B Blades, consultant in thoracic surgery, Walter Reed General Hospital, Washington, D. C.

"What Physical Medicine Has to Offer the Medical and Surgical Practitioner," by Dr Frank H. Krusen, head of the Section on Physical Medicine, Mayo Clinic, Rochester, Minn

"Latest Developments in Malaria Therapy," by Dr Alf S Alving, professor of medicine, University of Chicago

"Streptomycin in the Treatment of Tuberculosis," by Lieut. Col. John B Wallace, M. C., and Lieut George W Fishburn, Fitzsimons General Hospital, Denver.

"The Physiologic Effects of Wounds as Guides for Treatment of Freshly Wounded Men," by Dr Henry K Beecher, chief anesthetist, Massachusetts General Hospital, Boston

"Clinical Pathologic Conference,' by Col Virgil Cornell, M C, chief, laboratory service, Walter Reed General Hospital

"Intensive Psychotherapy," by Dr. Norman Q. Brill, Veterans Administration, Washington, D. C, and consultant in neuropsychiatry, Walter Reed General Hospital

"Research in Virus Diseases," by Dr. Joseph E. Smadel, scientific director, Department of Virus and Rickettsial Diseases, Army Medical Department Research and Graduate School, Washington, D C

"Testicular Tumors," by Dr. Lloyd G. Lewis, consultant in urology, Walter Reed General Hospital.

"Newer Concepts of Control of Respiratory Diseases," by Dr Colin MacLeod, professor of bacteriology, postgraduate division, New York University College of Medicine, New York.

"The Federal Contribution to the Health and Welfare of the Nation," by U. S Senator James E Murray of Montana

At the banquet Wednesday Evening in the Washington Hotel the toastmaster will be the Surgeon General and the speaker the Secretary of War, Hon Robert P Patterson

IMPROVEMENT IN HEALTH IN JAPAN

Col Crawford F. Sams, chief, Public Health and Welfare Section, General Headquarters, Supreme Commander for the Allied Powers, Tokyo, recently stated that Japan has made as much progress in public health in the eighteen months since the Japanese surrender as have other modern nations in eighteen years. According to the New York *Times* the death rates have dropped from 30.5 to 18. Among other things accomplished under the supervision of the Supreme Commander for the Allied Powers are virtually universal smallpox vaccination, 34,000,000 diphtheria immunizations, 13,000,000 typhoid vaccinations and 5,000,000 inoculations against tuberculosis. Typhus, smallpox, diphtheria, typhoid and paratyphoid have shown impressive reductions, both in case rates and in death rates. Only dysentery has shown an increase. The supposed "alarming" increase in the number of cases of tuberculosis and syphilis reported arose not from increases in these diseases but from the fact that for the first time these diseases were really being reported

GENERAL MacARTHUR'S REPORT ON JAPAN

The War Department, in summarizing General MacArthur's report of activities in Japan for January, stated that diphtheria declined by 50 per cent in 1946 and that dysentery, typhoid paratyphoid and scarlet fever rates also declined. Only smallpox and typhus increased in 1946.

In a previous report from General MacArthur's headquarters the cholera epidemic in South Korea was said to have ended in November. The total number of cases during the epidemic was reported as 15,615, with 10,191 deaths

At that time a shortage of typhus vaccine necessitated holding all available stocks as a reserve for immunizing contacts, repatriates and essential personnel. By the end of November, the report states, 925,474 Koreans had been brought back to Korea from Japan and 92,088 from other Pacific areas. By the same date 878,145 Japanese nationals had been repatriated from North and South Korea.

A program of weekly lectures for all Korean physicians was begun in November at Seoul National University and was aimed at stimulating interest in improved medical standards, with emphasis on diagnosis, therapeutic procedures and the use of American drugs; a pamphlet on the use of American drugs was also distributed to doctors and drug merchants.

MEDICAL RESERVE GENERALS

Among the general officers in the U. S. Army Reserve recently appointed by the War Department were Brig. Gen. Stanhope Bayne-Jones of Yale University School of Medicine and Dr. Isidore S. Ravdin, professor of surgery at the University of Pennsylvania Medical School, Philadelphia. During the recent war General Bayne-Jones was director of the United States of America Typhus Commission and was assistant chief of the Preventive Medicine Service in the Surgeon General's Office, while General Ravdin was commanding officer of the 20th General Hospital in the China-Burma-India Theater.

BUTTER FOR THE ARMY

The requirements for butter for the present decreased strength of the armed forces will be such a small percentage of the nation's productive capacity that it is not expected to have any effect on the civilian supply. The butter requirements for the Army the entire year 1947 will be about 38,500,000 pounds Two years ago when the armed forces were at their peak the Army procured 314,500,000 pounds, or more than 23 per cent of the nation's butter. The army butter requirements are calculated on the basis of 1.11 ounces daily per man

LIBRARY NEWS

Atherton Seidell, Ph D., an honorary consultant of the Army Medical Library, has gone to Paris, France, to install free microfilm copying service in certain libraries in France, including that of the Academie de médecine and Ecole de pharmacie.

The executive committee of the honorary consultants to the Army Medical Library will meet May 27 at the Allen Memorial Library in Cleveland

NAVY

EXAMINATIONS FOR APPOINTMENT IN THE NAVY

Examination for the selection of candidates as doctors in the Navy will be held at all naval hospitals in the United States, June 23-27. Successful candidates will be appointed to the grade of assistant surgeon in the Medical Corps and will have the rank of lieutenant, junior grade. Only graduates of approved medical schools in the United States or Canada who have completed their intern training in accredited hospitals, or those who will have completed such training within four months of the date of examination and who are physically and in other respects qualified, are eligible for the examination Candidates, who must be less than 32 years of age at the time of appointment, will be required to appear before boards of medical examiners and supervisory naval examining boards at the naval hospital nearest their residence for the full period of the examination in connection with demonstrating their physical and professional qualifications for appointment. Following approval by the President of the United States and confirmation by the Senate, selected candidates will be issued an appointment and orders assigning them to duty in a naval medical facility for active naval service.

Information as to form and procedure of application may be obtained from the offices of Naval Officer Procurement or from the Bureau of Medicine and Surgery, Naval Department, Washington 25, D. C.

MARINE INTERHOSPITAL CLINICAL MEETING

The Marine Hospital Medical and Dental Association will hold a three day clinical meeting at the Marine Hospital in Baltimore, May 23-24. Clinicians from other Marine hospitals and some civilians' hospitals will take part in surgical, medical, tumor and dental clinics and demonstrations. There will be exhibits, motion pictures, forums, a business session and a dinner meeting Friday evening at which Dr. Henry N. Harkins, associate professor of surgery at Johns Hopkins University, will speak on vagotomy for peptic ulcer. Members of the profession are invited to attend.

NAVY AWARDS AND COMMENDATIONS

Captain Earl Richison

The Bronze Star Medal has been awarded to Capt. Earl Richison (MC), U.S.N. The citation read as follows: "For meritorious service in connection with operation against the enemy while serving as the division surgeon of a Marine division of Wellington, New Zealand, from Feb. 6 to July 1, 1943. Captain Richison was charged with the responsibility of acquiring hospitalization of diagnosed cases of malaria contracted during the operation on Guadalcanal by about two thirds of the personnel of the division. His acquisition of additional places for hospitalization from the New Zealand government, expert professional knowledge of the treatment of malaria and the skilful and efficient coordination of the medical organizations of the division resulted in the successful restoration to duty of the vast majority of the malarial patients. His remarkable achievements contributed to the ultimate success achieved by the division in subsequent operations against the enemy. Throughout the entire period his professional ability, untiring efforts and devotion to duty were outstanding and thoroughly in keeping with the highest traditions of the United States Naval Service." Dr. Richison graduated from the University of Louisville School of Medicine in 1915 and entered the military service Sept. 6, 1917.

VETERANS ADMINISTRATION

MEDICAL CARE OF VETERANS

PAUL B. MAGNUSON, M.D.
Washington, D. C.

The medical profession knows how to handle big jobs. But it has never faced a greater challenge than that offered by the Veterans Administration in its program of "medical care second to none" for veterans of the nation's wars

Most of us have failed to appreciate the magnitude of this one agency's task. With its plans for peacetime only barely begun, the Veterans Administration was unprepared for the tremendous workload which was suddenly thrust on it in the rapid demobilization which followed VJ day. Skilled hands were called on to do a job and do it quickly. Under a leader who used bold, imaginative strokes to catch up with and master its fast growing problems, the agency has been able to meet the immediate demands of veterans with surprising success. And, like any organization which is determined to produce results rather than explanations, it has been the subject of misinformation, unfounded rumors and more than its share of unwarranted criticism.

As a member of the medical profession who happens to be in a position to know at first hand the objectives and problems of this vast organization, I believe I can contribute something to a better understanding of its work. I came to Washington intending to stay six months; the six have already stretched out to sixteen busy, interesting and highly rewarding months. This is the nation's greatest single humanitarian undertaking, a project which cannot help but produce a tremendous impact on the social and economic welfare of its citizens.

The Veterans Administration has grown during the past twenty months from a complacent, routine minded organization serving the 4 million veterans of World War I and previous wars to a progressive and aggressive agency geared to handle the needs of 20 million veterans. There has been a startling expansion in all departments to meet the staggering load. A total of sixty-four separate programs are now under way to provide the benefits enacted by the Congress to ease the peacetime readjustment of America's fighting men.

In little more than a year and a half, the Veterans Administration has handled 5,500,000 pension and compensation claims by veterans and their dependents. Payments in disability benefits have amounted to more than $1,865,000,000.

During the same period it guaranteed $3,875,000,000 worth of veterans' loans on homes, businesses and farms.

The agency paid out more than $2,000,000,000 in readjustment allowances.

In those same months it handled almost 6,500,000 applications for education and training and paid out more than $2,000,000,000 in subsistence and tuition.

At the same time its work aided in some measure the rapid return of more than 11,000,000 veterans to peacetime jobs.

These figures are more than mere statistics. They tell a story of human reconversion from war to peace.

But it is in the medical care, in meeting the immediate and vital needs of sick and wounded veterans, that the greatest and most satisfying progress has been made. Where treatment of veterans in hospitals and outpatient departments was once held to a more or less passive and laggard standard, it is now on a par with that to be found in our best civilian hospitals and is being increased and improved as rapidly as the resources and means for its advancement can be found. It is the largest medical service in the world, already handling a patient load 800 per cent greater than that of a few years ago.

To a practitioner, this spells good medicine and a chance to do something worth while. In my own case I would not have stayed in Washington longer than the six months I planned on if I did not believe, as I do now, that this is an unprecedented opportunity for the medical profession to demonstrate that it can do so tremendous a job in treating patients, advancing medical research and education and, most important, working with a government agency on a cooperative basis to provide good medicine.

I want to stress the fact that the practice of medicine in the Veterans Administration is not dictated from Washington. Those who have engaged in or watched our program can testify that the treatment of patients and allied education and research activities are conducted and supervised locally. Wherever there are medical schools they have cooperated in this plan. The progress that has been made by the medical profession in developing and carrying out the plan during the past fifteen months has amazed every one who knows about it; our trouble, unfortunately, is that the full facts are not generally known.

In any organization, large or small, there are always people who are cold or only lukewarm to the success and outcome of a new idea. Departure is shot at much more frequently than the routine practice to which people have become accustomed. We have had our shooting—from behind bushes and from straight out in front. There have been mistakes. Any organization which increases in size and responsibility as the Veterans Administration has done is bound to make mistakes. But we are fully aware of them and determined to do something about them. We have some bugs, but we also have DDT. We are going to use enough of the DDT on the bugs to eliminate most of them.

There are some who misjudge the caliber and zeal of the men who make and direct Veterans Administration policies. They fear that the present program is too revolutionary in concept and practice to last for long in the face of repeated obstacles. But they are wrong. Despite the fact that ours is a battle in the practice of medicine that is being fought and prepared for at the same time, we are confident that we shall be successful if given the continued support of the American people. General Bradley has stated repeatedly and emphatically that the quality of medical service to veterans will not be sacrificed for any reason. He has refused to be discouraged by temporary setbacks and has consistently supported General Hawley in plans to improve rather than reduce our medical services.

It is up to the medical profession to continue the splendid efforts which have earned the faith and confidence of veterans and the general public alike in the medical treatment provided by the Veterans Administration. A few chiselers can often blind most people to the good work being done by their sincere and conscientious associates. But the final pay off is what counts, and chiselers seldom last until then.

I write this from the heart because I want my fellow practitioners to know that we here in Washington appreciate their efforts and the job they have done. We look forward to their continued cooperation and assistance. With that, I am sure General Bradley and General Hawley will make good the promises which we as a nation have made to our veterans. Isn't that what all of us really want?

Veterans Administration, Washington 25, D. C.

MENTAL HYGIENE CLINIC AT DURHAM, N. C.

The new building for the Veterans Administration mental hygiene clinic at *Duke University School of Medicine, Durham,* N. C., which was expected to be ready about April 1, will house fifteen consultation and treatment offices and other facilities necessary for the treatment of mentally ill veterans. The professional staff of the clinic will comprise eleven Veterans Administration psychiatrists, nurses, a shop instructor and five members of the faculty of Duke University School of Medicine, who will work closely with the clinic. This, the only clinic of its kind in North Carolina, will service the whole state. The chief psychiatrist is Dr. George Sutherland; the liaison officer between the clinic and Duke Hospital will be Dr. Leslie B. Hohman, while the work of the hospital and the clinic will be coordinated by Dr. Richard S. Lyman, professor of neuropsychiatry, and Dr. Maurice Greenhill of the neuropsychiatry department.

MORE BOOKS FOR VETERANS' LIBRARIES

More than 15,000 books were added to the shelves of Veterans Administration hospital libraries during January, bringing the total number of volumes to 828,313, including fiction and nonfiction of a general nature for veteran patients and technical works for VA medical personnel. The more than 90,000 patients in VA hospitals and homes read a total of 213,230 books during the month. Hospital libraries for patients are maintained in 119 of the 126 hospitals and homes of the Veterans Administration.

PERSONAL

Dr. Cameron S. Guild, executive secretary of the American Trudeau Society, New York, has been appointed assistant chief, tuberculosis section, Veterans Administration Branch Office No. 12, San Francisco, which office has supervision over veterans' activities in California, Arizona, Nevada and Hawaii. Dr. Guild, a native of Canada, came to the United States in 1925, was associated with the Mississippi State Board of Health at Tupelo for several years and was consultant to the U. S. Public Health Service and director of special programs for the National Tuberculosis Association. During the first world war he was a flight lieutenant in the Royal Flying Corps.

PHYSIATRISTS NEEDED

An urgent need for physiatrists prevails at the Veterans *Administration Hospital,* Hines, Ill. This hospital has about 3,000 patients. The physical medicine service includes patients from the medical, surgical, neuropsychiatric and tuberculosis services. If interested, write to Dr. K. A. Carroll, manager, stating training, background and experience in physical medicine.

MISCELLANEOUS

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. *Physicians* who are veterans have certain priorities in the purchase of this government property.

Regional Office, 704 Race Street, Cincinnati. Sale of drugs, blood transfusion apparatus, x-ray field unit (portable), dressing sterilizers, surgeon's needles, surgical scissors, bandages. Sale closes May 26.

Regional Office, 95th and Troost, Kansas City, Mo. Sale of curets, forceps, surgeon's gloves, hot water bags, ice bags, hospital beds. Sale closes June 4.

Regional Office, 37 Broadway, New York. Sale of hospital and x-ray equipment and supplies, gauze bandages, x-ray film development holder, tray trucks, dressing forceps, surgical needles. Sale closes May 27.

Regional Office, 699 Ponce de Leon Avenue Northeast, Atlanta, Ga. Sale of drugs, dental, surgical and hospital equipment and accessories. Sale opens May 9 and will be continuous.

Regional Office, 7700 Wallisville Road, Houston 1, Texas. Sale of laboratory, x-ray and hospital equipment. Sale closes May 26.

Regional Office, 404 South Wabash Avenue, Chicago. Sale of lens grinding, centering and polishing machines. Sale closes June 10.

Regional Office, 1409 Second Avenue, Seattle. Sale of folding operating tables, instrument tables, electric instrument sterilizers, operating lamps, specialists' chairs, oxygen therapy outfit and sphygmomanometers. Sale closes May 26.

Regional Office, 505 North Seventh Street, St. Louis. Sale of surgical and dental instruments and hospital and laboratory equipment. Sale closes June 5.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

ALABAMA

State Medical Election.—At its recent meeting the Medical Association of the State of Alabama elected Dr. Jesse P. Chapman, Selma, president; Dr. Edward L. Gibson, Enterprise, vice president, and Dr. Daniel G. Gill, Montgomery, state health officer. Mobile was chosen as the site for next year's convention.

Public Health Building.—A contract for the construction of a $649,983 public health building at the University of Alabama Medical Center, Birmingham, has been approved by the governor. Funds will be provided by the state, Jefferson County and the city of Birmingham. The Alabama Building Commission allocated $225,000, Jefferson County $100,000 and Birmingham $175,000.

ARKANSAS

Society News.—At the semiannual meeting of the first councilor District Medical Society, May 1 in Tyronza, Dr. T. Duel Brown, Little Rock, spoke on "Diagnosis and Treatment of Diseases of the Prostate"; Dr. Mervin H. Grossman, Tyronza, "The Autopsy from the General Practitioner's Viewpoint"; Dr. F. Walter Carruthers, Little Rock, "Common Fractures and Problems of Interest," and Dr. William H. Anderson, Booneville, Miss., "The Future of the Small Town Physician and the Small Town Hospital." Following the dinner Dr. Robert L. Sanders, Memphis, Tenn., spoke on "Vagotomy—the Indications, Technic and Results."

CALIFORNIA

Examination Date Postponed.—The examination for director of clinical services, Mental Institution, which was announced for June 14, has been postponed to June 19, and the closing date on applications has been postponed to May 29.

Three Outbreaks of Food Poisoning in San Francisco.—Three separate outbreaks of food poisoning occurred in a prominent men's club in San Francisco within two days, affecting about 100 persons. An investigation disclosed that hollandaise sauce was the common factor and that hemolytic Staphylococcus aureus was present. The sauce cook had been employed for a number of years. After a conference with leading chefs the San Francisco Department of Public Health adopted regulations for the preparation, storage and service of hollandaise sauce which, it is hoped, will minimize the possibilities of future similar outbreaks.

Field Study of Encephalitis.—A group of scientists of the Hooper Foundation of the University of California Medical Center, University of California School of Medicine, San Francisco, will set up a field laboratory in Bakersfield in cooperation with the State Department of Public Health and Kern County Health Department and Kern County Hospital, Bakersfield, to study encephalitis during its season from May to September. Annually the disease strikes about 1,000 victims in the hot valleys of California, notably the San Joaquin and Sacramento. Heading the program is Dr. William McD. Hammon, epidemiologist of the university's Hooper Foundation. The study has the backing of the National Foundation for Infantile Paralysis, the Bureau of Game Conservation, the U. S. Public Health Service and the U. S. Army.

Los Angeles County Association Wins Radio Award.—The radio program "If They Had Lived Today," sponsored by the Los Angeles County Medical Association, has been judged the best public interest program series created in the United States during 1946. The award, made by the College of the City of New York, was the only top award, made in the form of a plaque, for any type of radio program in the West. Professor John G. Peatman, Ph.D., College of the City of New York and chairman of the committee of awards, said that the plaques are the highest awards given for classes of competition and are presented for outstanding achievement in program creation and promotion. "If They Had Lived Today" was originated by Mr. Stanley K. Cochems, executive secretary of the Los Angeles County Medical Association, in July 1946. It presents a series of dramatic incidents from the lives of great men of history. At the conclusion of the dramatic rendition the cause of death or disability of the dramatized person is discussed, with emphasis placed on the fact that if he had lived today he could have been helped by modern medical science. The program has been heard over station KGFJ at 5:45 p. m. three times a week since its inception.

COLORADO

Personal.—Dr. DeWitt S. Lowe, Colorado Springs, has left for Korea, where he will resume work as medical missionary of the Presbyterian Church. Dr. Lowe left Korea in 1941 after having been imprisoned five months by the Japanese.

Postgraduate Course in Chest Diseases.—A clinical postgraduate course in chest diseases will be given by the American Trudeau Society at the University of Colorado School of Medicine, Denver, from July 28 through August 9. Registration will be limited to thirty. Preference will be given applicants from the Rocky Mountain section. For further information write Dr. Cameron St. C. Guild, executive secretary, American Trudeau Society, 1790 Broadway, New York 19.

DISTRICT OF COLUMBIA

Dedication of Physicians' Window at Washington Cathedral.—The physicians' window, the first of a series of three cathedral windows recognizing the leading professions and their relation to religion, will be dedicated at the Washington Cathedral June 1, 4 p. m. The speaker will be Dr. Frank J. Sladen, physician in chief at the Henry Ford Hospital, Detroit, and his subject will be Religion and Medicine. Dr. Sladen, a graduate and former member of the faculty of Johns Hopkins University School of Medicine, Baltimore, went to Detroit in 1913. He is a trustee of the Henry Ford Hospital and of the McCormick Theological Seminary in Chicago. The physicians' window at the Washington Cathedral was given by the widow of the late Dr. Elmer B. Freeman, a widely known gastroenterologist. The other two windows, to be installed later, will symbolize the professions of education and law.

ILLINOIS

Typhoid Outbreak.—During the first three weeks of April about 25 cases of typhoid were reported from the area around Palmer and Morrisonville in Christian County. The source of the outbreak was traced to ice cream contaminated by a food handler who, unknown to himself, was a typhoid carrier.

Chicago

Dr. Parran to Speak on Health Survey.—Dr. Thomas Parran, Washington, D. C., Surgeon General, U. S. Public Health Service, will speak on the Chicago-Cook County Health Survey at a luncheon meeting of the Council of Social Agencies of Chicago May 26 at the Standard Club at 12 noon. Reservations can be made at the office of the council, 343 South Dearborn Street.

Meeting of Anesthetists.—The American Society of Anesthesiologists will hold a regional meeting in conjunction with the Chicago society May 29-30. Clinical demonstrations are scheduled Thursday at Research and Educational Hospitals, University of Illinois, Wesley Memorial, St. Luke's, Michael Reese and Evanston hospitals and the University of Chicago Clinics. Conferences will begin at 1:30 p. m. May 30, and dinner round tables with moderators and an evening symposium on nitrous oxide will complete the two day program.

A Tribute to Army Nurses.—Michael Reese Hospital has published the story of the 16th EVAC, an army medical unit in which fifty of its personnel served in the recent war. The unit, called to active duty Oct. 15, 1942, trained five months in Florida and after a bouncing twenty-eight day cruise landed in Oran, Algeria, and later served in the Sicilian invasion, going ashore in assault craft the first day at Salerno. The nurses arrived nine days after the hospital was set up and the hospital began to spruce up immediately: Patients were bathed, medicine bottles shined, flowers in empty plasma cans appeared in the wards, and morale soared.

> "The femininity of army nurses is an obstinate and hard-cored habit which even the rigors of life in the field cannot alter. Their little wall tents were embellished with frills and dainty bric-a-brac. A crate became an attractive table with a bright colored piece of cloth. Though steel helmets served as laundry tubs, wash day was an indispensable routine, and the nostalgic spectacle of lingerie drying in the breeze was a common sight. Under their O. D. bandannas, nurses wore their hair in curlers. Nationally advertised beauty products were found in every tent, and self-performed permanents and facials were the rule until a sizable town was reached, when the nurses made a beeline for the first beauty parlor available."

En route to Salerno the hospital ship on which the nurses had embarked was bombed, requiring them to transfer to a warship and return to Bizerte for a short time then back to Sicily to join the unit. This, the first in a series of pamphlets about Michael Reese Hospital, is illustrated by very apt drawings of various situations made by a member of the unit. The hospital later was transferred to the Italian mainland, serving in the battle of Cassino and the Anzio landing, where during one day and night 473 patients were admitted and more than 200 operated on. The unit moved up the peninsula to Ardenza and took part in the battle of the crossing of the Arno River, the battle for the Gothic line and the advance to the North into the Po Valley. News of the surrender of Japan reached the unit on Aug. 12, 1945, and within a month the unit was on its way back home, some by cattle boat, others by mule ships and others on luxury liners.

INDIANA

County General Practitioner Society.—Dr. Harry R. Kerr, Indianapolis, was chosen chairman of the new Marion County Society of General Practitioners, recently organized Dr. Henry F. Nolting was named vice chairman and Dr. Lester D. Bibler secretary-treasurer, both of Indianapolis. Three general practitioners from each hospital were named to serve on the executive committee.

University Appointments. — Dr. Dwain N. Walcher, instructor in pediatrics at Yale University, New Haven, 1943-1946, has been appointed to the newly created post of assistant professor of pediatrics in the Indiana University School of Medicine, Bloomington. Dr. Walcher is a graduate of the University of Chicago School of Medicine, Chicago. Dr. Louis W. Spolyar, since 1930 director of the Division of Industrial Hygiene for the Indiana State Board of Health, has been named to the newly created post of the assistant professor of public health (part time). A graduate *cum laude* of Indiana University School of Medicine, Bloomington-Indianapolis, he has done postgraduate work in industrial medicine at the University of Michigan Medical School, Ann Arbor.

IOWA

Program to Aid Blind Children.—The State Commission for the Blind will offer a week in training on the campus of the Iowa School for the Blind, Vinton, for mothers with visually handicapped children under 5 years of age. The program will provide a preschool training program in which mothers will become acquainted with the type of training beneficial to the children. Matrons will look after the children so that mothers may attend meetings and visit together. There is no registration fee, and board and room will be provided for both mothers and children. For information address Mr. Leslie M. Hays, Superintendent, Iowa School for the Blind, Vinton.

KENTUCKY

Advisory Health Council.—An advisory council to aid the state board of health in promoting a health center and hospital program has been named by the governor. Physician members of the council, approved on request of the United States Public Health Service, are Drs. Hugh Houston, Murray; Luther Bach, Newport; W. Clark Bailey, Harlan; Clyde Sparks, Ashland, and Virgil G. Kinnaird, Lancaster.

MAINE

Change in Health Officer. — Dr. Roscoe L. Mitchell, Augusta, retired as director of the State Bureau of Health May 1. Dr. Mitchell, who will return to private practice, had been with the State Department of Health and Welfare since 1930.

Poliomyelitis Preparedness.—The State Bureau of Health and the state of Maine county chapters of the National Foundation for Infantile Paralysis on May 15 held a poliomyelitis preparedness meeting at the State House, Augusta. The meeting consisted of a general session in the morning and two panel sessions in the afternoon, one for professional personnel and one for chapter personnel.

MARYLAND

Cancer Control Program.—A division of cancer control has been created in the bureau of medical services of the state department of health. The director of the state board of health and the medical director of the Maryland division of the American Cancer Society have expressed the desire that the two organizations join forces in a state program. Dr. W. Ross Cameron, Baltimore, assistant director of welfare for medical care, and Dr. Howard W. Jones Jr., Baltimore, Maryland division of the American Cancer Society, will assume joint responsibility for the development of a program including statistical studies, educational activities and the organization of adequate preventive diagnostic and treatment facilities.

Mass Chest X-Rays.—The Maryland State Department of Health early in April began a statewide chest x-ray survey following its acceptance of a $27,000 tractor and trailer unit from the Westinghouse Electric Corporation. The fully equipped mobile laboratory contains facilities for developing chest pictures much faster and at less cost than the usual systems. The health department expects to make x-rays of the population at the rate of 6,000 to 7,000 a month.

MASSACHUSETTS

Alumni Meetings in Atlantic City.—The annual meeting and dinner of the Harvard Medical Alumni Association will be held at the Hotel Claridge, Atlantic City, June 11 at 7 p m ——The Tufts Medical Alumni Association will hold a dinner June 11 at 6:30 p. m. at the Ritz-Carlton Hotel in Atlantic City.

New School of Nursing at Boston University.—Formal dedication and opening of Boston University School of Nursing at 160 Beacon Street took place April 30. It is now organized with a basic professional division and an advanced professional division. The resources of all fourteen colleges and schools of the university are utilized to provide the academic program The hospitals with which arrangements are being made to carry out the expanded nursing programs are the Peter Bent Brigham, Children's, Boston Lying-In and Boston Psychopathic. The Massachusetts General Hospital continues to be associated with the program in the preparation of orthopedic nurses and teacher training. The advanced professional division offers nursing specialization curriculums in advanced clinical nursing, public health nursing and nursing education. The school offers the degrees of Bachelor of Science or Master of Science in nursing education and a Master of Science in nursing

MICHIGAN

Another Rapid Treatment Center.—A new venereal disease rapid treatment center for residents of Detroit and Wayne County opened March 24 in the Herman Kiefer Hospital, Detroit. Funds are provided by Wayne County and the U. S Public Health Service through the state health department.

Committee on Awards.—The Council of the Michigan State Medical Society recently named three persons and one organization for recognition as having performed meritorious service in the cause of health: (1) Charles F. Kettering, director of research, General Motors, Detroit; (2) Emmet Richards, chairman of the Michigan Crippled Children Commission and president of the Michigan Society for Crippled Children and Disabled Adults; (3) Percy Angove, director, Michigan Society for Crippled Children and Disabled Adults, and (4) the Michigan Society for Crippled Children and Adults. The action grew out of recommendations of the newly created Committee on Awards, which was named to formulate early this year procedures and recommend policies which would permit the Michigan State Medical Society properly to honor those lay organizations and lay personages who, in the opinion of the society, had contributed service of distinct worth in the causes of health to the people of Michigan. Awards are of three grades: (1) a letter of recommendation, (2) a printed certificate of accomplishment and (3) a hand illuminated scroll.

MINNESOTA

The Mayo Memorial. — The Committee of Founders appointed in 1943 to select a memorial to Drs. William J. and Charles H. Mayo are asking for $350,000 still needed to complete the $3,000,000 construction cost for the Memorial Medical Center at the University of Minnesota, Minneapolis. The legislature has granted $1,500,000. More than 3,000 corporations and individuals have subscribed $1,162,000, leaving about $350,000 still to be subscribed. The plans provide for a central nineteen story tower unit which will be connected with the Medical Sciences Building by a four story extension which will use the Mayo Memorial Auditorium with a seating capacity of 600. An underground garage will be provided for about 200 cars.

MISSOURI

Epidemic Among Infants in St. Louis.—Since the first of the year 33 babies have died of gastroenteritis at two hospitals in St. Louis. The outbreak now is believed to be checked in both institutions. The maternity ward of one of the municipal hospitals where 22 deaths occurred has been closed and a new one opened. Similar steps have been taken at De Paul Hospital.

Course in Encephalographic Technology.—The Washington University School of Medicine, St. Louis, will establish a department of electroencephalographic technology next fall under the direction of Dr. James O'Leary, associate professor of neurology. The eight month course beginning October 1 will be divided into three trimesters. Prerequisite for the course is graduation from an approved high school in the upper two thirds of the graduating class.

NEW HAMPSHIRE

New England Health Institute.—Health and education workers of New England will attend a health institute June 16-18 at the University of New Hampshire, Durham. The subjects included in the program are public health administration, school health, health education, cancer, laboratories, industrial health and hygiene, vital statistics, maternal and child health, communicable diseases and tuberculosis control. Among the speakers will be Philip Drinker, LL.D., and Constantin P. Yaglou, School of Public Health, Harvard University, Boston; Dr. Louis Schwartz, Washington, D. C., U. S. Public Health Service; Dr. Halbert L. Dunn, Washington, D. C., and Dr. Kenneth F. Maxcy, Johns Hopkins School of Hygiene and Public Health, Baltimore. A banquet will be held Tuesday evening at 6:30 and a luncheon Wednesday noon at which Dr. Reginald M. Atwater, New York, executive secretary, American Public Health Association, will speak.

NEW YORK

Academy Awards Medal to Dr. Thomas.—The Rochester Academy of Medicine will present the Albert David Kaiser Medal for 1947 to Dr. Clarence P. Thomas at its annual meeting this month. The medal is awarded for unusually meritorious contributions to scientific research or service to the entire community. Dr. Thomas was chosen for giving the most important war service among local physicians in civilian practice. He was chairman of the Medical Defense Committee and deputy chief of the emergency medical service of Rochester. He is a graduate of the Columbia University College of Physicians and Surgeons, New York, and served in the first world war. He is vice president of the Rochester Academy of Medicine, assistant professor of medicine at the University of Rochester School of Medicine and Dentistry and a member of the Strong Memorial Hospital staff.

New York City

Academy Awards Medal to Dr. James A. Miller.—The convocation meeting that marked the end of the centennial celebration of the New York Academy of Medicine was held April 24. Dr. George Baehr, New York, president, presented the Academy Medal to Dr. James A. Miller, New York, past president. Dr. Miller, a fellow of the academy since 1904, has served on the committee of public relations since 1911. The award was presented to Dr. Miller as "a distinguished medical scientist in recognition of outstanding service to humanity."

Appoint Director of University-Bellevue Medical Center.—Mr. Edwin A. Salmon, chairman of the City Planning Commission, has been appointed director of the New York University-Bellevue Medical Center, which he has served from its beginning as consultant to the faculty planning committee. In his new position Mr. Salmon will also be responsible for the coordination of the medical center with other hospital and health agencies. Included in this project will be a 480 bed university hospital, an institute of rehabilitation and an institute of forensic medicine.

PENNSYLVANIA

Meeting of Ophthalmologists and Otolaryngologists.—The Pennsylvania Academy of Ophthalmology and Otolaryngology held its annual meeting April 26-27 at the Penn-Harris Hotel, Harrisburg. Guest speakers at the meeting were Dr. William L. Benedict, Mayo Clinic, Rochester, Minn., whose subject was "Tumors of the Orbit," and Dr. LeRoy M. Polvogt, associate professor of otolaryngology, Johns Hopkins Medical School, Baltimore, "Irradiation of the Nasopharynx."

Philadelphia

Personal.—Dr. Donald C. Smelzer, Philadelphia, managing director of Germantown Dispensary and Hospital, has been chosen to represent the American Hospital Association at the meeting of the International Hospital Federation in Lucerne, Switzerland, May 27-29. Dr. Smelzer is past president of the association and will be the guest of the Swiss Hospital Association.

GENERAL

Reunion of Pennsylvania's Class of '39.—The 1939 class of the University of Pennsylvania School of Medicine, Philadelphia, will hold a reunion and buffet supper in the solarium of the Hotel Claridge, Atlantic City, Wednesday, June 11, from 5 to 7 p. m.

Rush Alumni Luncheon in Atlantic City.—The Rush Medical College Alumni Association will have a luncheon meeting June 11 at 12 noon at the Hotel Claridge. Advanced reservations may be made with Dr. Grant H. Laing, secretary, 104 South Michigan Avenue, Chicago.

Two New Cancer Journals.—The American Cancer Society announces the publication of two new journals: *Cancer News*, inaugurated in January, is published for the public; *Cancer*, a professional journal for distribution to the medical profession, is scheduled for publication late this summer.

Appointed to American Board of Obstetrics and Gynecology.—Drs. Edward A. Schumann, Philadelphia, and Ward F. Seeley, Detroit, are to serve as associate examiners, in addition to those whose names were published in The Journal March 29, page 956, for the coming examination of the American Board of Obstetrics and Gynecology, to be held in Pittsburgh June 1-7.

Red Cross Desires Old Journals.—The National Headquarters of the American Red Cross, Washington, D. C., would like to secure copies of several back issues of the *American Journal of the Medical Sciences* in order to send them to the International Red Cross for use of the Netherlands Red Cross Societies. Persons desiring to donate certain specified back issues on this journal should write American Red Cross, the Chicago chapter, Community Service to Camps and Hospitals, 529 South Wabash Avenue, or call Wabash 7850, extension 79.

Dr. Rajchman to Head United Nations Children's Emergency Fund.—Dr. Ludwig Rajchman, Polish delegate to the United Nations, has been elected chairman of the board of the International Children's Emergency Fund. Executive director of the fund is Maurice Pate, former director of the Prisoners' War Relief Division of the American Red Cross. The International Children's Emergency Fund was created by the United Nations General Assembly "for the benefit of children and adolescents of countries which were victims of aggression and of countries receiving UNRRA relief, and for child health purposes generally, giving high priority to the children of countries victims of aggression."

Dr. McCord Wins Knudsen Award in Industrial Medicine.—At the thirty-second annual meeting of the American Association of Industrial Physicians and Surgeons, Buffalo, May 1, the William S. Knudsen Award was presented to Dr. Carey P. McCord, Detroit, for his book "A Blind Hog's Acorns." The award is given annually for the most distinguished contribution to that field of medicine. Dr. McCord's book won recognition for "driving home convincingly the role of medicine as contributing eminently to the safety and well being of men and women in industry." It is concerned with the never ending search for occupational diseases and relates the doctor's personal experiences in an assortment of medical detective stories.

Conference of State Presidents in Atlantic City.—The third annual conference of presidents and other officers of state medical associations will be held June 8 at 1:30 p. m. in the Trellis Room of the Ritz-Carlton Hotel. Dr. L. Howard Schriver, Cincinnati, president-elect and president, Associated Medical Care Plans, Inc., will speak on "The Medical Profession's Program to Improve Medical Care"; Major Gen. Paul R. Hawley, Washington, D. C., U. S. Army, retired, chief medical director, Veterans Administration, "Cooperation of the Medical Profession with the Veterans Administration," and Robert A. Taft, Washington, D. C., U. S. senator from Ohio, "Health Legislation in Congress." Committee reports, election of officers and executive committeemen and a discussion period led by Dr. Andrew S. Brunk, Detroit, past president, will follow the program.

Financial Help for Poliomyelitis Patients.—The National Foundation for Infantile Paralysis, 120 Broadway, New York, will assist financially those patients suffering from infantile paralysis who require such help. The American people have made this possible through their generous contributions to the March of Dimes. Hospital bills, salaries for physical therapists, nurses, purchase of special equipment and many other charges which may be essential to good medical care may be paid for by the chapters of the National Foundation when necessary. There is a chapter of the National Foundation in or near practically every community in the United States, and the local health department can furnish the address of the nearest chapter Physicians should notify their local chapter when a poliomyelitis patient comes under their supervision and should notify the family of the patient of the existence of the local chapter and its willingness to assist Last year 25,191 cases of poliomyelitis occurred in this nation, constituting the largest outbreak since 1916 Obviously the number of cases that will occur this year cannot be foretold

Vascular Surgeons Meeting in Atlantic City —The Society of Vascular Surgery will hold an open meeting at 2 p m June 8 at the Hotel Dennis Among the speakers will be.

Dr Alton Ochsner, head of department of surgery, Tulane University of Louisiana School of Medicine, New Orleans Venous Thrombosis

Dr Robert R Linton instructor in surgery, Harvard Medical School, Boston, Postthrombotic States of the Lower Extremity Treatment by Superficial Femoral Vein Interruption, Ligation and Stripping of Long and Short Saphenous Veins

Dr Alfred Blalock, professor of surgery Johns Hopkins University School of Medicine, Baltimore Congenital Pulmonic Stenosis

Dr Robert E Gross assistant professor of children's surgery Harvard Medical School, Boston, Surgical Treatment of Coarctation of the Aorta

Dr Emile Holman, professor of surgery Stanford University School of Medicine, Stanford University, San Francisco, Experimental Studies in Cardiac Hypertrophy

Dr Harris B Shumacker, associate professor of surgery, Yale University School of Medicine, New Haven, Conn , Causalgia

Dr Michael E DeBakey, assistant professor of surgery, Tulane University of Louisiana School of Medicine, Hemometakinesia and Its Therapeutic Significance in Peripheral Vascular Diseases

Annual Golf Tournament at Atlantic City.—The American Medical Golfing Association will hold its thirty-first tournament Monday, June 9, at the Linwood Country Club, Atlantic City, N J , for those playing 36 holes and at the Atlantic City Country Club for fellows who plan only one round Registration at both clubs Hours for teeing off 7 30 a m to 2 p m for the 36 hole competition At least twenty-five trophies and prizes for experts and beginners will be awarded Present your official handicap certified by your home club secretary No handicap over 30 Twelve dollars covers green fees at either club (not both), luncheon at either club and dinner at Atlantic City County Club, prizes, entertainment and annual golf dues New fellows pay an enrolment fee of $3 For transportation, call Yellow Cab, Atlantic City 4-1221, state you are playing in the American Medical Golf Tournament and cab will pick you up at your hotel Four dollars each way regardless of the number of passengers Please notify the chairman, Dr Jean A Gruhler, 101 South Indiana Avenue, Atlantic City, N J , at once if you are coming and if you plan to play 36 or 18 holes

Immunization for Latin American Travel.—According to the *State Department Bulletin* of Sept 12, 1946 the immunization requirements of Caribbean and Central and South American countries are those listed here The symbols C, S, T and Y are used for cholera, smallpox, typhus and yellow fever respectively

Argentina	S Y	Honduras	S, T
Bolivia	S T Y	British Honduras	C, S, T
Brazil	S T Y	*Mexico	S T
Chile	S T Y	Nicaragua	T
Colombia	S, T, Y	Panama	Y
Costa Rica	S, T	Paraguay	S, Y
Ecuador	S T, Y	Peru	S T, Y
El Salvador	S T	Uruguay	S
Guatemala	S, T	Venezuela	S, T
The Guianas	Y		

*In Mexico a smallpox certificate is required of all persons except tourists or persons in transit

No immunization is required by Antigua , Bahamas, B W I ; Barbados, B W I , Bermuda , Canal Zone , Cuba , Dominican Republic , Haiti , Jamaica , Martinique , Santa Lucia (Br.) , St Pierre Miquelon, Trinidad, B W I , Virgin Islands These requirements are minimal Immunization against smallpox and typhoid-paratyphoid infections is probably advisable for travelers in any of the Latin American areas, and other immunizations may be advisable depending on the area to be visited

Dr. Stebbins Succeeds Dr. Weed as Head of Red Cross Advisory Board—Dr Ernest L Stebbins, Baltimore, director of the school of hygiene and public health of Johns Hopkins University, Baltimore, has been appointed chairman of the advisory board on health services of the American Red Cross, succeeding Dr Lewis H Weed, Baltimore, head of the division of medical sciences, National Research Council In recognition of his past services, Dr Weed was presented with a special Red Cross citation on his retirement During 1946 Dr Stebbins surveyed medical aspects of the American Red Cross civilian relief program in Europe He toured sixteen countries and in conjunction with local medical authorities made recommendations for rebuilding their medical facilities He also served as American Red Cross representative at a meeting of the medical commission of the League of Red Cross Societies at Oxford, England Dr Stebbins, a graduate of Rush Medical College, Chicago, who holds a master's degree in public health from Johns Hopkins University, served as epidemiologist with the state health departments in Virginia and New York He also served New York State as director of the division of communicable diseases and as assistant commissioner of health and held the post of health commissioner for New York city Prior to joining the Johns Hopkins University staff, Dr Stebbins was professor of epidemiology at the Columbia University College of Physicians and Surgeons, New York

DOMINICAN REPUBLIC

Thirteen New Hospitals—Thirteen new hospitals are soon to be constructed in the Dominican Republic as part of a public health program that has already produced some of the most modern hospitals in the Caribbean area For the furtherance of the public health program the 1947 budget appropriation for the Department of Sanitation and Public Health has been increased by $420,592 over the 1946 allotment, bringing this year's total to $2,187,064 Two of the new hospitals are to be built in Ciudad Trujillo, the capital, at a cost of $250,000 each and are to be very similar in construction to the new Dr William A Morgan Hospital for workmen and their families, which was opened recently in the new low priced housing neighborhood

FOREIGN

United Nations Health Unit in Singapore.—The United Nations World Health Organization will direct its epidemiologic control in the Far East from Singapore, using the same bureau the League of Nations used before it recently turned its work over to the WHO The bureau will be used to report and distribute information on pestilent diseases in the Far East

Registry of Bone Tumors.—A registry of primary malignant tumors of bones has been set up in the department of pathology, Royal College of Surgeons, London, England, to collect records of cases, especially those in which cure or prolonged alleviation has been attained by treatment All cases claimed as five year cures will be considered by the committee, but in the future only cases in which histologic proof of the nature of the tumor can be obtained will be considered Those interested are invited to send records with amputation or biopsy specimens to Professor R A Willis at the college, Lincoln's Inn Fields, London W. C 2 Donors will be sent reports on the investigation of specimens received and will be asked for follow-up information

Deaths in Other Countries

Dr. Christian Frederic Louis Leipoldt died April 12 in Capetown, South Africa, aged 67 He had been the editor of the *Medical Journal of South Africa,* a lecturer in children's diseases at Capetown University and was once personal physician to Joseph Pulitzer, publisher of the New York *World*

Sir Almroth Wright, M D, originator of vaccination against typhoid, died April 30 at his home, Farnham Common, Buckinghamshire, England, aged 85

Marriages

Oscar Milton Wilbur Jr, Cape Cottage Woods, Maine, to Miss Anna Louise Wells of Sumter, S C, in Rochester, N Y, Nov 16, 1946

Philip Marion Winslow, Rochester, N Y, to Miss Daisy Hunter Wood of Coral Gables, Fla, Nov 27, 1946

Joseph W Anderson, Ardmore, Pa, to Mrs Olive U Green of Whitehall in Bryn Mawr Oct 9, 1946

William Martin Dickerson, Conway, Ark, to Miss Betty Jean Sheperd of Ambia, Ind, February 2

George C Armistead Jr, Roanoke, Va, to Miss Margaret Skinner of Holyoke, Mass, January 11

Harold James Black, Mendota Mo, to Mrs Jessie Clarke Kirby in Washington, D C, March 8

Foster J Boyd, Cincinnati, to Miss Francis Laird of Huntington, W Va, February 15

Harold D Carnahan, Spokane, Wash, to Mrs Caroline Fitzgerald at Deer Park in January

Harvey R Cummins to Miss Osa Massen, both of Los Angeles, February 16

Deaths

Walter Ivan Lillie ⊕ Philadelphia; born in Grand Haven, Mich., Nov. 5, 1891; University of Michigan Medical School, Ann Arbor, 1915; professor and head of the department of ophthalmology at the Temple University School of Medicine; entered the Mayo Clinic in Rochester, Minn., as first assistant in ophthalmology in 1917; held a fellowship at the Mayo Foundation; later associate in ophthalmology at the Mayo Clinic and associate professor of ophthalmology at the Mayo Foundation; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; consulting ophthalmologist at the Temple University Hospital, Shriners' Hospital for Crippled Children in Philadelphia, Eagleville (Pa.) Sanatorium for Consumptives and the Norristown (Pa.) State Hospital; served in the British and American Expeditionary Forces in France during World War I; died February 21, aged 55, of heart disease.

George Thomason ⊕ Los Angeles; born in Camden, N. J., Nov. 6, 1872; Jefferson Medical College of Philadelphia, 1899; L.R.C.P. and L.R.C.S., Ireland, in 1904; professor and head of the department of general surgery at the College of Medical Evangelists; a member of the founders group of the American Board of Surgery; member of the Western Surgical Association; fellow of the American College of Surgeons; since 1934 member of the state board of medical examiners; at one time assistant surgeon at the Battle Creek (Mich.) Sanitarium and medical director of the Cape Sanitarium in Capetown, South Africa; formerly superintendent of St. Helena (Calif.) Sanitarium; since 1915 chief of the surgical staff of the White Memorial Hospital and served in a similar capacity at the Los Angeles County Hospital; consulting surgeon to the Southern Pacific Railroad Company, the Glendale and Loma Linda Sanitariums and the Los Angeles Police Department; died March 10, aged 74, of cerebral hemorrhage.

Frederick Manwaring Law ⊕ New York; University of Pennsylvania Department of Medicine, Philadelphia, 1901; specialist certified by the American Board of Otolaryngology and the American Board of Radiology; past president of the New York Roentgen Society; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological, Rhinological and Otological Society, American Roentgen Ray Society and the American College of Radiology; served during World War I; consultant, Flushing (N. Y.) Hospital; on the staff of the Manhattan Eye, Ear and Throat Hospital; author of volume one, "Annals of Roentgenology," entitled "Mastoids Roentgenologically Considered"; died February 12, aged 71, of amyotrophic lateral sclerosis.

James Charles Boland, Binghamton, N. Y.; born in Troy, N. Y., on March 24, 1908; Albany (N. Y.) Medical College, 1932; member of the American Medical Association; since Nov. 1, 1946 deputy health commissioner of Rensselaer County; formerly health officer of Troy; served as assistant state health officer in the Binghamton district; for a short time acting commissioner of health for Columbia County; diplomate of the National Board of Medical Examiners; interned at the Troy (N. Y.) Hospital, where he had been resident physician and an associate physician on the staff; served as associate in venereal disease work at the Convent of the Good Shepherd in Troy; died February 18, aged 38, of chronic valvular heart disease.

Elbert Gleanard Wood ⊕ Knoxville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1915; member of the House of Delegates of the American Medical Association from 1930 to 1946; served as president of the Tennessee Valley Medical Association; past president of the Knoxville Academy of Medicine; member of the Southeastern Surgical Congress; fellow of the International College of Surgeons; member and past chief of staff, Knoxville General and Fort Sanders hospitals; on the staff of St. Mary's Hospital; died March 10, aged 56, of cerebral hemorrhage.

Thomas Moore Dorbandt, San Antonio, Texas; Missouri Medical College, St. Louis, 1898; member of the American Medical Association and in 1926 member of the House of Delegates; member of the Southern Psychiatric Association, serving as its president and district counselor; member of the Bexar County Tuberculosis Association; past president of the Bexar County Medical Society; served as chairman of the local board of health, county physician and local surgeon for the Gulf, Colorado and Santa Fe Railway; died recently, aged 75, of cerebral hemorrhage and arteriosclerosis.

Ira Wall Ellis, Monette, Ark.; Memphis (Tenn.) Hospital Medical College, 1912; member of the American Medical Association; past president of the Craighead-Poinsett County Medical Society and the First Councilor District Medical Society; served as vice president of the Mid-South Postgraduate Medical Assembly and of the Arkansas Medical Society; for many years member of the school board; served during World War I; major, medical reserve corps, not on active duty; died in St. Bernard's Hospital, Jonesboro, January 27, aged 59, of cerebral hemorrhage.

Nathan Ernest Beardsley, Redlands, Calif.; University of Buffalo School of Medicine, 1890; died February 15, aged 79, of angina pectoris.

Frederick M. Braning, Bonne Terre, Mo.; Barnes Medical College, St. Louis, 1900; died in Farmington February 18, aged 72, of pneumonia.

William Seddon Cox, West Point, Va.; University College of Medicine, Richmond, 1913; member of the American Medical Association; formerly member of the town council; director of the Citizens & Farmers Bank; died in the Johnston-Willis Hospital, Richmond, February 11, aged 60, of carcinoma of the lung.

Orazio Roger Cupolo, Utica, N. Y.; Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia, Italy, 1936; served internships at the Faxton Hospital and the Utica General Hospital; member of the American Medical Association; died February 5, aged 38, of coronary thrombosis.

Harvey Kendall Dever, El Reno, Okla.; University of Kansas School of Medicine, Kansas City, 1930; member of the American Medical Association; interned at the Montreal General Hospital in Montreal, Que., Canada; affiliated with the El Reno Sanitarium; assistant surgeon for the Rock Island Railroad; died in a local hospital February 1, aged 40, of coronary thrombosis.

Harrison Albert Dunn, Erie, Pa.; Jefferson Medical College of Philadelphia, 1905; died recently, aged 66, of congestive heart disease.

Herbert Renner Goshorn, Humboldt, Kan.; University Medical College of Kansas City, 1906; member of the American Medical Association; formerly affiliated with the Indian Service; died in the Johnson Hospital, Chanute, February 11, aged 69, of cerebral hemorrhage.

Joseph Thomas Gunter ⊕ Goliad, Texas; Chattanooga (Tenn.) Medical College, 1903; served during World War I; army surgeon of the Second Aero Provisional Regiment, occupying that post from the signing of the Armistice until March 1919; lieutenant colonel, medical reserve corps, not on active duty; died February 8, aged 71, of coronary thrombosis.

Eugene Andrew Hammond ⊕ New Berlin, N. Y.; Syracuse University College of Medicine, 1912; county coroner; health officer of New Berlin, Columbus and Pittsford; on the staffs of the Chenango Memorial Hospital, Norwich, and the Faxton Memorial Hospital in Utica; died in the Binghamton (N. Y.) City Hospital February 12, aged 58, of hypertensive cardiovascular disease and pneumonia.

Wiley Junior Jinkins, Galveston, Texas; University of Texas School of Medicine, Galveston, 1911; member of the American Medical Association; fellow of the American College of Surgeons; honorary member of the State Medical Association of Texas; past president of the Galveston County Medical Society; affiliated with the John Sealy Hospital and St. Mary's Infirmary; for many years director of the United States National Bank; died recently, aged 59, of heart disease while on a hunting trip near Columbus.

Hans Edgar Kudlich, New York; Columbia University College of Physicians and Surgeons, New York, 1904; member of the American Medical Association; for many years affiliated with the Lenox Hill Hospital; died February 20, aged 67, of coronary thrombosis.

Henry Bruce Landis, Broken Bow, Neb.; Central Medical College of St. Joseph, Mo., 1896; died in Lincoln February 3, aged 72, of paralysis agitans.

William Richard Leahy, San Francisco; John A. Creighton Medical College, Omaha, 1916; served with the U. S. Public Health Service reserve and Veterans Administration; lieutenant colonel, medical corps, Army of the United States, not on active duty; died recently, aged 54.

Isaac Roentgen Liberson, New York; Long Island College of Medicine, Brooklyn, 1945; interned at the Morrisania City Hospital; served a residency at the Goldwater Memorial Hospital; diplomate of the National Board of Medical Examiners; died recently, aged 23.

Edward Lynch Mathias ⊕ Kansas City, Mo.; University of Maryland School of Medicine, Baltimore, 1904; served during World War I; affiliated with St. Mary's Hospital, where he died February 3, aged 67, of coronary thrombosis.

William H. Moore, Fort Stockton, Texas; University of Texas School of Medicine, Galveston, 1903; for many years county health officer; local assistant surgeon for the Southern Pacific, International and Great Northern and Houston and Texas Central railways; died recently, aged 66, of bronchogenic cancer.

Daniel E. Murphy, Chicago; Northwestern University Medical School, Chicago, 1901; member of the American Medical Association; formerly assistant clinical professor of surgery at the Loyola University School of Medicine; served on the staff of the Alexian Brothers Hospital, where he died March 21, aged 77.

Willis F. Pierce, Los Angeles; Rush Medical College, Chicago, 1876; died January 15, aged 93, of chronic myocarditis.

Charles Eder Reed, Washington, D. C.; Columbian University Medical Department, Washington, D. C, 1903; died in the Garfield Memorial Hospital February 16, aged 72, of cardiac tamponade.

Adam William Reier ⊕ Dundalk, Md; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; past president of the Baltimore County Medical Society, Confrere Medical Club and the Dundalk Rotary Club; served overseas with the American Expeditionary Forces during World War I; charter member and member of the board of management of the Y. M. C. A.; died in the University of Maryland Hospital, Baltimore, March 10, aged 58, of coronary thrombosis.

Travis D. Rudd, Hopkinsville, Ky.; Kentucky School of Medicine, Louisville, 1896; died March 13, aged 79, of angina pectoris.

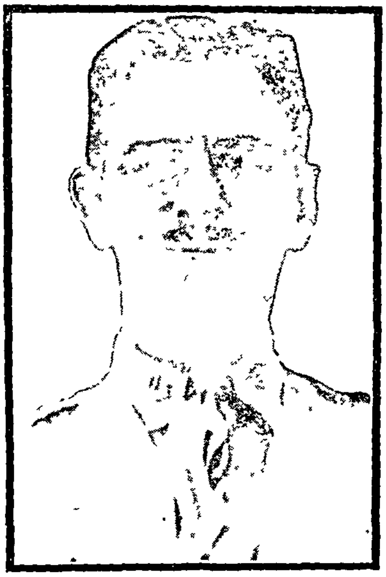
George H. Schenck, Southampton, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1904; member of the American Medical Association; for many years affiliated with the Southampton Hospital; died March 5, aged 67, of hypertensive heart disease.

Percy C. Waller Templeton ⊕ Irasburg, Vt.; Baltimore Medical College, 1904; health officer for the town for many years; on the executive board of the Orleans County Memorial Hospital in Newport at the time of his death, March 2, aged 67, of acute arthritis and malnutrition.

Mary Jane Walters, Marietta, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1929; member of the Medical Society of the State of Pennsylvania; served during World War II; at one time affiliated with Vassar College in Poughkeepsie and the State Hospital in Norristown, Pa.; on the staff of the Lawson Veterans Administration Hospital in Atlanta, where she died March 7, aged 53, of cancer.

John R. Williams, El Dorado Springs, Mo.; American Medical College, St. Louis, 1898; member of the American Medical Association; member and past president of the Vernon-Cedar Counties Medical Society; died recently, aged 75, of heart disease.

Joseph Mason Yater, Nevada, Mo.; Marion-Sims College of Medicine, St. Louis, 1901; member of the American Medical Association; on the staff of the Nevada Hospital; division surgeon for the Missouri Pacific and Missouri, Kansas and Texas Railroad companies; served as a member of the school board; died February 6, aged 79, of congestive heart failure.



Capt. Elliot A. Hayden
M. C., A. U. S., 1912-1944

Lieut. Francis C. Robinson
(MC), U. S. N. R., 1915-1946

Lieut. Maurice N. Manning
(MC), U. S. N, R., 1914-1945

KILLED IN ACTION

Elliot Alexander Hayden, New York; Universitat Basel Medizinische Fakultat, Switzerland, 1936; interned at the Jewish Memorial Hospital; began active duty as a first lieutenant in the medical reserve corps of the U. S. Army in August 1940; promoted to captain; drowned in the South China Sea Oct. 24, 1944, aged 32, when the Japanese ship on which he was being transported while a prisoner of war was sunk.

Francis Clay Robinson, Grafton, W. Va.; Harvard Medical School, Boston, 1941; served a residency at the Cape Cod Hospital in Hyannis, Mass.; served an internship and residency at Worcester City Hospital in Worcester, Mass.; entered the medical corps of the U. S. Naval Reserve as a lieutenant (jg) in 1943; promoted to lieutenant; served with the 133d Naval Construction Battalion until October 1944; transferred to training with the Fourth Marine Division; first official notice in April 1945 stated wounded in action, presumably at Iwo Jima, and second official notice in June 1945 missing in action; presumed dead March 20, 1946, aged 29, by the U. S. Navy Department.

Maurice Norman Manning, Beaverton, Ore.; Yale University School of Medicine, New Haven, Conn, 1942; interned at the San Diego County General Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve; promoted to lieutenant; aged 31; killed May 18, 1945, while on the U. S. destroyer *Longshaw,* which ran aground at Okinawa and while under heavy fire from Japanese shore batteries, was hit in the ammunition stores and exploded.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 19, 1947.

A Cerebral Palsy Unit

The cerebral palsy unit, the first to be established in this country, set up in 1943 at Queen Mary's Hospital for Children, Carlshalton, for the treatment by the methods of Professor Phelps of Baltimore, has been treating an average of 14 children at a time. It is now proposed to enlarge the unit to take 20 at a time and later 40 and still later 60. A report by the Hospitals and Medical Services Committee of the London County Council shows that the Phelps method gives good results. Some hopelessly crippled children have been rendered capable of taking part in the life of at least a school for physically defective children and in many cases in a normal school life. The facilities for the treatment are therefore to be extended as quickly as possible. Both the Ministry of Health and the Ministry of Education want the work to be developed. The latter has appointed a technical adviser, who has visited America to study the methods employed there and the results achieved. A close association has been developed with a new school for children suffering from cerebral palsy which has been established by a voluntary organization. The staff of the unit includes a part time consulting physician and an orthopedic surgeon.

Penicillin in the Mouth

At the Section of Odontology of the Royal Society of Medicine Dr. Alexander MacGregor opened a discussion on local penicillin in the mouth. He said that the action appeared to be greatest in the first quarter of an hour. The speed of diffusion of penicillin was an advantage in the odontologic field because the drug could reach areas such as gum pockets quickly, but there was the disadvantage that the penicillin was rapidly lost. He used penicillin pastilles to get a slower action. Other methods were penicillin powder for insufflating cavities, cream, as to the advantages of which he was uncertain, and the most recent method of using cones with a fatty base.

A main indication for local penicillin in the mouth was Vincent's disease. In the acute form penicillin was the best treatment, but in the chronic form it was unavailing. There was usually some focus of infection, such as an impacted wisdom tooth, which must be eliminated or recurrence was likely. In ulcers of the mouth the results were mixed. In extractions, operations on cysts and gingivectomies penicillin was of advantage in obtaining a clean field.

The Hunterian Specimens at the Royal College of Surgeons

In his Hunterian Oration, delivered at the Royal College of Surgeons, Sir James Walton took for his subject "Hunterian Ideals Today." He said that only by the closest study of Hunter's specimens and his series could an appreciation of the importance and value of his work be obtained. It was a great satisfaction to know that in the Royal College of Surgeons his work was continued with unabated zeal. The great curators William Clift, Richard Owen, Sir Arthur Keith and today Professor Wood Jones had all been ardent followers of Hunter, and in their hands the museum had grown and developed. Before the war Hunter's museum had been the Mecca of all surgeons. It had suffered grievous loss from German bombing. Some of Hunter's specimens had lost their value because of destruction of his manuscripts. But sufficient Hunterian specimens were left to form a nucleus, and all would agree with the decision of the council of the college not to separate them as a historical group but to have them as a living center of growth in each section.

TURKEY

(From Our Regular Correspondent)

ANKARA, March 10, 1947.

Public Health During World War II

During the six years of war public health work has continued. Turkey, though not entering the war as a belligerent, was obliged to keep under arms an army of about a million to guard her European and Asiatic frontiers. In large cities such foods as bread, fats, meat, sugar and rice had to be rationed. There was also a shortage of coal. Sugar, which before the war cost 32 kuruş a kilogram, rose to 645 kuruş, with the result that many people had to go without it. Farmers suffered less. They sold their products well, and they use grape treacle and honey instead of sugar. People in cities in the lower income groups suffered most, and tuberculosis increased considerably. During 1940-1941 there was an outbreak of smallpox among refugees from Persia and Iraq and then in the Eastern and Southeastern provinces, but systematic vaccination prevented the spread and today there is not a case of smallpox in the country. During 1942-1943 there was an outbreak of malaria for which heavy rainfalls and an insufficiency of crude oil and quinine were responsible; with the help of great quantities of American quinacrine the outbreak was overcome. The typhus epidemic was checked first with American and then with Turkish DDT, and preventive measures in regard to lice. Typhus vaccination has been resorted to since 1944. Syphilis took its normal course, as did other communicable diseases such as scarlet fever, meningitis, measles, chickenpox and diphtheria. With the aid of sulfonamides infant mortality due to summer diarrhea was kept at a low level. A few cases of recurrent fever, of which not 1 case is on record during the six war years, have occurred recently among refugees from Persia with 27 cases, but the outbreak was soon taken care of. There are now eighty-four antirabic treatment centers where patients are treated by the Semple method, resulting in a steady decrease of hydrophobia.

The Central Institute of Hygiene in Ankara has continued to prepare and deliver all vaccines and serums during the whole period of the war. And though their turn to serve in the army came around two or three times to many general practitioners, to specialists in institutions and private practice, as well as to health officers and chemists, this has not been to the detriment of the civilian population owing to systematic rotation of service.

During the war the marriage rate took its normal course, in urban communities 12-20 and in rural communities 25-30 per thousand. The birth rate showed a mild decline in rural communities because of the fact that almost a million men were kept under arms, though in rural communities the birth rate was 35 to 40 per thousand. The general death rate in urban communities was 18 to 22 per thousand. The earthquake that took place in December 1939 in the eastern province of Erzindjan was responsible for the sudden death of more than 32,000 persons.

Increase in Population

The first census in Turkey was taken in October 1927. The population then was 13,648,270, of which 6,563,879 were males and 7,084,391 females. Turkey then had 762,736 square kilometers. Of the inhabitants 1,040,669 were living in the European part of Turkey and 12,607,601 in Anatolia. Of the three largest cities, Istanbul had a population of 690,657, Smyrna (Izmir) 153,924 and Ankara 74,553.

The second census was taken in 1935. The population had increased to 16,158,018, of which 7,936,770 were males and 8,221,248 females. The next year the annexation of the province of Hatay from Syria added an estimated population of 273,350. With Hatay included, Turkey has now 767,943 square kilometers with a density of 21 persons per square kilometer. There were then thirty-two cities with a population of 10,001-15,000, eleven with 15,001-20,000, sixteen with 20,001-25,000 and fourteen with 25,001-50,000. Four cities had a population of 50,001-100,000.

Of these, three cities Istanbul had 741,148, Izmir 170,959 and Ankara 122,701 inhabitants.

The third census, taken in October 1940, showed that Turkey's population was 17,858,164, of which 8,940,178 were males and 8,917,986 females. According to the fourth and last census, taken in October 1945, Turkey's population is 18,859,722. Istanbul has a population of 844,090, Ankara 227,505 and Izmir 201,088, with 24 persons per square kilometer.

In 1923 the exchange of population after the Lausanne treaty brought 196,420 Turks from Greece to Turkey, adding in 1924 another 208,886. After 1924 not more than 50,729 persons a year have entered Turkey as refugee immigrants; all are Turks from Bulgaria, Rumania and Yugoslavia. The outbreak of the second world war temporarily ended emigration from these countries; it is expected that in the near future more than a million Turks will want to immigrate into Turkey.

MOSCOW

(From Our Regular Correspondent)

April 11, 1947.

Private Medical Practice in Russia

Private practice in our country is not a problem for young physicians for the following reasons:

The demand for staff personnel in medical establishments where aid is free of charge is always greater than the supply. The number of ambulatories, hospitals, kindergartens and maternity houses constantly increase. To meet the demand for physicians and to guarantee employment to medical students after graduating, medical schools have a planned quota of students. The enrolment plans per annum are based on the five year program whereby some 100,000 physicians are to be trained. Prior to World War II the total of physicians in the Soviet Union exceeded 150,000, almost eight times their number in tsarist Russia.

Private medical practice exists in our country, but it can neither be bought nor sold as this is done abroad; practice is acquired as a result of the reputation the doctor earns in the course of his work. Any physician can conduct practice at home; this is recognized by the Soviet laws. All doctors are obliged to keep a record of their patients in a ledger where the case history and treatment are recorded, and they must follow all sanitary and hygienic regulations in private practice (according to the law "On Professional Work and Rights of Medical Workers"). Systematic medical inspection insures the observance of this law.

Volatile Vitamins

Professor M. Maisel and his collaborators at the Microbiologic Institute of the U. S. S. R. Academy of Science confirmed the hypothesis of Academician N. Kholodny (Academy of Science of the Ukrainian S. S. R.) that in growing plants such as peas a number of volatile vitamins—thiamine, pyridoxine, nicotinic acid and para-aminobenzoic acid—are present. Coming in through air they act on micro-organisms in the same way as when added to nutritive medium in liquid or powder form. This property was discovered when vitamin contents were tested in foods.

At present volatile vitamins are added to nutritive mediums which activate the growth of micro-organisms. Some of them, as yeast and yeastlike fungi, in absence of vitamins demonstrate symptoms of avitaminosis, observed as disturbance of fermentation processes, cell infiltration and others. When Petri dishes with yeast cultures with and without vitamins stood side by side, volatility of vitamins could be registered by many of the aforementioned signs. If the Petri dishes were placed in different rooms the volatility was not observed and signs of avitaminosis developed. This has a practical meaning, permitting the establishment of the quantity of niacin, thiamine, pyridoxine and other vitamins in food and plants even in very small quantities.

Problems of Neurosurgery

Hypertension and the results of war injuries of the peripheral nervous system were the principal questions discussed at the Leningrad session of the All-Union Neurosurgical Council and the Leningrad Institute of Neurosurgery. V. N. Shevkunenko in his paper on the peripheral part of the vegetative nervous system confirmed the existence of intersegmentary correlations. They guarantee the mobility of vegetative reactions and thus aggravate surgical intervention on separate parts of the vegetative system. Ganglionectomy may be performed only if the local blockade does not give gratifying results.

One of the leaders of the Leningrad school, G. F. Lang, stated that operations performed on the sympathetic nervous system are most effective for the treatment of hypertension. They alleviate headache, improve vision, restore physical activity and cause temporary diminution of blood pressure. Conservative therapy is effective only in an early neurogenic stage. Soviet surgeons, contrary to their American colleagues, are not enthusiastic for surgical intervention for hypertension.

P. K. Anokhin demonstrated that under the influence of psychic irritation depressor nerve function ceases and hypertension progresses.

Professor A. L. Polenov and dozent A. V. Bondarchuk reported their observations on 18 operations for hypertension on the sympathetic nervous system. They ascertained that mechanical irritation of the semilunar ganglions raises blood pressure, while section of vagal branches that come close to them is accompanied with fall of the tension. A bilateral blockade of the sixth to ninth thoracic ganglions diminishes tension by 15-25 mm. of mercury. Desympathization gives a steady fall in blood pressure if the elasticity of the vessel wall and regulative properties of the endocrine and vegetative system are maintained. The therapeutic effect of operations on the sympathetic nervous system results in improvement of vision and hearing, decrease of muscular rigidity and restitution of movements of injured extremities. The existence of the third and fourth degrees of hypertensive disease (by Smithwick) as well as essential hypertension is a contraindication for surgical intervention.

Professor T. M. Lampert described his new method for surgical treatment of hypertensive diseases. It consists in removal of the solar plexus, desympathization of the renal pelvis and renal decapsulation. Thus adrenal denervation is obtained and excretion of epinephrine and secretin is decreased. This method was used by Lampert in 13 cases. In 10 cases, of which 4 were bilateral, he obtained good results. Three cases with advanced nephrosclerosis ended fatally.

Dozent A. S. Lourje reported the transposition of the ulnar and radial nerves from the plantar to the palmar surface and on the implantation of healthy nerve in an injured one. This permits surgeons to use nerve transplantation less often even in difficult cases. Professor G. A. Richter spoke about his method of rational section directly over the operated nerve, preventing cicatrix formation. This method received approval in the American medical literature.

Professor D. G. Schaefer, V. A. Goichman and others spoke on remote results of neurosurgical treatment. According to Goichman's data, after two years the operation of neurolysis gave much improvement in 94.4 per cent and that of nerve suture in 61 per cent (of 219 cases) if the operation was made within two to ten weeks after the injury. Schaefer, on the contrary, maintains that better results are obtained if surgical intervention is performed after a period of five to six months after injury.

V. V. Troitzky cultivated the nerve end in ether-caoutchouc solution. The special rubber cap which is thus formed becomes an obstacle hindering axon cylinders coming out into the wound and thus not permitting phantom pains to develop.

Correspondence

REACTIONS TO INFLUENZA VIRUS VACCINES

To the Editor:—In Dr. Curphey's article in THE JOURNAL, April 12, concerning a fatal reaction to influenza virus vaccine he has apparently utilized the occurrence of a fatal case in a 3½ year old child to emphasize the work of Ratner and Untracht (THE JOURNAL, Dec. 14, 1946, p. 899) regarding the advisability of determining the existence of egg allergy before using vaccines of egg origin.

There are so many features about Dr. Curphey's case that are not compatible with an allergic reaction that one might question, as Dr. Curphey has done, the mechanism he emphasized as probably responsible for the course of events observed. If, as seems possible, the reaction that occurred was not due to egg allergy, the results of a skin test would not have provided information that could have prevented the fatal reaction.

Therefore I should like to take the opportunity to call attention to one of the constituents of the vaccine that might, more likely, have been the offending component in the case that was described. The component to which I refer is the virus itself. The part played by the virus, rather than the nonvirus proteins, in reactions to influenza vaccine has been mentioned in various publications. The detailed data on this point are the subject of a report soon to be published. In the latter investigation it was found that "toxic" reactions to the vaccine are proportional in frequency and severity to the concentration of virus injected. Moreover, these reactions are uninfluenced by the small amount of extraneous protein present in the materials of various degrees of purity that were tested.

The more severe reactions that were observed in adults given rather large doses of virus concentrated and purified by differential centrifugation frequently began four to five hours after injection, a time of onset similar to that in the case described by Dr. Curphey. The symptoms and signs of reaction were chills, fever up to 103 F. recorded orally, severe headache, vomiting, agitation and anxiety; body aches and varying degrees of prostration also occurred. In a few cases, in these experimental studies with large doses, the reactions were somewhat alarming.

In a limited experience with young infants and children, reactions of greater severity, accompanied with higher temperatures, could be produced by considerably smaller doses of virus.

Therefore it would seem that if Dr. Curphey's case was a toxic reaction to some "foreign protein," as he suggested alternatively in his comments, and if the "foreign protein" was the virus itself, as the foregoing remarks suggest, a skin test for egg sensitivity would not have foreshadowed the course of events that followed the inoculation.

If the reaction is in the nature of a toxic reaction to the virus —and the findings in Dr. Curphey's case appear to me more compatible with this view than with the view that it was due to an asymptomatic allergy to some egg constituent in the vaccine—and since the frequency and severity of reactions are related to virus concentration, it would seem reasonable to consider a reduction in the concentration of virus in vaccines for use in children, at least, to levels that do not produce the undesirable effects or that much smaller doses be employed. The importance of the factor of age in relation to the severity of reaction is indicated in Dr. Curphey's report, in which he noted that reactions had occurred in all 3 children who were inoculated. The mechanism of the reaction was probably the same in the 3 children but differed in severity, depending on age.

In the study of reactions to be published, it was found that the dose of virus can be varied over a rather wide range with little influence on mean antibody response in groups given different doses. This was in contrast to the narrower range of dosage, over which there occurs a sharp increase in frequency and severity of reactions. Thus it appears that the dose of virus for vaccination could be safely adjusted to subreactive levels without significantly reducing antibody inducing effect. In children, especially, the quantity of antigen administered can be reduced considerably and still be effective in inducing a good antibody response.

For the present, therefore, it might be suggested that caution be exercised in the use of influenza vaccines not only with respect to sensitivity to egg constituents but with respect to the dose of virus given to young children. Until definitive studies are reported it would seem advisable to reduce the dose for children proportionately more than would be suggested on the basis of size in comparison with the adult.

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CHANGES IN MOUTH TISSUES AFTER VACCINATION

To the Editor:—A clinical observation which I believe has not been reported before is especially timely in view of the present drive for universal revaccination initiated by Commissioner Israel Weinstein of New York City.

I have had several cases for diagnosis of a painful itching or burning in discrete circumscribed areas in various parts of the mouth (tongue, lips, gingivae) which clinically show slight edema or desquamation. These lesions appear three to four days after vaccination against smallpox with varying intensity. No doubt the majority of the patients report no symptoms of this type, but for those who are affected the diagnosis may have puzzled some.

It is possible that other forms of immunization may produce temporary aberrations of the oral tissues which previously have not been thus associated.

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PSYCHOSOMATIC HOMEOSTASIS

To the Editor:—When Dr. W. C. Menninger delivered the second Menas K. Gregory Lecture before the Psychiatric Division of Bellevue Hospital, he said, in part, that the "universality of emotions, of feelings and their effects on the human body make it imperative that every individual practicing medicine be as well grounded in the anatomy, physiology and pathology of the psyche as he is in that of the soma" (Lessons from Military Psychiatry for Civilian Psychiatry, *Diplomate* **19**:69, 1947). As if replying in rebuttal, Wilson and Rupp observed somewhat later as they surveyed the present trends in neurology that "save for a few isolated exceptions, most of the psychosomaticists have become too preoccupied with aspects of the psyche to the neglect of the soma" (Present Trends in the Practice of Neurology, THE JOURNAL, Feb. 22, 1947, p. 509). This parallelism of verbal expression presents a provoking divergence of emphasis.

The psychosomatic approach to medicine is a synergism of the psychologic and the physiologic approaches to diagnosis and treatment; to assume that either approach is the figurative host and the other, therefore, the parasite is as fallacious as it is unsound and as unsound as it is clinically misleading. There is no "either or" about psychosomatic thinking; every patient presents both components. If, in some, one aspect is hypertrophied and the other relatively atrophied, both are invariably present if sought and recognized.

The literature of late has become saturated with reports depicting the miraculous success obtained by the application of psychologic thinking to unsuccessful solutions of perplexing problems which have run the gantlet of medical diagnostic and therapeutic measures. Apparently, these authors attempt to convey the point of view that the psyche is more powerful than the sword and, for that matter, more powerful than the scalpel and the stethoscope as well. It has become a pet diversion of psychiatrists and psychosomatists to collect medical and surgical failures and by application of psychiatric methods, orthodox or otherwise, to convert these traumatized patients into living singing commercials for psychosomatism. This is reminiscent of the chiropractor and his back breaking success with alleged medical failures. It is with this preponderance of emphasis on the psyche that one may reasonably take to task the school of medical thinking. On the other hand, many internists and surgeons (in fact none of the somatic specialists are innocent of this ignominious pastime) enjoy nothing more than finding a tangibly organic basis for some hazy psychologic syndrome which has been irradiated only with unsuccessful psychotherapy. To an equal extent, these somatists are poorly oriented.

An erroneous interpretation of the point of view presented may reasonably be suggested. No blow is being struck at psychosomatism, nor is an attempt being made to create a medical red herring. The sole concern is with advocating that practitioners maintain a diagnostic and therapeutic homeostasis between the psyche and the soma. Whether, as Portis suggests (The Medical Treatment of Psychosomatic Disturbances, The Journal, Oct. 14, 1944, p. 413), emotional stimuli produce disturbed function, and disturbed function ultimately results in pathologic change, is not contraverted here. It may well be also that the treatment of pathologic change may be medical or surgical, but the fundamental etiologic approach and prevention of recurrence depends on a study and normalization of the emotional status. This hypothesis too is not at present a question of discussion. What is questioned, however, is the doubtful appreciation in practice (if not in theory) by medical practitioners of the dynamic equilibrium between the psyche and the soma. Each clinician must maintain a psychosomatic homeostasis if he is to evaluate correctly the relation of psychologic and physiologic pathologic changes presented in the patient.

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TRANSMISSION OF BRUCELLA IN MILK

To the Editor:—I have read with considerable interest the questions and answers in Queries and Minor Notes in the April 5 issue of The Journal on Transmission of Brucella in Milk.

From epidemiologic, laboratory and experimental studies in Iowa it is quite obvious that contact with infected animals plays a more important role than does the use of contaminated raw milk supplies. Where organisms of the Brucella group were isolated from human beings in Iowa, the greater share were from men such as farmers, veterinarians and packing plant workers handling infected animals, and the species of Brucella isolated were rarely of the abortus type. On the contrary the abortus species was found in most instances among farm women, young children and city folk, who rarely handle infected animals. Thus we have two distinct routes of infection—infection by way of the skin and by ingestion. From the experimental work with guinea pigs, Hardy and his associates showed definitely how the skin is a more potential route of infection than is the ingestion route (Hardy, A. V.; Hudson, M. G., and Jordan, C. F.: The Skin as a Portal of Entry in Brucella Melitensis Infections, *J. Infect. Dis.* **45**:271 [Oct.] 1929). To April 1, 1947 420 strains of Brucella have been isolated in the State Hygienic Laboratory from human beings of which 259 were of Brucella suis, 112 Brucella abortus and 49 Brucella melitensis. So far we have not found cattle in Iowa infected with Brucella melitensis, the human infections apparently coming from contact with hogs which were found infected with this species.

Pasteurization, if carried out properly, is effective in destroying all three species of Brucella. While I was investigating an outbreak of disease in a guinea pig herd it was found that the animals had been fed with pasteurized milk. A check of the pasteurizing plant revealed that the usual standards for pasteurization were not being effectively carried out. Brucella suis was isolated from the guinea pigs and the inadequately pasteurized milk.

Although adequate pasteurization of milk and dairy products is effective in controlling brucellosis from those sources, more emphasis must be directed toward the control of the disease in hogs, which in the Midwest are the source of a greater share of brucellosis in man.

Further epidemiologic data to bring out these points will be found in the *American Journal of Medicine* **2**:156 (Feb.) 1947.

I. H. Borts, M.D., Iowa City.
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ENDOCRINE TREATMENT OF MALE STERILITY

To the Editor:—In the January 18 issue of The Journal Dr. Abner I. Weisman indicated in a communication to the editor that no endocrine therapy was of any value in the treatment of male sterility. This nihilistic point of view leaves no encouragement for physicians' treating sterility when the male is involved and apparently means that a low semen count in a man is of no more importance than to indicate a hopeless outlook for the involved individual.

On the contrary, it has been my experience in treating or supervising the treatment of between 75 and 100 men with relative sterility that there are definite hormones that will raise the sperm count to normal in more than half of the patients. The very low sperm counts of less than 10 million and particularly around 1 or 2 million are rarely improved, but in the majority of patients with relative sterility having counts varying from 10 to 60 million very encouraging results have been obtained. If the patient is hypothyroid, as shown by the basal metabolism or clinical appearance, thyroid may be followed by extraordinary improvement. If the patient is not hypothyroid or is somewhat hyperthyroid the giving of additional thyroid is of no value. Secondly, the use of equine gonadotropin (used in my experience as gonadogen, Upjohn) in doses of 20 units, three times weekly, subcutaneously, has been followed many times by remarkable changes in the sperm count. In the past five years also all of my patients have received large doses of vitamin C, although the evidence that this is of definite value is by no means clear; but certainly it does no harm. Courses of treatment are given continuously with repeated semen analyses after each four weeks.

In the face of such a depressing outlook this constructive therapy is offered as being of definite value in a majority of cases.

My first report was made in 1942 (Clinical Evaluation of Equine Gonadotropin, *Am. J. Obst. & Gynec.* **43**:387 [March] 1942).

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Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Constitutionality of Provision Relating to Appointment of Medical Commission.—The plaintiff filed a claim for disability compensation allegedly resulting from an occupational disease contracted in the course of his employment with the Ford Motor Company. From a denial of his claim, the plaintiff appealed to the Supreme Court of Michigan.

Prior to August 1943 the plaintiff had worked for the defendant for about twenty years, almost the entire period of which was spent in the defendant's millwright department. On that date he quit his employment because of his physical condition. His claim for compensation alleged that during the period of his employment he was exposed to dust and that he became disabled by reason of "pneumoconiosis, possibly complicated by sequelae such as tuberculosis."

Section 6 of the workmen's compensation act, which was added to the law in 1937, provides: "In case the employe is alleged to be suffering from an occupational disease and there shall be a dispute with respect thereto, the said board, or any member thereof, shall appoint a commission of three qualified impartial physicians to examine the injured employe and to report. The report, when signed by at least two of the members of said commission, shall be final and conclusive as to the condition of said employe with respect to the alleged disease or diseases. . . ."

Pursuant to this section, and at the request of the defendant, a medical commission was appointed which filed a report based on an examination of the plaintiff made on Jan. 3, 1945. The report stated that the plaintiff did not have pneumoconiosis on that date but that he did have x-ray and clinical evidence of tuberculosis. The department denied the plaintiff's claim on the theory that if the claimant did not have pneumoconiosis in 1945 he had not had it at any time during the prior period for which disability was claimed. On appeal, the plaintiff contended that section 6 violated the "due process" clause of both the state and federal constitutions. Emphasis was placed on the failure of the statute to give the parties in interest the right to appear before the medical commission and present evidence, and it was insisted that such failure deprives the parties of a right to a full and fair hearing and prevented the introduction of rebuttal proofs. Attention was called to the requirement that the department of labor and industry accept the report as final as to the condition of the employee on the date of the examination, without opportunity to consider the proofs presented to the medical commission, and to the fact that the court, in reviewing the department's action, could not have such proofs before it. Summarizing his contentions, the plaintiff's attorney stated: "We maintain that the appointment of a medical commission in this state is unconstitutional because it deprives the litigant of a right to a proper hearing of the issues in his case and of judicial review of the reasonableness of the determination by an administrative board."

The attorney general, in a brief filed at the court's request, agreed with the plaintiff that the procedure with reference to the medical commission is not in accord with fundamental principles of "due process of law." In support of his contention counsel for plaintiff called attention to the decision of the Supreme Court of Minnesota in *Hunter* v. *Zenith Bridge Co.*, 19 N. W. (2d) 795. In that case a provision of the Minnesota workmen's compensation act, analogous to section 6 of the Michigan act, was held unconstitutional. The Minnesota provision gave to the medical board the right to examine witnesses and required that it file its findings with the commission, including therein the names of doctors appearing and also medical reports and exhibits considered. No provision was made, however, for filing a transcript of the evidence on which the board based its determination. During the course of its opinion, the Supreme Court of Minnesota said "It is our opinion that because the delegation of power to the medical board here in effect denied relator and other claimants under the occupational diseases provision of the workmen's compensation law an effective right of review or appeal as prescribed by said workmen's compensation act, as well as under the due process guaranties of both the state and federal constitutions, the statute insofar as it creates said medical board and sets forth its functions constitutes an invasion of rights protected and guaranteed by said constitutions and is therefore null and void." A prior Michigan case said "We have always held, under the workmen's compensation law, that the court will examine the record to determine whether there is any evidence to sustain the findings of fact made by the department of labor and industry . . ." and then it quoted from the Supreme Court of the United States and said "It is true that if a legislature attempts to make the findings of fact of its agencies conclusive, even though the findings are wrong and constitutional rights have been invaded, the legislative action is invalid, for the judicial power of the courts cannot thus be circumscribed."

On the basis of such decisions, the Supreme Court of Michigan said that section 6 of the Michigan workmen's compensation law was unconstitutional. Due process of law requires notice and an opportunity to be heard; it imports the right to a fair trial of the issues involved in the controversy and a determination of disputed questions of fact on the basis of evidence. Under section 6 of the workmen's compensation law no record is directed to be kept by the medical commission; only the conclusion reached need be submitted to the department of labor and industry. Neither employee nor employer is afforded an opportunity before the medical commission to explain or rebut the showing on which its conclusion is based. There is no requirement with reference to notice, and the right to a fair hearing is not safeguarded. Such rights are, however, guaranteed by both state and federal constitutions, the Supreme Court concluded.

Since the determination of the department was based on the report of the medical commission, the section dealing with which was held to be unconstitutional, the Supreme Court of Michigan reversed the judgment in favor of the defendant and remanded the case for further proceedings.—*Dation v. Ford Motor Co., 22 N. W. (2d) 252 (Mich., 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 17, page 314.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, June 16-18. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Part II. *Oral.* Cleveland, Oct. 5-11. Sec., Dr. P. M. Wood, 131 Riverside Dr., New York 24.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various Centers, Oct. 20. Final date for filing application is June 1. Asst. Sec., Dr. W. A. Werrell, 1 West Main St., Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Oral. Chicago, June 4-5. Sec., Dr. Paul C. Bucy, 912 S. Wood St., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II.* Pittsburgh. June 1-7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia; June 15-19. Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Part II. Chicago, Jan. *22-23.* Final date for filing applications is *Sept. 15, 1947.* Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

AMERICAN BOAR[illegible] Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, [illegible] City, Ia.

AMERICAN BOAR[illegible] Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kings Highway, St. Louis 10.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Robert H. Ivy, c/o Clerical Secretary, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Boston, Nov. 26-30. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: Final date for filing application for the next written examination is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Harry Culver, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

213:129-256 (Feb.) 1947

Study of Outbreak of Influenza B in Rochester, N. Y. R. A. Bruce and H. B. Slavin.—p. 129.

*Relative Clinical and Hematologic Effects of Concentrated Liver Extract, Synthetic Folic Acid and Synthetic 5-Methyl Uracil in Treatment of Macrocytic Anemias in Relapse. W. B. Frommeyer Jr. and T. D. Spies.—p. 135.

Clinical Significance of Hyperbilirubinemia Due to Nicotinic Acid. L. Marfori, M. Stefanini and P. Bramante.—p. 150.

Atypical Anemia, with Spherocytes and Target Cells Coexisting in Blood. G. Discombe and G. Watkinson.—p. 153.

Nitrogen Balance and Blood Volume Studies in Man During and Following Repeated Plasma Transfusions. Frieda L. Meyer, J. W. Hirshfeld, W. E. Abbott and others.—p. 160.

Partial Maturation of Leukemic Myeloblasts Following Fresh Plasma Transfusions. J. L. Schwind.—p. 170.

Gynecomastia Associated with Vitamin Deficiency Disease. R. E. Hibbs. —p. 176.

*Effect of Patent Ductus Arteriosus on Body Growth. W. B. Porter. —p. 178.

Heberden's Nodes: VI. Effect of Nerve Injury on Formation of Degenerative Joint Disease of Fingers. R. M. Stecher and L. J. Karnosh. —p. 181.

*Indications for Irradiation of Pituitary Gland in Patients with Arterial Hypertension. E. P. Pendergrass, J. Q. Griffith Jr., N. Padis and R. P. Barden.—p. 192.

Further Studies on Correlation of Chemical Structure and Antithyroid Effect. R. H. Williams and Gloria A. Kay.—p. 198.

Posthypoglycemic Encephalopathy: Case Reports. G. M. Jones.—p. 206.

Plasma Proteins: II. Alteration in Alloxan Diabetic Rabbits, Especially in Relation to Ocular Damage. Lena A. Lewis, J. Moses and R. W. Schneider.—p. 214.

Routine Method for Rapid Determination of Susceptibility to Penicillin and Other Antibiotics. A. Bondi Jr., E. H. Spaulding, Dorothy E. Smith and Catherine C. Dietz.—p. 221.

Thrombophlebitis on Medical Service of General Hospital. H. H. Hodges and N. E. Freeman.—p. 226.

Plasma Substitutes. C. E. Koop.—p. 233.

Exophthalmos of Endocrine Origin. T. G. Martens.—p. 241.

Treatment of Macrocytic Anemia in Relapse.—Frommeyer and Spies report the results of treating 100 patients with concentrated liver extract, 24 patients treated with synthetic folic acid and 14 patients treated with synthetic 5-methyl uracil. These patients had either true addisonian pernicious anemia, nutritional macrocytic anemia or the macrocytic anemia of tropical sprue. The hematologic findings show that, under the conditions of the study and in the dosages used, each of these three substances causes a remission. The clinical and hematologic response to folic acid parallels that which occurs following concentrated liver extract therapy, but the rate of regeneration is greater with potent liver extract. The authors especially recommend folic acid when there is sensitivity to liver. Synthetic 5-methyl uracil is the least effective of the three substances. The rate of red cell rise and the peak attained is definitely of a lower order than that obtained with either synthetic folic acid or concentrated liver extract. While 5-methyl uracil is of great scientific interest, it has no practical therapeutic value at the dosage level required to maintain a normal red blood cell count. From these and other studies it seems to the authors that the active principle in liver extract is not folic acid but is a very powerful substance which, when obtained in pure form, probably will be no more efficacious per unit weight than is folic acid.

Effect of Patent Ductus Arteriosus on Body Growth.—Porter says that no factor other than the patent ductus could be found to account for the smallness of each of 3 patients, and, when the ductus was successfully closed in 1 he outstripped his twin in height in less than three years. In many patients the growth inhibiting factor is an added reason for surgical ligation of a patent ductus arteriosus. The optimum period for operation is probably before the age of 11 years.

Irradiation of Pituitary in Arterial Hypertension.—The 142 patients treated by Pendergrass and his associates were adults with arterial hypertension. This report is concerned chiefly with the 93 patients who were followed for from three to fifty-six months. About half of these persons showed improvement in blood pressure and clinical condition. All the patients were selected on the basis of a positive test for antidiuretic hormone in the serum. The chance of benefit from radiation therapy to the pituitary in hypertension should be at least 75 per cent if cases are selected according to these criteria: (1) positive bioassay for antidiuretic hormone in serum; (2) a dosage of 1,000 roentgens delivered into the hypophysis (2,000 roentgens in air), to be repeated in three months if the test for antidiuretic hormone in the serum has not become negative in that time; (3) a negative bioassay for gonadotropic hormone in serum; (4) a normal renal function; (5) good clearance of injected dye from each kidney, as shown by urography.

American J. Obstetrics and Gynecology, St. Louis

53:181-358 (Feb.) 1947. Partial Index

Application of Our Knowledge of Rh Factor. J. Totterdale.—p. 181.

Masculinizing Tumor of Ovary of Adrenal Type. M. Douglass.—p. 190.

Radium and Roentgen Therapy in Treatment of Menopausal Uterine Bleeding. H. E. Schmitz and Janet E. Towne.—p. 199.

Sodium Pentothal Anesthesia in Major Obstetric and Gynecologic Surgery: Preliminary Report of 300 Cases. V. P. Mazzola.—p. 207.

*Leukoplakia Vulvae: Its Etiology and Results of Treatment with Vitamin A: Preliminary Report. M. N. Hyams and O. H. Bloom.—p. 214.

*Evaluation of Presacral Neurectomy in Treatment of Dysmenorrhea. A. W. Tucker Jr.—p. 226.

Study of Bacterial Flora of Normal and Pathologic Vagina and Uterus. K. Eileen Hite, H. C. Hesseltine and L. Goldstein.—p. 233.

Treatment of Mycotic Vulvovaginitis with Propionate Vaginal Jelly. R. L. Alter, C. P. Jones and B. Carter.—p. 241.

Ovarian Adenocanthoma Associated with Endometriosis of Ovary. J. F. Kuzma.—p. 245.

Recognition of Midpelvic Contraction. W. C. Eller and W. F. Mengert. —p. 252.

Control of Menstrual Disturbances and Hypo-Ovarian Sterility: Nine Years of Experience with Equine Gonadotropin. G. J. Hall.—p. 259.

Mixed Synthetic Estrogens—Their Use in Menopause: Dimethoxy Stilbestrol and Diethylstilbestrol. O. H. Bloom.—p. 263.

Surgery in Uterine Fibroid, A Plea for Myomectomy. J. W. Ross. —p. 266.

Third Stage of Labor: I. Measurement of Blood Loss: II. Intravenous Ergotrate. J. K. Quigley.—p. 271.

Effect of Pregneninolone on Menstrual Cycle of Adolescent Girls with Oligomenorrhea or Amenorrhea. F. E. Harding.—p. 279.

Epidemic Diarrhea in Newborn: Relation Between Breast and Bottle Feeding and Early Development of Proper Intestinal Flora. H. W. Mayes.—p. 285.

An Analysis of 212 Consecutive Cases of Ectopic Pregnancy. B. Leff and S. G. Winson.—p. 296.

Parenteral Vitamin K Therapy During Antepartum Period and Its Effects on Infants' Prothrombin Levels. C. Reich, R. L. McCready and H. Chaplin: With Technical Assistance of R. Lipkin.—p. 300.

Maternal Pulmonary Embolism by Contents of Amniotic Fluid. C. T. Hemmings.—p. 303.

Oil Embolism Following Hysterosalpingography. F. M. Ingersoll and L. L. Robbins.—p. 307.

Vitamin A Treatment of Leukoplakia Vulvae.—Hyams and Bloom report 18 cases of minimal leukoplakia vulvae with mild degree of involvement in all of which the diagnosis has been verified by microscopic examination. In 10 cases little or no free hydrochloric acid was revealed on examination of the gastric contents, which anacidity is definitely abnormally high as compared to its normal physiologic incidence of 35 per cent for any similar age group. Clinical studies in other fields have demonstrated the relationship existing between gastric anacidity and the low plasma level of vitamin A. Vitamin A treatment was therefore begun with a daily oral dose varying from 250,000 units to 500,000 units, supplemented by injections of 50,000 units twice weekly. In addition, each patient received 1 cc. of diluted hydrochloric acid in water three times daily with each meal. Of the 18 patients treated, 14 have been relieved both subjectively and objectively. The 4 unimproved patients suffered from some constitutional disease. It is concluded that leukoplakia vulvae is of metabolic origin because of a failure in utilization and/or absorption of vitamin A. Uncomplicated cases of minimal leukoplakia can be relieved with adequate doses of vitamin A and diluted hydrochloric acid. In four years of observation not 1 case showed a tendency toward vulvar carcinoma. Leukoplakia is probably not a neoplastic disease.

Presacral Neurectomy in Dysmenorrhea.—Tucker reviews 255 cases of surgical removal of the superior hypogastric plexus or presacral nerve for dysmenorrhea of both the essential and the acquired type. A comparative study was made between the 136 operations performed from 1931 to 1940 and the 119 operations during the period of 1941 to 1945. Complete relief from what is commonly termed essential dysmenorrhea (cramps) was obtained in 78 per cent of cases. There was some degree of improvement of symptoms in an additional 11 per cent. Complete relief from acquired dysmenorrhea occurred in only 33⅓ per cent of cases. Total failure of the procedure was recorded in 11 per cent of the essential dysmenorrhea group, whereas this poor result was obtained in 41.7 per cent of the acquired dysmenorrhea group. It is pointed out that pelvic inflammation and endometriosis made up about 60 per cent of the acquired dysmenorrhea group; 21 per cent of cases in these two categories came to total hysterectomy nine months to four years after presacral neurectomy was performed. Presacral neurectomy is still a court of last resort in the treatment of dysmenorrhea. The operation carries with it the risk of laparotomy. Good medical management should be attempted in each individual case before resorting to surgery unless other indications for laparotomy exist.

American Journal of Physiology, Baltimore

148:259-530 (Feb.) 1947. Partial Index

Effects of Morphine on Dogs in Hemorrhagic and Traumatic Shock. S. Powers, C. Reed and M. I. Gregersen, with technical assistance of Ann G. Buckman.—p. 269.
Platelet Agglutination and Vasoconstriction as Factors in Spontaneous Hemostasis in Normal, Thrombocytopenic, Heparinized and Hypoprothrombinemic Rats. Marjorie B. Zucker.—p. 275.
Contributory Role of Afferent Nervous Factor in Experimental Shock: Sublethal Hemorrhage and Sciatic Nerve Stimulation. R. R. Overman and S. C. Wang.—p. 289.
Response of Gastrointestinal Tract to Ingested Cereal Starch. P. F. Fenton and H. B. Pierce.—p. 296.
Hepatic Blood Flow and Glucose Output in Normal Unanesthetized Dogs. A. Lipscomb and L. A. Crandall Jr.—p. 302.
Influence of Some Organs on Pyruvate Level in Blood. Williamina A. Himwich and H. E. Himwich.—p. 323.
Effects of Water Diuresis and Exercise on Volume and Composition of Urine. J. A. Barclay, W. T. Cooke, R. A. Kenney and M. E. Nutt.—p. 327.
Role of Vagus Nerves in Inhibition of Gastric Motility by Fat and by Intestinal and Urinary Extracts. S. C. Harris, M. I. Grossman and A. C. Ivy.—p. 338.
Chronic Avitaminosis E in Castrate and Noncastrate Rat. G. J. Martin.—p. 344.
Postburn Azotemia, Its Characteristics and Relationship to Severity of Thermal Injury. O. Rosenthal and M. D. McCarthy.—p. 365.
Effect of Dark Adaptation and of Light on Electric Threshold of Human Eye. H. B. Barlow, H. I. Kohn and E. G. Walsh.—p. 376.
Failure of "Enterogastrone" to Prevent Rumenal Ulcers in Shay Rat. C. R. Morris, M. I. Grossman and A. C. Ivy.—p. 382.
Effect of Organ Extracts and Their Fractions on Acetylcholine Synthesis. Clara Torda and H. G. Wolff.—p. 417.
Some Effects of *d*-Tubocurarine on Oxidations in Mammalian Tissues. R. M. Featherstone and E. G. Gross.—p. 507.

American Journal of Public Health, New York

37:139-252 (Feb.) 1947

*Brucellosis in the United States. Alice C. Evans.—p. 139.
Problems of an Aging Population: Setting the State. L. I. Dublin.—p. 152.
Id.: Care of the Aged and Chronically Ill. T. G. Klumpp.—p. 156.
Id.: Sheltered Care of the Aged. J. H. Kinnaman.—p. 163.
Id.: Preventive Aspects of Cancer Control. H. L. Lombard.—p. 170.
Id.: Public Health Aspects of Diabetes. H. L. C. Wilkerson.—p. 177.
Recent Studies on Disinfection of Air in Military Establishments. Report of the Committee on Sanitary Engineering, National Research Council. A. Wolman and others.—p. 189.
Criteria for Allocation of Subsidy to Local Health Departments. J. A. Kahl.—p. 199.
Dark Field Colony Illuminator. R. M. Wood.—p. 205.
Charts for Counting Bacterial Colonies. J. H. Brown.—p. 206.

Brucellosis in the United States.—Evans reviews the history of the recognition of brucellosis in the United States and shows that the disease is of considerable importance as a public health problem. She stresses that the prevalence of brucellosis in man depends on its prevalence in animals and that it is predominantly a rural disease. A fundamental problem of brucellosis is the discovery of methods for the control of the disease in animals. The discovery of an effective therapeutic agent is urgent from the point of view of both the human and the animal disease. The development of laboratory technics to facilitate the recognition of the mild form of the disease is important.

American Journal of Surgery, New York

73:141-310 (Feb.) 1947

Adjustable Internal Fixation Element for Hip. H. L. McLaughlin.—p. 150.
Treatment of Trochanteric Fractures. C. E. Newell.—p. 162.
Interphalangeal Joints: Method of Digital Skeletal Traction Which Permits Active Motion. T. B. Quigley and M. R. Urist.—p. 175.
Causes of Death in Battle Casualties Reaching Hospitals. H. F. Snyder and J. W. Culbertson.—p. 184.
Abdominal Trauma. P. R. Imes.—p. 199.
Observation on Management of Burns. H. L. D. Kirkham.—p. 210.
Remarks on Veterans Administration in New York. F. W. Bancroft.—p. 218.
Deconditioning or Rehabilitation—Which? A. W. Reggio.—p. 219.
Method for Arrest of Spreading Gas Gangrene by Oxygen Injection. D. Hinton.—p. 228.
Surgical Wounds of Abdominal Wall with Favorable and Unfavorable Results. A. O. Singleton.—p. 233.
Tenosynovitis of Forearm. R. L. Rhodes.—p. 248.
*Scalenus Anticus Syndrome. M. Gage and H. Parnell.—p. 252.
Deformations of Skull in Head Injury as Studied by "Stresscoat" Technic. E. S. Gurdjian and H. R. Lissner.—p. 269.
Anterolateral Approach in Bone Grafting for Ununited Fractures of Tibia. J. H. Wagner.—p. 282.
*Trauma in Malignant Tumors of Bone. B. L. Coley.—p. 300.
Some Observations on Penetrating Wounds of Heart. J. A. B. Hillsman.—p. 305.

Scalenus Anticus Syndrome.—Patients with pain in the neck, shoulder, arm and forearm, with numbness and tingling in the thumb, index, ring or little fingers associated with muscle weakness, should have a thorough neurologic examination of the muscles and nerves of the involved extremity. The scalenus anticus muscle on the involved side is painful to palpation and pressure in all patients exhibiting the syndrome. If pain is not present on pressure over the lower portion of the scalenus anticus muscle, the patient probably does not have scalenus anticus syndrome. The condition must be differentiated from subacromial bursitis, brachial plexus neuritis, arthritis of the cervical spine, herniated cervical disk, rupture of the supraspinatus tendon, sympathalgia of the cervicodorsal type and cervical rib. The conservative treatment of scalenus anticus syndrome consists in correction of poor posture, massage, diathermy, rest of the upper extremity, injection of the scalenus anticus muscle with procaine hydrochloride and sleeping on three pillows. If conservative treatment fails, scalenotomy with partial resection of the scalenus anticus muscle is indicated.

Trauma in Malignant Bone Tumors.—Coley thinks that the role of a single injury in the development of bone sarcoma has been overemphasized. Considering the universality of injuries on a par with those alleged to be the cause of sarcoma of bone, it is difficult to explain why so few of them are followed by the development of sarcoma.

Annals of Internal Medicine, Lancaster, Pa.

26:1-190 (Jan.) 1947

*Surgical Treatment of Bronchiectasis. E. B. Kay, R. H. Meade Jr. and F. A. Hughes Jr.—p. 1.
*Late Residuals in Presumably Cured Acute Infectious Hepatitis. G. Klatskin and E. M. Rappaport.—p. 13.
Residual Mustard Gas Bronchitis: Effects of Prolonged Exposure to Low Concentrations of Mustard Gas. P. Morgenstern, F. R. Koss and W. W. Alexander.—p. 27.
*Comparison of Clinical Use of Protamine Zinc Insulin and Globin Insulin in Equal Doses. J. T. Roberts and W. M. Yater.—p. 41.
Further Observations on Blood Grouping in Poliomyelitis. C. W. Jungeblut, H. E. Karowe and S. B. Braham.—p. 67.
Right Ventricular and Right Auricular Hypertrophy of Obscure Origin. F. F. Rosenbaum.—p. 76.
Human Glanders: Report of 6 Cases. C. Howe and W. R. Miller.—p. 93.

Surgical Treatment of Brochiectasis.—Kay and his associates base the opinions presented in this report on the treatment of 390 patients with bronchiectasis at the Chest Center and at Percy Jones General Hospital during the past three years.

During this period there have been 220 consecutive lobectomies with only one death The bronchiectasis in the patients not operated on was either too minimal, too patchy and diffuse or too extensive A small number of patients refused operation Postoperative bronchopleural fistula and empyema occurred in only 20 cases Pulmonary function as determined by bronchospirometric studies in a small group of patients preoperatively and postoperatively demonstrated that the oxygen consumption and ventilation within several months postoperatively were only slightly below normal values and in most cases either essentially the same or improved over preoperative levels

Late Residuals in Infectious Hepatitis.—Klatskin and Rappaport found that 108 of 217 patients who were considered fully recovered from acute infectious hepatitis had residuals evidenced by symptoms, hepatomegaly or impaired liver function for periods ranging up to twenty-seven years The only significant symptoms were fat intolerance and right upper quadrant pain These residuals indicated a disturbance of the liver, but the presence of structural changes was not established The residuals were compatible with good health and full activity over long periods of time The only factor which appeared to play a significant role in the incidence of residuals was the severity of the jaundice There was no evidence to indicate that the late residuals of infectious hepatitis progress to cirrhosis Coarse nodular cirrhosis does occur occasionally during the first six months of chronic progressive or recurrent infectious hepatitis

Protamine Zinc Insulin and Globin Insulin.—Roberts and Yater treated 84 patients with both globin and protamine zinc insulins, with blood sugar curves obtained while they were being given an equal dose of each form of insulin The authors gained the impression that both are satisfactory preparations in the treatment of a large percentage of diabetic patients Although each form is better than the other in some patients, more of them were controlled more satisfactorily with globin insulin Globin insulin controls the blood sugar curve and glycosuria in a more nearly normal way in more cases than an equal dose of protamine zinc insulin Globin insulin as now prepared with glycerin is free of significant local reactions or allergy The tendency to midafternoon hypoglycemia with globin insulin is preferable to nocturnal reactions, which are likely to be severe with protamine zinc insulin The majority of patients with diabetes who require insulin can be adequately controlled by a single dose of either globin insulin or protamine zinc insulin

Archives of Neurology and Psychiatry, Chicago

57:137-276 (Feb) 1947

*Volume Flow of Blood Through Human Brain F A Gibbs, H Maxwell and E L Gibbs with technical assistance of Ruth Hurwitz —p 137
Relation of Acute Mucosal Hemorrhages and Ulcers of Gastrointestinal Tract to Intracranial Lesions G S Strassmann —p 145
Abreaction in Military Setting H Rosen and H J Myers —p 161
Neurogenic Arthropathy (Charcot Joint) Associated with Diabetic Neuropathy Report of 2 Cases D B Foster and R C Bassett —p 173
Metastases of Uterine Carcinoma to Central Nervous System Clinicopathologic Study T Lipin and C Davison —p 186
Schistosomiasis of Brain Due to Schistosoma Japonicum Report of Case C W Watson, F Murphey and S C Little —p 199
Electroencephalogram in Pitressin Hydration Test for Epilepsy J S Blier and F C Redlich —p 211
*Abdominal Rigidity a Symptom *of Concussion of Spinal Cord* K *H* Abbott —p 220

Blood Flow Through Brain—Gibbs and his co-workers determined the blood flow through the human brain by injecting at constant rate a physiologically inert, nondiffusible substance into a major cerebral artery and then determining the concentration of that substance in a major cerebral venous channel The substance chosen for injection was Evans blue (T-1824) The cerebral blood flow was measured in 7 patients The average resting flow for all subjects was 617 cc per minute By hyperventilation it was possible to reduce the cerebral blood flow approximately one half By breathing 10 per cent carbon dioxide, it was possible to double the cerebral blood flow Under the *conditions* of these experiments, the major changes which occur in arteriovenous differences of oxygen are the result of change in the cerebral blood flow However, in all cases the oxygen uptake of the brain was reduced by high carbon dioxide concentrations; no consistent change in oxygen uptake occurred with hyperventilation

Abdominal Rigidity a Symptom of Concussion of Spinal Cord.—Abbott limits the meaning of the term "concussion of the spinal cord" to a transitory syndrome following indirect injury to the spinal cord Seven cases are described in which the syndrome of transitory sensory paralysis of the lower extremities with involvement of the trunk into the thoracic region was accompanied with abdominal rigidity and paralysis in extension of the lower extremities No clinical evidence of gross damage to the spinal cord was found in 5 cases, and in 2 a small quantity of blood was observed in the spinal fluid All the patients recovered The symptoms referable to the lesion may be due to a so-called *molecular* disturbance, and the reversible structural changes within the nerve cells and fibers, associated with probable changes in electrical conductivity and excitation, are not unlike those in cerebral concussion The syndrome resembles that of the decerebrate state, for it is manifest below the level of the spinal injury and is due to involvement of the extrapyramidal pathways without interruption of the vestibulospinal tracts

Archives of Pathology, Chicago

43:117-234 (Feb) 1947

Development of Bone Marrow in Adult Animals B Steinberg and Virginia Hufford —p 117
Pathologic Action of DDT and Certain of Its Analogues and Derivatives R D Lillie, M I Smith and E F Stohlman —p 127
Repair in Skin of Guinea Pigs Subsequent to Applications of 20 Methylcholanthrene M Silberberg and Ruth Silberberg —p 143
*Histoplasmosis in Infancy Pathologic Picture as Seen in 1 Case L A Weed, A M Iams and H M Keith —p 155
*Congenital Tularemia T N Lide —p 165
Ainhum Report of Case in Which Patient Was White Woman with Diabetes Mellitus L J O Shaffer —p 170
Metastatic Calcification R M Mulligan —p 177

Histoplasmosis in Infancy.—The evidence obtained from a study of pathologic material by Weed and his associates indicated widespread dissemination of Histoplasma The patient was a girl born in Illinois in April 1945 and dying at the Mayo Clinic in December of that year The finding of the organisms in the blood, marrow and lymph nodes suggests that every organ and *tissue was involved to some degree The condition of the adrenal* glands was especially interesting The yeast forms appeared to be actually invading the cortical cells, some of the latter containing so many parasites that they lost their identifying characteristics and appeared as macrophages To consider either the cortical cells as phagocytes or the yeast forms as invaders is unique, since in no other condition has the former been demonstrated, and in other parts of the body the organisms occurred only in phagocytic cells

Congenital Tularemia.—Lide reports what he considers the first case of congenital tularemia The disease occurred in the mother during the eighth month of pregnancy and was followed by infection and death of the fetus The necrotic granulomas *occurring in various organs of the fetus* were similar to those which are usually found in adults Gram negative coccobacilli consistent morphologically with Pasteurella tularensis were demonstrated in chorionic villi The author cites several cases from the literature of tularemia in pregnant women, but the pregnancy usually went to term and apparently normal infants were delivered

Archives of Physical Medicine, Chicago

28:71-124 (Feb) 1947

Growing Importance of Physics in Premedical and Medical Curriculums F O Schmitt —p 71
*Cross Education Influence of Unilateral Exercise on Contralateral Limb F A Hellebrandt, Annie M Parrish and Sara Jane Houtz —p 76
Rehabilitation of Patients with Spinal Cord Injuries L *B* Newman —p 85
Some Properties of Denervated Muscle Relation of Fibrillation to Acetylcholine S Mead —p 93
High Lights of Physical Medicine at Walter Reed General Hospital 1941 1946 D L Rose —p 99

The Influence of Unilateral Exercise on the Contralateral Limb.—Hellebrandt and his associates point out that unilateral exercise of the heavy resistance type is associated with increased strength in the symmetrical muscle groups of the unexercised contralateral limb This phenomenon is referred to in the psychologic literature as "cross education" Fifteen normal healthy adult women were subjected to cross education experiments It was found that unilateral heavy resistance exercise which rapidly augments the strength and staying power of the ipsilateral limb has a strikingly similar concomitant effect on the contralateral unpracticed limb It is suggested that cross education may serve as a useful therapeutic tool in cases in which volitional control is unilaterally defective or in which contralateral muscle groups are rendered temporarily inaccessible through immobilization

Bull. of New York Academy of Medicine, New York

23:59-118 (Feb) 1947

Centennial Celebration of the Academy G Baehr —p 59
Academy Centennial H R Craig —p 64
Recent Advances in Cancer Research Ludwig Kast Lecture P Rous —p 65
Lymphomas and Leukemias L F Craver —p 79
Tumors of Stomach A P Stout —p 101
*Surgical Treatment of Bone Tumors B L Coley —p 109

Surgical Treatment of Bone Tumors —Coley thinks that benign tumors of bone require surgical treatment not only for the present symptoms but for future malignant potentialities The form of therapy differs with the type, the extent and the location of the tumor, but seldom should amputation be required Surgery is also indicated for malignant tumors of bone This implies amputation in most instances particularly for those types that are radioresistant High thigh amputation for tumors of the lower femur has proved an acceptable substitute for routine hip joint disarticulation For tumors in other situations, amputation proximal to the bone involved is generally advisable, although exceptions exist Under certain conditions and in special locations malignant tumors may be dealt with successfully by conservative surgical measures such as local excision, resection, curetage, scapulectomy and patellectomy rather than by amputation

Cincinnati Journal of Medicine

28:161-232 (March) 1947

*Newer Aspects of Virus Hepatitis R B Capps —p 161
Ocular Tuberculosis Three Case Reports L P Brumm —p 168
Premedical Program S Dorst —p 176

Virus Hepatitis —Capps says that large outbreaks of virus hepatitis have generally been restricted to armies in time of war During World War II the disease reappeared in epidemic proportions in most armies Following the administration of yellow fever vaccine to United States troops a large outbreak occurred in 1942 Subsequently the disease was prevalent in certain overseas theaters It has now been clearly demonstrated by transmission of the disease to human volunteers that virus hepatitis is due to a filtrable virus This term is used to include catarrhal jaundice, infectious hepatitis, infective hepatitis and homologous serum jaundice Two immunologically separate strains have apparently been identified, namely the homologous serum and the epidemic types This distinction is supported by differences in the length of the incubation period and in the clinical picture Thus the former is essentially afebrile and usually runs a more protracted course The pathologic lesion consists essentially of an inflammatory reaction in the portal areas and within the lobules and varying degrees of necrosis of the parenchymal cells The author stresses the danger of transmitting the disease through blood, blood products and syringes The most important single form of therapy is bed rest

Delaware State Medical Journal, Wilmington

19:1-22 (Jan) 1947

Medical Rehabilitation Doctor s Responsibility A R Shands Jr —p 1
Partial Lobectomy for Bronchiectasis Case Report G A Beatty and C P Bailey —p 6
Streptomycin in Typhoid Fever Report of Treatment Failure H J Gloetzner and E G Scott —p 9
Eosinophilic Leukemia Case Report H J Gloetzner and H E Marx —p 12
Diaphragmatic Eventration Case Report W W Lattomus and F S Winter —p 14
Subacute Bacterial Endocarditis Due to H Influenzae like Organism Case Report W W Briggs and L B Flinn —p 17

Endocrinology, Springfield, Ill.

40:65-122 (Feb) 1947

Variations in Regulation of Energy Exchange Associated with Estrus, Diestrus and Pseudopregnancy in Rats J R Brobeck, Mary Wheatland and J L Strominger —p 65
Early Reduction in Uterine Response to Alpha Estradiol in Partially Hepatectomized Rat and Subsequent Enhancement During Active Liver Regeneration S Roberts and Clara M Szego —p 73
Rate of Turnover of Protein Bound Iodine in Plasma of Dog as Measured with Radioactive Iodine A Taurog, I L Chaikoff and C Entenman —p 86
Effect of Hyperglycemia on Insulin Secretion as Determined with Isolated Rat Pancreas in Perfusion Apparatus Evelyn Anderson and J A Long —p 92
Suppression of Insulin Secretion by Growth Hormone of Anterior Pituitary as Determined with Isolated Rat Pancreas in Perfusion Apparatus Evelyn Anderson and J A Long —p 98
Essential Lesion in Experimental Diabetes Insipidus P Heinbecker, H L White and Doris Rolf —p 104

Georgia Medical Association Journal, Atlanta

36:53-104 (Feb) 1947

Our Battle for Freedom H H Shoulders —p 53
Further Observations on Two Hour Pregnancy Tests H S Kupperman and R B Greenblatt —p 58
Puerperal Inversion of Uterus R Torpin —p 63
*Complications of Topical Use of Sulfonamides Reports of Cases W I Dobes —p 70
Tropical Dermatoses Among Naval Personnel in South Pacific Area H S Alden and J W Jones —p 75
Sporotrichosis D H Garrison —p 80
Diphtheria Antitoxin and Other Foreign Proteins in Treatment of Herpes Zoster Ophthalmicus W C Thomas —p 82
Perinephritic Abscess D E Beard —p 86

Complications of Topical Use of Sulfonamides —Dobes describes reactions which follow the topical use of sulfonamides There is a vesicular reaction, with erythematous, vesicular and sometimes bullous lesions The areas of contact are involved but the eruption may become generalized even though application of the drug is discontinued Eczematoid reaction is characterized by weeping plaques, which usually appear in and around the areas of contact Sometimes bleeding and sanguineous crusts are present Occasionally some vesiculation is noted at the periphery of the plaques In severe reactions a sensitizing eruption called an "id" may appear on distant parts of the body Clinically, the "id' eruption is macular, maculopapular and vesicular The nummular eczema like eruption usually appears after prolonged local use of the sulfonamide drugs The eruption is characterized by oval, circumscribed, infiltrated, weeping patches The lesions frequently appear as if studded with droplets of serum There is a dermal, epidermal sensitivity in which the eruptions are varied in appearance and severity and may give a picture of a typical drug eruption The treatment of eruptions due to sulfonamides should always be simple and soothing When a reaction occurs the drug should be discontinued Ultraviolet rays and roentgen rays are contraindicated because sulfonamides are photosensitizing drugs The use of sulfonamide drugs for local application should be discouraged and the free sale over the drug store counter should be prohibited

Iowa State Medical Society Journal, Des Moines

37:97-144 (March) 1947

Acute Hepatitis D A Glomset —p 107
Evaluation of Allergy in General Practice L J Dimsdale —p 114
Ligation of Ductus Arteriosus with Superimposed Subacute Bacterial Endocarditis Report of Case Treated Successfully by Ligation E J Drew —p 117
*Tuberculosis of Breast M C Wheelock —p 119
Baldridge Beye Prize Award Thesis for 1946 Rh Factor and Physiologic Jaundice of Newborn K McGuire —p 121

Tuberculosis of Breast.—Tuberculosis of the breast occurs probably once for every hundred cases of carcinoma Pregnancy and lactation are thought to be predisposing factors It is usually unilateral and rarely exists in association with carcinoma The condition should be considered in the differential diagnosis in the presence of a sinus in the breast, a retracted nipple, a diffuse nodularity with increase of fibrous stroma and with enlarged lymph nodes Drainage from a sinus tract should be studied Since 1938 2 proved cases of tuberculosis of the breast have been observed at the University Hospitals in Iowa City In both of these there existed an underlying pulmonary tuberculosis, and 1 of the women has already died Tuberculosis of the breast is usually primary, develops by direct invasion, and usually involves the regional lymph nodes. The disease does not undergo regression, has no complications and is treated successfully by radical mastectomy.

Journal of Allergy, St. Louis

17:187-254 (July) 1946

Reactions to Antipneumococcal Rabbit Serum: II. Failure to Absorb Sensitizing Antibody by Kieselguhr, Fullers' Earth, Berkefeld Filtrations and Aluminum Hydroxide. O. Swineford Jr.—p. 187.

Id.: III. Effects of Varying Amounts of Pneumococcal Polysaccharide on Reversed Passive Anaphylaxis in Guinea Pigs. IV. Simple Roughly Quantitative Method of Measuring Circulating Polysaccharide. H. R. Pearsall, S. L. Eversole and O. Swineford.—p. 190.

Leukocyte Fragility in Transitory Leukopenia. T. L. Squier.—p. 197.

Some Antianaphylactic and Antihistaminic Properties of N'Pyridyl, N'Benzyl, Dimethylethylenediamine Monohydrochloride (Pyribenzamine). C. E. Arbesman, G. F. Koepf and G. E. Miller.—p. 203.

Clinical Experiences with New Antihistaminic Drug. C. H. Eyermann. —p. 210.

Histamine Antagonists: II. Summary of Developments in Nonspecific Inhibition of Histamine, Anaphylaxis and Allergy. S. M. Feinberg. —p. 217.

General Adaptation Syndrome and Diseases of Adaptation. H. Selye. —p. 231.

17:255-328 (Sept.) 1946

Hypersensitivity to Infectious Agents in Relation to Asthma. H. W. Scherp.—p. 255.

Surgical Management of Infectious Asthma. F. D. Woodward.—p. 260.

Use of Oral Penicillin in Treatment of Bacterial Asthma: Preliminary Report. Frieda Baumann, Jean Crump, Ann Catherine Arthurs, L. D. Seagar and Ruth E. Miller.—p. 265.

Chronic Toxicity of N'Pyridyl, N'Benzyl, Dimethyl-Ethylenediamine Monohydrochloride (Pyribenzamine). G. F. Koepf, C. E. Arbesman and Claudia Munafo.—p. 271.

Clinical Studies with N'Benzyl, Dimethyl-Ethylenediamine Monohydrochloride (Pyribenzamine). C. E. Arbesman, G. F. Koepf and A. R. Lenzner.—p. 275.

Studies to Determine Ability of Tyrothricin to Sensitize Skin. M. Grolnick.—p. 284.

General Adaptation Syndrome and Diseases of Adaptation. H. Selye. —p. 289.

Journal of Bacteriology, Baltimore

53:1-128 (Jan.) 1947

Studies on Nutritional Requirements of Brucella Suis. W. G. McCullough, R. C. Mills, E. J. Herbst, W. G. Roessler and C. R. Brewer. —p. 5.

Penicillin Assay Technics: Comparative Study. R. E. Dolkart, F. L. Dey and G. X. Schwemlein.—p. 17.

Influence of Subculture and of Streptococcal Extracts on Growth Rates of Hemolytic Streptococci. T. Lewandowski and G. L. Stahly.—p. 25.

Simple Medium for Maintenance of Meningococci. M. Levine and A. R. Thomas Jr.—p. 33.

Melibiose Broth for Classifying Yeast. C. E. Skinner and R. Bouthilet. —p. 37.

Identification of Spore Forming Bacteria Isolated from Incompletely Sterilized Agar. N. R. Smith.—p. 45.

Electron Microscope Studies of "Interference Phenomena" Between Bacterial Viruses of Escherichia Coli Group. M. B. Baylor and G. L. Clark.—p. 49.

Assay of Antibiotic Mixtures. F. J. Rudert, B. A. Kenner and M. J. Foter.—p. 57.

Inactivation of Influenza Virus by Certain Vapors. T. C. Grubb, Marie L. Miesse and B. Puetzer.—p. 61.

Conditions Contributing to Streptococcal Virulence: II. Intraphasic Attenuation by Sulfanilamide. P. Hadley and Verna Wetzel.—p. 67.

Nutritional Requirements of *Bacillus Alvei* and *Bacillus* Para-Alvei. H. Katznelson and A. G. Lochhead.—p. 83.

*Cultivation of Bacterium Tularense in Embryonated Eggs. Cora M. Downs, L. L. Coriell, S. S. Chapman and Alice Klauber.—p. 89.

Actinomycetin. M. Welsch.—p. 101.

Viability of Heat Activatable Spores in Nutrient and Nonnutrient Substrates as Influenced by Prestorage or Poststorage Heating and Other Factors. H. R. Curran and F. R. Evans.—p. 103.

Effect of Certain Mineral Elements on Production of Penicillin in Shake Flasks. H. Koffler, S. G. Knight and W. C. Frazier.—p. 115.

Cultivation of Bacterium Tularense in Eggs.—Downs and her associates attempted to determine whether Bacterium tularense, when grown in the presence of living cells in embryonated eggs, might be a better antigen than when grown in vitro. They found that Bact. tularense multiplies abundantly in the tissues and fluid of the embryonated chicken or duck egg. Multiplication is greatest in the yolk sac, particularly after yolk sac inoculation. The virulence affects the multiplication of the organism in the embryonated egg and the survival of the embryo. The less virulent strains of Bact. tularense did not multiply as abundantly as the virulent organisms. Serial passage of virulent Bact. tularense through eggs increased the virulence of the organism for chick embryos but not for mice. Storage in the frozen state or in the cold did not modify the virulence of the surviving organisms, but the percentage of organisms surviving after three months was relatively small, amounting to 1 per cent of the original number of organisms present.

Journal of Clinical Investigation, Boston

25:*781-950 (Nov.) 1946*

Demonstration of Toxic Factor in Blood of Rats Shocked by Burn. M. Prinzmetal, H. C. Bergman and H. E. Kruger.—p. 781.

Action of Histamine on Respiratory Tract in Normal and Asthmatic Subjects. J. J. Curry.—p. 785.

Effect of Antihistamine Substances and Other Drugs on Histamine Bronchoconstriction in Asthmatic Subjects. J. J. Curry.—p. 792.

Complement in Infectious Disease in Man. E. E. Ecker, S. Seifter, T. F. Dozois and L. Barr.—p. 800.

Complement and Isohemagglutinins in Urinary Proteins. S. Seifter and E. E. Ecker.—p. 809.

Electrophoretic Isolation of Circulating Anticoagulant. F. L. Munro and Muriel Platt Munro.—p. 814.

Comparison of Cephalin-Cholesterol Flocculation and Thymol Turbidity Tests in Patients with Experimentally Induced Infectious Hepatitis. W. P. Havens Jr. and Ruth E. Marck.—p. 816.

*Metabolic Studies in Louse-Borne Typhus: Observations on Serum Electrolyte Pattern. Serum Protein Partition and Nitrogen Balance. N. A. Tierney and A. Yeomans.—p. 822.

Circulating Red Cell Volume Measured Simultaneously by Radioactive Iron and Dye Methods. J. G. Gibson 2d, W. C. Peacock, A. M. Seligman and T. Sack.—p. 838.

Distribution of Red Cells and Plasma in Large and Minute Vessels of Normal Dog, Determined by Radioactive Isotopes of Iron and Iodine. J. G. Gibson 2d, A. M. Seligman, W. C. Peacock and others.—p. 848.

Comparison of Effects of Massive Blood Transfusions and of Liver Extract in Pernicious Anemia. C. S. Davidson, J. C. Murphy, R. Janet Watson and W. B. Castle.—p. 858.

Chemical, Clinical and Immunologic Studies on Products of Human Plasma Fractionation: XXXII. Coagulation Defect in Hemophilia. In Vitro and In Vivo Comparison of Normal and Hemophilic Whole Blood, Plasma and Derived Plasma Protein Fractions. Jessica H. Lewis, C. S. Davidson, G. R. Minot, and others.—p. 870.

Id.: XXXIII. Coagulation *Defect in Hemophilia: Effect in Vitro* and in Vivo on Coagulation Time in Hemophilia of Prothrombin and Fibrinogen Free Normal Plasma and Its Derived Protein Fractions. Jessica H. Lewis, J. P. Soulier and F. H. L. Taylor.—p. 876.

Studies on Hyperventilation: II. Electrocardiographic Changes in Normal Man During Voluntary Hyperventilation. B. C. Christensen.—p. 880.

Measurements Related to Pain in Neurocirculatory Asthenia, Anxiety Neurosis or Effort Syndrome: Levels of Heat Stimulus Perceived as Painful and Producing Wince and Withdrawal Reactions. W. P. Chapman, M. E. Cohen and S. Cobb.—p. 890.

*Renal Reabsorption of Chloride and Phosphate in Normal Subjects and in Patients with Essential Arterial Hypertension. Edith B. Farnsworth.—p. 897.

Metabolic Studies in Louse Borne Typhus.—Tierney and Yeomans studied patients with typhus admitted to the United States of America Typhus Commission ward during the first two weeks of their disease. The diagnosis of louse borne typhus was confirmed in all of these cases by the Weil-Felix and complement fixation tests. A study of the electrolyte pattern of the serum revealed that early in the disease the chlorides were low in 62 per cent of the cases, but with few exceptions the carbon dioxide content was normal. The p_H was normal in all the patients except 1 who had renal failure and acidosis. The total base was normal in all the cases studied except 1. In all instances the undetermined acid anions were increased, and in the majority of cases they were as great as in severe metabolic acidosis. The total serum proteins were normal in approximately 75 per cent of the patients, but the majority showed a depression of the albumin fraction and a very striking elevation of the globulin fraction. The increase in globulins represented a percentage increase of over 40 in the average case. There was no relationship between nitrogen output and intake or between protein destruction and azotemia. A high protein, high caloric diet decreased nitrogen wastage and loss of body weight during the acute phase of typhus. Positive nitrogen balances were obtained in 5 cases.

Renal Reabsorption of Chloride and Phosphate in Hypertension.—Farnsworth studied the filtration rate, renal blood flow and chloride excretion by means of concomitant clearance tests of insulin, diodrast and chloride in a group of normal subjects and a group of patients with "essential hypertension." Protracted studies were done by the same method on a single individual without vascular or renal disease and a patient of corresponding age and sex with well established hypertension.

Tabulation of chloride clearance and urine flow in these groups showed a fixed range of chloride clearance independent of the urine flow in normal persons. In the hypertensive patients the chloride clearance tended to vary directly with the urine flow. Plotting of U/P (urine/plasma) chloride against U/P insulin in the normal cases resulted in a straight line relationship of constant proportion, which in the group study, as in the individual, dropped below U/P chloride values of 1 and approached zero. It was therefore demonstrated that under conditions of extreme diuresis the tubular epithelium actively retracted the chloride from the filtrate, with the theoretical end result that if no water whatever was reabsorbed in the tubules all chloride would be reabsorbed and the urine would be a chloride free filtrate unmodified with respect to inulin. In order to explore the application of this method of analysis, phosphate values on the same case were similarly calculated and graphed. Phosphate was found to behave like a nonthreshold substance the U/P ratio of which declined with the U/P inulin to a theoretical value of 1. The U/P chloride in both group and individual hypertension studies was higher at all U/P inulin ratios than the normal curve. Such an alteration in behavior toward chloride represents an impairment of the normal reabsorption mechanism.

Journal of Nutrition, Philadelphia

33:129-250 (Feb.) 1947. Partial Index

Growth Studies with Rats Kept Under Conditions Which Prevent Coprophagy. R. P. Geyer, Beverly Ransone Geyer, P. H. Derse and others.—p. 129.
Copper and Manganese Storage in Rat, Rabbit and Guinea Pig. Evelyn J. Lorenzen and S. E. Smith.—p. 143.
Relation of Corn Products to Requirement of Rat for Dietary Nicotinic Acid. W. D. Salmon.—p. 169.
Effect of Crude Lecithin on Coefficient of Digestibility and Rate of Absorption of Fat. Virginia Augur, Hilda S. Rollman and H. J. Deuel Jr.—p. 177.
Use of Albino Mice to Determine Utilization of Calcium of Dehydrated Carrots and Cabbage. Adelaida M. Bendaña-Brown and B. H. Brown. —p. 195.
Amino Acids in Urine of Human Subjects Fed Eggs or Soy Beans. Betty F. Steele, H. E. Sauberlich, May S. Reynolds and C. A. Baumann.—p. 209.
Effect of Cooking and Curing on Lysine Content of Pork Luncheon Meat. O. H. M. Wilder and H. R. Kraybill.—p. 235.
*Influence of Pteroylglutamic Acid (Member of Vitamin M Group) on Absorption of Vitamin A and Carotene by Patients with Sprue. W. J. Darby, Margaret M. Kaser and E. Jones—p. 243.

Influence of Pteroylglutamic Acid on Absorption of Vitamin A in Sprue.—Darby and his associates review observations on 4 patients with sprue who were treated with doses of either 5 or 15 mg. daily of pteroylglutamic acid administered either orally or intramuscularly. None of the patients received supplements of carotene or vitamin A, and there has been no effort to alter their usual diets. It was found that the low serum carotene levels observed in relapse were gradually increased following therapy. The carotene returned to its previous low level during the relapse of 1 patient following withholding of pteroylglutamic acid and again rose after a second period of therapy with pteroylglutamic acid. Following therapy with pteroylglutamic acid an improved ability to absorb vitamin A is indicated by a rise in serum vitamin A following the administration of an oral test dose. The fact that this curve reverted to a typical flat curve during a relapse after the withdrawal of treatment is further evidence of the influence of this factor on the absorption of fat soluble substances. It is suggested that the M group of vitamins, of which pteroylglutamic acid is a member, plays an important role in the normal physiology of the gastrointestinal tract.

Michigan State Medical Society Journal, Lansing

46:145-256 (Feb.) 1947

*Treatment of H. Influenzae Meningitis. H. E. Alexander.—p. 193.
Results from Treatment of Peptic Ulcer. T. G. Miller.—p. 198.
Acute Glomerulonephritis. F. D. Murphy.—p. 204.
Dermatitis Medicamentosa. F. E. Senear.—p. 208.
Psychosomatic Study of Case of Gynecomastia. L. B. Shpiner.—p. 211.
Coloboma of Optic Nerve. H. H. Harms and F. L. Ryerson.—p. 214.

Treatment of Hemophilus Influenzae Meningitis.—Alexander states that streptomycin is the most effective single antibacterial agent against Hemophilus influenzae. Since it is bactericidal, its action is rapid and effective against large bacterial populations, both in vivo and in vitro. Streptomycin, like all other single therapeutic agents, is limited if the infection is of sufficient severity; resistance of the organisms is the chief cause of failures. Experimental evidence and response in 1 patient suggest that this defect may be overcome if sulfadiazine is used in conjunction; the two agents have different modes of action, and therefore organisms resistant to one can be expected to be sensitive to the other. Whether in some patients specific antiserum is needed cannot be answered from the limited experience. There is suggestive evidence that the incidence of residual cerebral damage is less when all three therapeutic agents are used together initially rather than in sequence after a trial of each separately.

Minnesota Medicine, St. Paul

30:1-120 (Jan.) 1947

Endocrine Therapy. E. H. Rynearson.—p. 33.
Country Medicine—Past, Present and Future. G. E. Sherwood.—p. 37.
Newer Methods in Treatment of Hyperthyroidism. A. S. Jackson.—p. 39.
Internal Derangement of Knee. M. B. Coventry.—p. 42.
Rectal Impalement: Report of Unusual Case. C. T. Eginton.—p. 45.
Chylothorax: Pregnancy in an Arrested Case. G. Edlund.—p. 47.
Observations on a Mild Form of Epilepsy. C. M. Jessico, K. H. Finley and T. W. Richards.—p. 49.
Uses of Radon Ointment. R. E. Fricke.—p. 52.

New England Journal of Medicine, Boston

236:223-264 (Feb. 13) 1947

Rehabilitation of Patients Totally Paralyzed Below Waist, with Special Reference to Making Them Ambulatory and Capable of Earning Their Living: III. Tidal Drainage, Cystometry and Bladder Training. D. Munro.—p. 223.
Results of Surgical Treatment in Graves's Disease. W. P. Vander Laan and O. Swenson.—p. 236.
Infantile Cortical Hyperostoses: Report of Case. R. K. Whipple.—p. 239.
Syphilis. G. M. Crawford.—p. 243.
Tuberculous Meningitis: Miliary Tuberculosis of Lungs.—p. 251.
Metastatic Epidermoid Carcinoma of Liver, Primary Source Undetermined.—p. 255.

236:265-304 (Feb. 20) 1947

Treatment of Injuries to Knee Joint. C. R. Murray.—p. 265.
*Results of Bilateral Supradiaphragmatic Splanchnicectomy for Arterial Hypertension. M. M. Peet.—p. 270.
*Penicillin in Treatment of Gonorrhea in Women: Results of Treatment as Reported by Twelve Cooperating Venereal Disease Clinics in Massachusetts During 1945. G. E. Perkins and H. N. Brewster.—p. 277.
Medical Progress: Syphilis (concluded). G. M. Crawford.—p. 280.
Brain Tumor, Probably Oligodendroglioma.—p. 289.
Acute Sinusitis, Bacterial Endocarditis, Multiple Infarcts and Abscesses of Brain.—p. 291.

Subdiaphragmatic Splanchnicectomy for Arterial Hypertension.—Peet states that the least extensive splanchnicectomy is the subdiaphragmatic type of Adson and Craig. The bilateral supradiaphragmatic splanchnicectomy that Peet has been carrying out for the past thirteen years is much more extensive. Somewhat more complete is the denervation practiced by Smithwick, which combines the two mentioned operations. A much more extensive denervation is produced by the nearly total sympathectomy of Grimson. At Peet's clinic bilateral subdiaphragmatic splanchnicectomy has been done on more than 1,500 patients. He does not think that additional denervation is necessary. The majority of the patients have been followed for from one to twelve years since the operation. Symptomatic relief has been striking. Excruciating headaches, usually suboccipital, nervousness and irritability, insomnia and distressing palpitation have been greatly relieved or completely eradicated in 86 per cent of the patients still living. This percentage of improvement has persisted almost unchanged over postoperative periods of five to twelve years. Such symptomatic relief is not necessarily dependent on a significant lowering of the blood pressure or improvement in cardiac or renal function. The blood pressure, both systolic and diastolic, was significantly reduced five to twelve years after splanchnicectomy in 81.3 per cent of the patients still living. The funduscopic findings in cases that before operation showed angiospastic retinitis with or without hemorrhages or exudates now show absence of angiospasm, hemorrhages or exudates in 82 per cent. The cardiac status showed a similar improvement. The renal function following splanchnicectomy has shown definite improvement both in water concentrating ability and in urea clearance. Relief of incapacitation and probable prolongation of life are reported The relief afforded by bilateral splanchnicectomy is demonstrated on the basis of 3 typical case reports.

Penicillin for Gonorrhea in Women.—Perkins and Brewster report data collected from twelve clinics that cooperate with the Division of Venereal Diseases, Massachusetts Department of Public Health The study includes information on gonorrhea in women who had been treated with varying courses of intramuscular injections of an aqueous solution of penicillin Two hundred and thirty-four courses of treatment were given in 200 cases The best results were obtained by the use of 150,000 units or more of penicillin divided into three equal doses spaced two hours apart.

Occupational Medicine, Chicago

2:531-678 (Dec) 1946

Symposium on Working Capacity

Respiratory and Circulatory Capacities of Normal Men D B Dill —p 531.
Nutrition and Capacity for Work A Keys —p 536
Industrial Pulmonary Diseases and Capacity for Work. G W Wright —p 546
Heart Disease and Working Capacity in Industry P D White —p 550
Medical Treatments in Gulf Coast Shipyards C M McGill and H. P Brinton —p 558

Symposium on Fitness for Work

Essential Factors for Health and Fitness M Fishbein —p 566
Need for Campaign for Physical Fitness R H Eanes —p 572
Does American Education Produce Physically Fit Workers? D F Smiley.—p 581
Evaluation of Fitness Ruth E Boynton —p 587
Psychosomatic Elements When Foreman Is "Pain in the Neck" C C Burlingame —p 593
Conserving Health of Management E F Lutz —p 599

Philippine Medical Association Journal, Manila

22:365-408 (Sept) 1947

Stillbirths and Neonatal Deaths in Philippine General Hospital After Liberation H Acosta Sison and J. Villanueva —p 365
Adequacy of Postwar Diet of Filipino Wage Earners in City of Manila I Concepcion —p 371
Tetrachlorethylene Treatment of Ancylostomiasis R D Molina and H. A Santos —p 385.
Some Newer Knowledge in Parasitology Review. T P Pesigan, F A Reyes Jr. and M. G. Yorgore Jr —p 389

Surgery, St. Louis

21:155-282 (Feb) 1947

*Experimental Appendical Peritonitis. II Significance of Imbalance of Circulating Fibrinolytic and Antifibrinolytic Factors in Course of the Disease. J. H. Kay and J. S Lockwood —p 155
Coexistent Duodenal Ulcer and Gastric Malignancy. A Fischer, O T. Clagett and J R. McDonald —p 168
*Use of Streptomycin in Surgical Patients H A Zintel, M Wiley, A Nichols and J E Rhoads —p. 175
*17 Ketosteroids in Diagnosis of Adrenal Tumors. H T. Johnson and R M Nesbit —p 184
Retroperitoneal Teratoma Successfully Removed from 15 Month Old Negro Girl C M. O'Leary and B Halpert —p 194
Delayed Suture of War Wounds L Rosenfeld —p 200
Plasma Cell Mastitis. E A Gaston —p 208
Secondary Damage in Wounding Due to Pressure Changes Accompanying Passage of High Velocity Missiles E N. Harvey, I M Korr, G Oster and J. H. McMillen —p 218
Treatment of Acute Appendicitis Superimposing Severe Exophthalmic Goiter. I D Puppel —p 240.
Malignant Soft Tissue Tumors of Lower Extremities: Radical Conservative Technic of Wide Excision and Skin Grafting Without Amputation, Report of 5 Cases H W. Muller Jr and H N Harkins —p 245
Controlled Suction Apparatus for General Surgical Use. C. J Bellis —p 254.
Surgery of War Wounds of Abdomen Review of 100 Consecutive Patients, Operated on by Single Surgical Team, Working in Forward Areas in the European Theater of Operations L Sperling, L H. Bosher and H Zimmerman —p. 258.

Experimental Appendical Peritonitis.—Kay and Lockwood produced experimental peritonitis in 128 dogs by ligation of the base of the appendix. The significance, in respect to survival, of the balance of fibrinolytic and antifibrinolytic factors in the blood of 37 of these dogs has been investigated. There was evidence of spontaneous lysis of plasma fibrinogen, and fibrin occurred with much greater frequency in animals which died than in 16 animals which survived. Lysis invariably occurred in samples drawn within twelve hours preceding death Sharp fluctuations in available fibrinogen nitrogen were observed during the course of the disease in all the animals The correlation between fibrinogen nitrogen levels and the activity of fibrinolytic factors is not clearly established. Animals which survive show levels of fibrinogen nitrogen approximately 65 per cent greater than preoperative values The fibrinolytic activity of chloroform treated serum was significantly higher in dogs which died than it was in dogs which survived. The preoperative administration of trypsin in amounts sufficient to build up the antiproteolytic activity of the serum had a significant influence on survival Only 1 of 15 animals so treated died, which contrasts with a mortality rate of 41 7 per cent in the 91 control animals Neither penicillin nor heparin was of therapeutic value in experiments on small groups of dogs

Streptomycin in Surgical Patients.—According to Zintel and his associates, streptomycin has exerted a beneficial influence on the course of experimental peritonitis in 5 dogs, as compared with 5 control animals which did not receive special medication, but its therapeutic effect was not as great as that observed in 5 dogs which were given a combination of sulfonamides and penicillin Streptomycin administered in doses of 1 0 Gm per day to 15 patients for periods of from six to ten days appeared to be a very effective agent in reducing the bacterial count in stools It reduced the coliform organisms to a greater degree than succinylsulfathiazole and reduced Streptococcus fecalis and Clostridia to a much greater extent

17-Ketosteroids and Adrenal Tumors.—Johnson and Nesbit report 3 proved cases of adrenal cortical carcinoma in a woman aged 31, in a girl aged 2 and in a man aged 43, associated with elevated total 17-ketosteroid excretion in which fractionation into alpha and beta portions has been of definite value in the differential diagnosis. It is concluded that the determination of the urinary 17-ketosteroid excretion is of differential diagnostic value in masculinizing syndromes and that an elevated total 17-ketosteroid excretion with an abnormal increase in the beta fraction is strongly suggestive of adrenal cortical carcinoma.

Texas State Journal of Medicine, Fort Worth

42:513-566 (Jan) 1947

Infectious Hepatitis M. H. Barker.—p 521.
Principles of Reconstruction of Defects About Face. T. G Blocker Jr. —p 526.
Restoration of Hand. J. R Cochran —p 532.
Immediate Repair of Severed Tendons, with End Result in 140 Cases H. Poyner.—p 534.
Marcus Gunn Phenomenon V. A Black —p. 538
Is Mass Serology Worth While? J. F. Pilcher —p. 540
Experiences of Medical Officer in a Japanese Prison. E. P. Reed —p 543
Purpose and Value of Standard Health Unit G A. Gray —p 547.

42:567-620 (Feb) 1947

Diagnosis and Treatment of Anemias W. C Levin —p 573
Penicillin Therapy in Congenital Syphilis. Dorothy B Wyvell —p 578
Hypo Leydigism and Hypopituitarism J. A Greene —p 583.
Perianal and Perirectal Infections J. McGivney —p 587.
Uterosalpingography: Report of Fatality. A M. Faris and A McMurrey. —p 592
X Ray Exposure Meters and Automatic Exposure Timers L M Garrett. —p 597.
Problems of Congenital Cataracts. H. L. Hilgartner.—p 602

Western J. Surg., Obst. & Gynecology, Portland, Ore.

55:81-146 (Feb) 1947

Chronic Salpingitis H. N. Shaw and J Gaspar.—p. 81.
Primary Extrarenal Hypernephroma: Discussion of Sites and Origins, and Report of Case E P. Lasher Jr —p. 87.
Sympus Apus: Case Report L H. Biskind and Anna M. Young —p 94
Exsanguinating Hemorrhage in Peptic Ulcer. D. Metheny and D. M Green —p 97.
Hydrogen Ion Concentration (pH) of Normal Vaginas. K. J. Karnaky —p. 103
X Ray Irradiation to Promote Ovulation J O. Haman —p 107
Importance of Liver in Reproductive Physiology. S J. Glass —p 114
Treatment of Azoospermia by Vasoepididymal Anastomosis L Michelson —p 120
Recent Advances in Abdominal Surgery. W. H. Snyder Jr.—p 129

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, Liverpool

40:265-506 (Dec.) 1946. **Partial Index**

Intracutaneous Test in Cutaneous Leishmaniasis. A. Dostrovsky and F. Sagher.—p. 265.
Infectivity to Man of Strain of Trypanosoma Rhodesiense Transmitted Cyclically by Glossina Morsitans Through Sheep and Antelope: Evidence that Man Requires a Minimum Infective Dose of Metacyclic Trypanosomes. H. Fairbairn and E. Burtt.—p. 270.
Relapsing Benign Tertian Malaria Treated with 4430. R. D. C. Johnstone.—p. 330.
Estimation of Paludrine in Urine. J. C. Gage and F. L. Rose.—p. 333.
Mepacrine Metabolism in Recurring Benign Tertian Malaria. M. Brown and J. L. Rennie.—p. 337.
Serologic Analysis of Typhus Cases in India by Weil-Felix, Rickettsial Agglutination and Complement Fixation Tests. D. R. Seaton and M. G. P. Stoker.—p. 347.
Investigations in Chemotherapy of Malaria in West Africa: V. Sulfonamide Compounds. G. M. Findlay, B. G. Maegraith, J. L. Markson and J. R. Holden.—p. 358.
Effect of Muscular Exercise in Hot Moist Environment on Mepacrine Concentrations of Blood, Plasma and Urine. B. G. Maegraith and others.—p. 368.
Excretion of Mepacrine in Feces. B. G. Maegraith and others.—p. 372.
New Approach to Trypanosomiasis. H. Fairbairn and A. T. Culwick, with Statistical Analysis by F. L. Gee.—p. 421.
Use of Avian Malaria for Discovery of Drugs Effective in Treatment and Prevention of Human Malaria: II. Drugs for Causal Prophylaxis and Radical Cure or Chemotherapy of Exoerythrocytic Forms. D. G. Davey.—p. 453.
Absorption and Excretion of Paludrine in Human Subject. B. G. Maegraith, Mary M. Tottey, A. R. D. Adams, W. H. H. Andrews and J. D. King.—p. 493.

Brain, London

69:233-338 (Dec.) 1946

Problem of Disseminated Sclerosis. D. McAlpine.—p. 233.
Heredodegenerative Hemiballismus. Jean Titica and L. van Bogaert.—p. 251.
Striatal and Pyramidal Lesions in Cat. E. G. T. Liddell and C. G. Phillips.—p. 264.
*Traumatic Amnesia. W. R. Russell and P. W. Nathan.—p. 280.
Pupilloconstrictor Pathway and Nerves to Ocular Muscles in Man. S. Sunderland and E. S. R. Hughes.—p. 301.
"Injury Activity" and "Trigger Zones" in Human Nerves. E. Kugelberg.—p. 310.
Simultaneous Bilateral Stimulation of Body in Lesion of Parietal Lobe P. W. Nathan.—p. 325.

Traumatic Amnesia.—According to Russell and Nathan it is now generally agreed that the disorders of consciousness following head injury are usually dependent on neuronal trauma and are rarely due to vascular complications. Many head injuries are accompanied with instantaneous paralysis of brain function. During the period of brain paralysis there can be no registration of surrounding incidents and accordingly there is amnesia for events occurring during this time. The function of memory is usually regained at about the same time at which the last trace of confusion disappears, and the period of post-traumatic amnesia is then at an end. Retrograde amnesia is for events which occurred before the injury while the patient was still fully conscious. The events occurring during this period were often dramatic, yet the injury intervenes and these events are thereby prevented from being retained, or if they are retained they cannot be recalled. The retrograde amnesia is in most cases for only a few moments. The motorist remembers approaching the crossroads, the cyclist remembers losing control on a steep hill or the window cleaner remembers losing his balance. Distant memories return first and loss of memories for the previous few years may be so complete for a time that the patient believes himself to be several years younger. The recovery of this type of memory loss is by shrinkage toward the present time. The long amnestic period recovers not so much according to the relative importance of events forgotten as according to the time before the injury that the events occurred. There is thus a vulnerability of memories which depends directly on their nearness to the injury. A long retrograde amnesia is almost always associated with a long post-traumatic amnesia. A long retrograde amnesia, whether temporary or permanent, occurs after severe neuronal commotion, and severe neuronal commotion has a much more damaging effect on erasing recent than remote memories.

British Journal of Dermatology and Syphilis, London

59:45-84 (Feb.) 1947

Evipan Used in Investigation of Some Chronic Dermatoses. L. Forman.—p. 45.
*Case of Multiple Cutaneous Horns in Young Girl. Jean Walker.—p. 54.
Cutaneous Leukemic Deposits Supervening on Herpes Zoster in Case of Chronic Lymphatic Leukemia. J. F. Wilkinson.—p. 57.
Secondary Syphilis, Sickling, Malaria, Sulfonide and Herxheimer Reactions in African Soldier. R. R. Willcox.—p. 59.

Multiple Cutaneous Horns in a Young Girl.—Walker reports that at the age of 2 years a girl who came of a poor white nomadic farming family in Southwest Africa had an eruption on the lesions of which horns began to grow. Each horn persisted for about eight months, grew 1 to 5 inches in length, and then fell off. Successive crops of these horns have appeared on the skin for the last fifteen years and she has never been free from them. One of the hyperkeratotic patches on the leg was treated with contact x-rays; the result was some scarring and no tendency to recurrence at that site. On the theory of psoriasis, solution of potassium arsenite was given by mouth. The application of Adamson's tar ointment to the body lesions and an ointment containing oil of cade 12 per cent with ammoniated mercury to the palms and soles prevented the growth of horns and hyperkeratotic patches for the five months during which she stayed in hospital.

Indian Medical Gazette, Calcutta

81:449-504 (Nov.) 1946. **Partial Index**

Comparative Value of Some Methods of Treatment in Cases of Tropical Ulcer. K. P. Hare.—p. 449.
Crude and Refined Liver Extract in Nutritional Macrocytic Anemia. J. C. Patel.—p. 452.
Study of Liver Diseases: Correlation of Clinical and Liver Function Studies with Liver Biopsy. P. N. Wahi and M. G. Chakravarti.—p. 454.
Basal Metabolic Studies in the Punjab. L. C. Khanna and S. S. Manchanda.—p. 458.
Amebic Granuloma (Ameboma) of Large Intestine. D. G. Reddy and C. M. Rangam.—p. 463.
*Plague Meningitis. E. G. H. Koenigsfeld and K. P. S. Nambiar.—p. 474.

Plague Meningitis.—Koenigsfeld and Nambiar report 2 cases of plague meningitis which they observed among 41 instances of plague. Diagnosis of plague meningitis was confirmed in a woman aged 47 by the detection of Pasteurella pestis in a culture of the lumbar puncture fluid obtained on the day before death. Lumbar puncture was not performed on a girl aged 7, and the diagnosis was made on clinical grounds. The symptoms were due to a meningitis. Head retraction and opisthotonos indicated severe meningeal irritation, which, in the opinion of the authors, could be explained only by an acute breakdown of the blood-cerebrospinal fluid barrier, if not for the Pasteurella itself, so at least for the toxins. In both cases the meningeal signs occurred after some initial improvement. Both patients seemed to respond favorably to sulfonamides and succumbed at a comparatively late stage of the disease. Sulfadiazine probably lessened the virulence of the germ without rendering it entirely harmless, with the effect that the disease took a more chronic course and meningitis had time to develop. If this conclusion is correct, more cases of plague meningitis may be observed in the near future, as sulfonamides are now in general use in the treatment of plague.

Medical Journal of Australia, Sydney

1:161-192 (Feb. 8) 1947

Place of Manipulative Treatment in Therapy. J. M. Mennel.—p. 161.
Physical Medicine and Its Application to Common Complaints. F. May.—p. 164.
Pituitary Gland and Carbohydrate Metabolism: Part II. The Anterior Lobe. A. B. Corkill and J. F. Nelson.—p. 172.
Heteroscopic Pregnancy: I. Clinical Importance of Rh Factor. P. M. de Burgh, Ruth A. Sanger and R. J. Walsh.—p. 174.

Practitioner, London

158:97-184 (Feb.) 1947. **Partial Index**

Chronic Otitis Media. I. S. Hall.—p. 97.
Infections of Mastoid. J. H. Cobb.—p. 102.
Otosclerosis. T. Cawthorne.—p. 109.
Otitis Externa. D. W. Ashcroft.—p. 115.
Ménière's Disease. M. E. S. Harrison.—p. 121.
Hearing Aids for the Deaf. A. W. G. Ewing.—p. 129.

Presse Médicale, Paris

55:77-88 (Feb. 1) 1947

*Surgical Treatment of Sjögren's Syndrome (Dry Eye and Mouth): Results at End of Twenty-Eight Months of Double Section of Vertebral Nerve; Nature of Disease. R. Leriche.—p. 77.
Physiopathology of Hormonal Osteoporoses. A. Lichtwitz.—p. 78.
Extrapleural Detachment of Pulmonary Adhesions Under Control of Pleuroscope: (Michetti's Operation). I. Braillou.—p. 80.

Surgical Treatment of Sjögren's Syndrome.—A woman aged 50 had been troubled with dry mouth for a decade. Her eyes were dry and she had small areas of telangiectasia in her face. She was in the habit of carrying a small flask of water to moisten her mouth occasionally and also an eye wash to moisten her eyes. Examination was essentially negative. Leriche suspected an atypical scleroderma. He decided to try sympathetic infiltration, hoping that the resulting hyperemia would reactivate the lacrimal and salivary glands. This woman apparently had Sjögren's syndrome, but the author did not identify it as such at the time, not having learned about this condition until later. In the course of several days, various procaine infiltrations (stellate-pericarotid) were made and since they induced the desired changes, sympathectomy was decided on. First the roots of the vertebral nerve were cut and a substellate segment of the cervical chain comprising the intermediate ganglion was removed. The resulting improvement on the right side induced the author to perform sympathectomy also on the left side. The disagreeable dryness of eyes and mouth disappeared. The improvement persisted for about two years, when the woman died as the result of a hemorrhagic purpura. The author suggests that, although the results were good, it might possibly be better to attack the middle part of the cervical chain.

Revista de Urologia, Mexico, D. F.

4:483-518 (Sept.-Oct.) 1946. Partial Index

*Roentgen Therapy in Plastic Induration of Penis (Peyronie's Disease). R. Sanchez Cordero.—p. 495.

Roentgen Therapy in Plastic Induration of Penis.—Five out of 7 patients between the ages of 35 and 60 with plastic induration of the penis were given roentgen applications in doses which varied from 250 to 400 roentgens every two weeks up to a total dose of from 1,500 to 2,500 roentgens. The other 2 patients were treated by radium with a total dose of 1,000 radium units. The results for the entire group were as follows: Three patients were cured, eight to eighteen months after completion of treatment; 2 were improved, which improvement persists up to now, less than one year after completion of treatment; 1 patient was improved only slightly, and 1 patient failed to report.

Acta Medica Scandinavica, Stockholm

126:265-434 (Dec. 20) 1946. Partial Index

Phosphatase Content of Serum in Jaundice. P. van der Meer.—p. 265.
*Hypoproteinemia (Its Frequency, Degree, Nature and Cause, as Elucidated by Examination of 500 Patients with Medical Affections). J. Bing.—p.. 273.
Few Cases of Ethylene Glycol Intoxication. C. Widman.—p. 295.
Case of Uveoparotid Fever (Heerfordt) with Autopsy Findings. K. O. Granstrom, E. Gripwall, C. E. Kristofferson and A. G. H. Lindgren. —p. 307.
Familial Transposition of Viscera, with Preliminary Remarks on Genetics and Correlation with Diseases of Respiratory Tract. J. Torgersen.—p. 319.
Transmission of Hansen's Disease (Leprosy). B. Moiser.—p. 347.
Serum Proteins in Normal People. J. Bing, J. Neser, G. Rasch and K. Røjel.—p. 351.
*Mucin Content of Gastric Juice. P. Brummer.—p. 384.
Tuberculin Negative Cases of Erythema Nodosum or Erythema Exsudativum Multiforme. O. Forssman.—p. 393.
Genesis of Bronchiectasis, an Unappreciated Bronchodilating Force. H. Gladnikoff.—p. 411.

Hypoproteinemia.—Bing studied the problem of hypoproteinemia in 500 patients with medical disorders, whom he examined by means of a rapid glass bead test. The limit of 6 per cent was chosen as the lowest normal value. Hypoproteinemia was detected in 66, or 13 per cent, of the 500 patients. It was somewhat more frequent in males than in females; in most instances it was moderate; only 10 had values lower than 5 per cent. Hypoproteinemia occurs in three forms: (1) as isolated hypoalbuminemia in diseases of the liver and kidneys and in most cases of gastrointestinal cancer; (2) as isolated hypoglobulinemia, which is rare and was observed in 1 patient with chronic lymphatic leukemia; (3) as the simultaneous reduction of the two fractions, which is most frequent and is found in a number of different diseases. The cause of hypoproteinemia may be hydremia, reduced supply, faulty resorption, defective synthesis or a combination of two or more of these causes. There are also cases in which the cause is uncertain.

Mucin Content of Gastric Juice.—Brummer presents a new method of determining mucin, which he employed in tests on 145 persons, 50 of whom were healthy and 95 of whom had various gastric disorders. The mucin content of the gastric juice varied from 0.15 per cent to 1.5 per cent, the average being about 0.5 per cent. After a test meal the mucin content was slightly higher than with an empty stomach. Histamine and insulin, on the other hand, appeared to have no effect on the mucin content. No clear difference was found between the mucin content of persons suffering from gastric disorders of different kinds. It is particularly to be noted that the mucin content of the gastric juice of peptic ulcer and gastritis patients was normal.

Nordisk Medicin, Gothenburg

32:2741-2796 (Nov. 29) 1946. Partial Index

Enterosoluble Gentian Violet Pills: Shellac-Coated Gentian Violet Pills. V. Aalkjær, S. Juhl and S.-A. Junager.—p. 2743.

Finska Läkaresällskapets Handlingar

Neoarsphenamine Rheumatism. C. E. Sonck.—p. 2750.

Norsk Magasin for Lægevidenskapen

*Syndrome of Hepatosplenomegaly in Adults: Review of 76 Cases. H. Rasmussen.—p. 2757.
*Prognosis in Acute Nephritis. Ruth Ramberg.—p. 2764.
Cancer of Rectum. K. Liavaag.—p. 2768.
Collapse Due to Glyceryl Trinitrate. O. Storstein.—p. 2772.
Fatal Agranulocytosis After Sulfathiazole. S. Aarseth.—p. 2774.
Apparatus for Mass Delousing with DDT: Military Medical Report No. 5. L. Kreyberg.—p. 2776.

Hygiea

Examination of Duodenal Juice in Diagnosis of Celiac Disease. O. Somersalo.—p. 2779.

Hepatosplenomegaly in Adults.—Rasmussen discusses 76 cases of the syndrome, representative of all parts of the country, treated during three years at the Rikshospital. The occurrence of anemia, most often isochromatic, often hyperchromatic, and of leukopenia and thrombopenia, is common to many of the cases. Although the liver is diseased in nearly all the cases, the different tests of liver dysfunction give positive results chiefly in the cases of primary hepatic disease. A case of each of the following is described: (1) juvenile liver cirrhosis with gradual disappearance of most symptoms, (2) liver cirrhosis of Laënnec type with generalized angiofibromatosis, resembling idiopathic sarcoma of Kaposi, (3) lymphoid infiltration of a number of parenchymatous organs, terminating in reticulosarcoma, (4) nonleukemic myeloid hepatosplenomegaly and (5) chronic acetanilid intoxication with hepatosplenomegaly.

Prognosis in Acute Nephritis.—Of 175 patients with acute nephritis treated from 1934 to 1944, 120 were under 25 years of age, 80 of these under 16, and only 11 were between 50 and 75. Ten died during hospitalization, 4 after discharge. Of the 148 followed up 108 are well, 29 are not cured and recurrence nephritis appeared in 11. Ramberg finds that the mortality during the acute phase of the disease is low. The percentage of recovery is highest in the younger age groups. The prognosis is relatively good in patients with hypertension encephalopathy, more unfavorable in cases with grave proteinuria and considerable edema. The acute initial stage was characteristic in patients whom reexamination showed to be well, while in the majority of those not cured the nephritis had begun insidiously without acute infectious disease. As in the so-called focal nephritis and the acute exacerbation in chronic nephritis, the incubation time between the introductory infectious disease and the changes in the urine is remarkably short in recurrence nephritis, generally about twenty-four hours, as against from six to sixteen days in regular acute nephritis.

Book Notices

The Principles and Practice of Tropical Medicine. By L. Everard Napier. Cloth. Price, $11. Pp. 917, with 199 illustrations. Macmillan Company, 60 5th Ave., New York 11, 1946.

This textbook is an unusually complete and useful work covering the important tropical diseases. Its value is greatly enhanced by the inclusion of a well selected bibliography at the end of each chapter. The author, for many years director and professor of tropical medicine of the Calcutta School of Tropical Medicine, has drawn extensively on his own wide clinical and research experience and that of his colleagues. Certain aspects of the presentation therefore are naturally reflections of the Indian scene. These, however, enhance the interest and value of the volume. This is particularly true of the discussions of cholera, kala azar, malaria, plague and the still unsolved problem of the identities of the "tick typhus" fevers of India.

The first fifty-one pages are devoted to the general problems of health presented by tropical residence and include the elements of climatology, hygiene and adaptation. Thereafter the succeeding chapters are a series of standard presentations of individual diseases or related diseases, in each instance preceded by an index giving pagination. The geographic distribution, epidemiology, etiology, pathology, clinical phenomena, treatment and control measures are discussed in adequate detail. Much of historical interest is incorporated in the text, and some of the epidemologic features and problems are presented in an unusually interesting fashion.

The discussions of treatment are detailed and complete. Much of the new information acquired during the war years is presented critically, for example the usefulness and not less definite limitations of the aromatic diamidines in the treatment of kala azar. While some American clinicians might not agree with certain of the plans for therapy, the author has the great advantage of an unusually broad and comprehensive experience in the practice of tropical medicine in India on which to base his conclusions.

The volume is well organized and well illustrated with drawings, photographs, charts and tables. It is more than usually readable. Descriptions of parasites and life cycles are complete but not emphasized to the point of disturbing the balance of the text as a whole. The subject and author indexes occupying the final forty-eight pages amply provide for ready reference. This volume is particularly suitable as a textbook for graduate students in tropical medicine and is invaluable to the physician and medical teacher with serious interest in this field. It is an extremely important addition to the authoritative textbooks on tropical medicine and cannot be too highly recommended.

Postgraduate Obstetrics. By William F. Mengert, M.D., Professor and Chairman, Department of Obstetrics and Gynecology, Southwestern Medical College, Dallas, Texas. Drawings by Ruth Maxwell Sanders. Cloth. Price, $5. Pp. 392, with 123 illustrations. Paul B. Hoeber, Inc., 49 E. 33d St., New York 16, 1947.

The author in his preface states that the book is written for the physician who is doing general practice and who will deliver some 1,800 women during a lifetime. The material in the book is prorated according to the incidence of the various complications and diseases encountered by such a physician. The physician who performs at the most a hundred forceps and thirty cesarean sections during a lifetime has no business performing any of these operations. The author would have done well to omit the chapter on obstetric forceps, on cesarean section and on craniotomy and vaginal hysterotomy, using the space thus saved for enlargement on breech and version. Postpartum sterilization by the general practitioner should have been omitted. The chapter on sterility and many of the procedures listed under "Laboratory" should have also been omitted as well as the nursing technic, which comprises some ten pages. The author states that at least half of all patients with hyperemesis do not vomit after admission to the hospital. Obviously these patients are not suffering from hyperemesis gravidarum. The author has failed in his attempt to write a book for the general practitioner, who will be served better by one of the standard textbooks on obstetrics.

Essentials of Clinical Proctology. By Manuel G. Spiesman, B.S., M.D., Proctologist, Mt. Sinai and Edgewater Hospitals, Chicago. Foreword by Anthony Bassler, M.D., F.A.C.P., LL.D. Cloth. Price, $4. Pp. 238, with 62 illustrations. Grune & Stratton, Inc., 443 4th Ave., New York 16, 1946.

This volume, which is an outgrowth of lectures on diseases of the anus, rectum and colon given to medical and postgraduate students, apparently is intended to be a handbook, but the brevity with which some of the subjects are treated makes use of the book for this purpose scarcely feasible from a practical point of view. The chapter entitled "Proctitis, Sigmoiditis, Colitis" is especially brief and is little more than a short abstract of the subject.

In his preface the author states that "the following new material and advances in proctology have been incorporated in this book: the use of the sulfa drugs in postoperative bleeding and ulcerative colitis; anesthetic oil in the treatment of pruritus ani, fissure in ano and intractable anal pain; the diagnosis and injection treatment of coccygodynia . . .; combined pentothal and novocain anesthesia in anorectal operations; injection treatment of hemorrhoids and prolapse; lymphopathia venereum, rectal stricture and prestricture (fourth venereal disease); the treatment of anorectal surgical complications; pectenosis and pectenotomy . . .; a clinical application of anorectal anatomy; making anorectal operations less painful; a new anatomical conception of the external sphincter muscle and its surgical management in fistulas; the 'critical angle' and its relationship to anorectal incontinence; a successful operation for pilonidal cyst; a résumé of causes and treatment of constipation and advanced treatment of venereal diseases of the anorectum." A careful study of the subject material of the book fails to reveal any reason for this statement. The medical student and busy general practitioner, however, doubtless would find something of interest in the book if the limitations stated in the preface are kept in mind.

Teen Days: A Book for Boys and Girls. By Frances Bruce Strain. Cloth. Price, $2.75. Pp. 183, with illustrations. D. Appleton-Century Co., Inc., 35 W. 32d St., New York 1, 1946.

This small volume is intended not only for teen agers but for parents and teachers as well. The primary purpose of the author is to allay the fears and uncertainties of this period of life through a more profound appreciation and understanding of adolescence as a transitional stage involving rapid growth and development. The physical, biologic and emotional changes which are apt to be puzzling and disturbing both to the children and to their parents are discussed, with emphasis on individual differences. The book presents a fairly complete picture of the problems of adolescence and at the same time avoids a too detailed discussion of specific subjects. The discriminating choice of material and informal manner of presentation indicate the author's intimate knowledge of teen agers and the questions they are most likely to ask about themselves and their relationships with others.

Detracting from the value of the book are many ill advised and erroneous statements related to medicine, which, on the surface, may be acceptable to the layman yet from the physician's point of view are unscientific. The author's advice to the boy who finds he is going to be a "shorty" is "The first thing to think of is the pituitary gland. In the hands of experienced physicians an extract called pituitrin may give an extra lift to the growth-making forces." The girl suffering from anemia is told to eat "red meats, egg yolk and rich blackstrap molasses." Menstrual cramps "may also be caused by lack of exercise causing tight muscles and they may be caused by poor posture when the ligaments running between the back and the legs tilt the pelvis improperly. Stretching exercises . . . relieve the nerve pressure which causes the pain." For further information the reader is referred to a pamphlet published by the Billig Clinic, Los Angeles. Nutritionists would probably object violently to such statements as "chocolate malted milk is tops for food value and vitamin content. It carries about twice as much as the same amount of whole milk."

It is obvious that a thorough editing of the portion of the book dealing with matters of a medical nature is essential in order to render it suitable for popular consumption.

Ophthalmia Neonatorum: The Problem After Thirty Years of Statutory Notification and Sixty Years of Credé Prophylaxis. By Arnold Sorsby, M.D., F.R.C.S., Research Professor in Ophthalmology, Royal College of Surgeons of England and Royal Eye Hospital, London. With a foreword by Sir Allen Daley, M.D., F.R.C.P., Medical Officer of Health, County of London. Institute of Ophthalmology Monographs No. 1. Paper. Pp. 66, with 11 illustrations. Paul B. Hoeber, Inc., New York 16; London: Hamish Hamilton, Ltd., 1945.

This monograph presents a statistical study of the incidence of ophthalmia neonatorum and subsequent blindness. Sorsby quotes figures of other authors for incidence. From 1934 to 1943 there was visual impairment in 3.4 and blindness in 0.8 per hundred thousand births in England and 2.8 and 0.4 respectively in Scotland. From 1938 to 1942 there was 1 per thousand cases of gonococcic infections with use of silver nitrate and 0.7 with use of other silver salts as prophylaxis. The author presents data on the use of sulfonamide drugs and penicillin in the treatment of disease. He concludes that there is no smaller incidence of ophthalmia neonatorum today than there was twenty-five or even forty years ago, though its incidence as a result of gonococcic invasion is smaller because the silver nitrate does not destroy the other organisms or virus. The incidence of blindness is less. This he attributes to the success with the sulfonamide drugs and penicillin. He believes that the real solution to prophylaxis is the intensive study and treatment of the mother's birth canal before labor. Nothing new has been contributed. The pamphlet is valuable for its statistics and tables.

Pattee's Dietetics. By Alida Frances Pattee. Twenty-Third edition revised by Hazel E. Munsell, Ph.D., and others. Cloth. Price, $3.50. Pp. 736, with illustrations. G. P. Putnam's Sons, 2-6 W. 45th St., New York 19, 1945.

Having reached its twenty-third edition, Pattee's Dietetics has proved its usefulness. The entire book has been either revised or rewritten by Dr. Hazel E. Munsell and by authorities in nutrition, medicine and nursing. The text is well organized and is simply and concisely worded. Because of the experience and training of those who prepared it, it is authoritative. It can serve both as a textbook and as a work of reference and will continue to have wide appeal to all those who deal with the feeding of both well and sick persons regardless of whether they are professionally trained or not. The clearness of the text, which at the same time gives considerable detail, makes this possible. It discusses both the fundamentals of nutrition and its practical application.

To the physician this book commends itself especially as one that he can recommend to intelligent patients or to the families of patients when he wishes to give specialized nutrition instruction. It gives methods as well as the scientific background. In the hands of an intelligent patient the book can save the busy practitioner much time. As a textbook and reference work for student and graduate nurses alike it is extremely useful. It also finds an important place in colleges of home economics and other schools where courses in foods, nutrition and dietetics are being taught.

The book is well illustrated and of convenient size. Its printing is easily read. At the end of each section there are also provocative questions for the student. The appendix contains 76 pages of useful reference material, some of which is difficult to find elsewhere. An unfortunate typographical error was made in table I of the appendix, where mcgm. should read mg. in the ascorbic acid column. In the next edition greater emphasis might well be placed on the importance of optimum nutrition in pregnancy and lactation.

Ambulatory Proctology. By Alfred J. Cantor, M.D., Associate Proctologist, Kew Gardens General Hospital, Long Island, New York. With a foreword by Beaumont S. Cornell, M.D. Cloth. Price, $8. Pp. 524, with 281 illustrations. Paul B. Hoeber, Inc., 49 E. 33d St., New York 16, 1946.

The title of this volume suggests that the author is dealing only with ambulatory proctology. A study of contents of the book, however, reveals practically no difference from the standard type of book which has been written on the subject of diseases of the terminal portion of the colon, rectum and anus. The work has value and shows that the author has devoted a considerable amount of time and study to its preparation. One, however, cannot refrain from regretting that the author included a sketch which depicts the application of an elastic ligature around prolapsed rectal tissue and devoted a portion of the text to a description of so crude a method of treatment. If it is included because it is an ambulatory procedure, it is difficult to conceive that a patient can go around in an ambulatory fashion with part of his rectum protruding and a constricting band of elastic material tied around it so tightly that finally the protruding tissue sloughs off. The author explains his conception of ambulatory proctology in the words "If a proctologist excises a pilonidal cyst, performs an extensive hemorrhoidectomy or amputation of a rectal prolapse and then returns the patient to his home, although not necessarily to bed, that case has been treated by ambulatory proctology." It is evident that the author wishes to call the attention of proctologists to the fact that much treatment can be administered without confining a patient to a hospital. The bibliography is extensive. The author has prepared a book which contains some valuable information on the subject of proctology.

Tutoring as Therapy. By Grace Arthur, Ph.D. Cloth. Price, $1.50. Pp. 125. Commonwealth Fund, 41 E. 57th St., New York 22; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1946.

This small book is rich with the overtones of the author's own vast experience. Parents and educators and others interested in children will like the fine simplicity, brilliant individual design and precision of the author. The rule of the psychologist in diagnosing the difficulty, suggesting the teaching method and checking the progress of the work is clearly shown. The volume is divided into six chapters, on (1) an early experiment, (2) adventures in tutoring, (3) selection, training and supervision of tutors, (4) methods used in remedial teaching, (5) tutoring as therapy and (6) tutoring as a community project.

The closing paragraph of the book states that, "in order for tutoring as a community project to operate successfully, it is necessary for schools, agencies, parents, children, physicians, tutors and supervising psychologist to work together to enable each child to get the kind and amount of teaching he needs to help him take his place as a self-respecting member of the group. The cost of a tutoring program is insignificant as compared with the cost of dealing with delinquent behavior that results when school maladjustment and failure to learn are ignored." This book is geared for a wide and enthusiastic response.

Textbook of Abnormal Psychology. By Carney Landis, Professor of Psychology, Columbia University, New York, and M. Marjorie Bolles. Cloth. Price, $4.50. Pp. 576, with 49 illustrations. Macmillan Co., 60 Fifth Ave., New York 11, 1946.

Within this volume is a great deal of information probably not suited for its intended readers, the undergraduate students. Its failure derives from an attempt to be psychologic and psychiatric and the authors' desire to be medical and assume a broad point of view which they cannot achieve. For the student confusion rather than interest may result from methodically studying the book, although certain chapters may well be used for introductory orientation. Other contemporary works with the same title are superior.

A B C of Medical Treatment. By E. Noble Chamberlain, M.D., M.Sc., F.R.C.P. Oxford Medical Publications. Fabrikoid. Price, $3. Pp. 206. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4, 1946.

This "pocket size" book is divided into several parts: the major part, comprising 142 small pages, is devoted to sketches of the therapy of about 235 diseases of main symptoms; the second largest section comprises 57 pages on diets; then there follows 1 page on dosage for children, 2 pages on penicillin and not quite 4 pages of index. The author states that his purpose in writing the book has been "to provide a brief account of the treatment of the more common medical ailments," and there is ample evidence that both he and his collaborator, a dietitian, have not slighted their task. This is not a book put together in slipshod fashion; indeed, the conciseness of many of the thumbnail sketches it contains is admirable. But one is at a loss to understand what is gained by such an achievement. Surely in our time, when therapeutics is mounting to a place among the more exact and exacting disciplines in medicine, no worthy doctor will be satisfied with the bare, picked skeletons of treatments. Should one be willing to write for the few who will accept the little that this book provides?

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SEVERE PROLONGED DIARRHEA

To the Editor:—A white woman aged 39 began to have severe diarrhea six weeks ago, twenty to thirty movements a day, accompanied with rectal tenesmus and abdominal colic not persistent at one site; the temperature was never over 99.8 F. Two stool examinations were negative for parasites, ova or flagellates, and cultures (including blood cultures) were negative for typhoid, paratyphoid fever and bacillary dysentery. The stool specimens were "practically pure pus,,about 90 per cent polymorphonuclear with a few red cells." Bismuth, kaolin and pectin were ineffectual, but sulfathalidine was satisfactory, and the diarrhea ceased two weeks after the onset. However, the abdominal colic still persists and has become localized in the right iliac region. (Stools have become formed, tenesmus has disappeared.) The colic occurs almost regularly, every three or four days, and seems as severe as biliary or renal colic and is not relieved until an opiate is given. There is rarely emesis with the colic, though there have been three or four attacks of projectile emesis, without colic. Wassermann reaction and urine tests are normal. Sigmoidoscopy was negative. A barium enema was negative except for moderate narrowing of the descending colon, although haustrations were well defined and even increased over haustrations of the ascending and transverse colon. Barium was given orally and there were no findings indicative of regional ileitis. The cecum was abnormally low. A hysterectomy had been performed in 1942 because of uterine fibroids, and a pelvic examination is negative now. (The appendix was removed at the time of the hysterectomy.) Cholecystectomy was performed in 1943 because of stones. There were no complications or sequelae. Would you give an opinion as to the cause of this recurrent severe pain in the right lower quadrant? There is no pain over the kidneys, although sometimes the pain radiates to the vulva. Despite normal urine, is a cystoscopy indicated? In spite of the findings, is this history compatible with a diagnosis of ulcerative colitis?

M.D., New York.

ANSWER.—The severe diarrhea six weeks previous probably was on a pyogenic bacterial basis, since studies for parasites and cultures for the Salmonella group of organisms were negative and the frequency of the bowel movements, the purulent character of the feces and the response to sulfathalidine conform to this impression. While the residual colicky attacks raise the question of a diagnosis of ulcerative colitis, there is insufficient evidence to warrant it. The negative sigmoidoscopy, the absence of gross bleeding at any time, the consistent appearance of normal stools since the diarrhea ceased and the x-ray findings after a barium enema almost rule out this disease. A segmental type of ulcerative colitis is a rare possibility but an unlikely one.

The history does not state whether the patient has any current fever, chills, leukocytosis or other evidence of residual infection. Presumably there are none. However, in view of the severity and purulent character of the preceding diarrhea, one wonders about a lingering infectious process. Perforation and subsequent walling off in the right lower quadrant with an irritating focus could occur after such an initial infection. There is no information concerning the findings. In the presence of an abscess one would expect to find some tenderness, rigidity and a palpable mass. In spite of the disappearance of diarrhea it would be well to check the leukocyte count, repeat the stool cultures, continue search for amebic organisms and repeat the sigmoidoscopy. Amebic infection notoriously lingers in the cecum.

The colic which persisted in the right lower quadrant, it is noted, has differed from the diarrheal colic in that it has been intermittent and localized. Also it required an opiate (dose unstated) for relief. It is not clear whether the earlier colic was so intense. The residual colic with three or four independent attacks of projectile emesis and the rare emesis with colic strongly suggest obstruction of some type. Previous appendectomy rules out consideration of the appendix. The duration of the symptoms excludes a continuous obstruction within the intestine, but an intermittent or partial one remains a possibility. The story lacks any features of the typical sequence of events in bowel obstruction as symptoms of fulness followed by nausea, then vomiting, obstipation, dehydration and fever. As there is no description of physical findings, it is assumed that visible peristalsis, changes in auscultatory findings and distention with tympany were not evident. These considerations and the results of studies after the ingestion of oral barium point against bowel obstruction, ileitis or neoplasm of the small bowel. In view of the history of surgical operations in 1942 and 1943, intermittent mechanical obstruction of some sort remains a possibility.

Since neither jaundice nor acholic stools were described and in view of the cholecystectomy in 1943 and the low location of the pain, biliary tract colic is safely excluded. The location of the pain is atypical too for pancreatitis and pancreatic calculi, and back pain is not mentioned. Calculi evidently were not noted in the course of the x-ray studies.

An ovarian cyst twisted on its pedicle at intervals or inflammation in the right adnexa causing periureteral irritation and spasm seems unlikely in view of the negative pelvic findings.

An intermittent ureteral obstruction due to stone, kinking, spasm, intraluminal growth or extrinsic pressure is suggested by the severity, location and radiation of the pain. The episodes of sudden emesis are common in this condition. The absence of urinary complaints or pain over the kidneys and negative urinalysis do not exclude this diagnosis. It is presumed that the urinalysis included microscopic search for erythrocytes. Were urinalyses repeated soon after attacks of colic? As ureteral colic fits this description, the urinary tract should be investigated. The work-up should include repeat urinalyses after colic, a flat plate and intravenous pyelograms. Cystoscopy and retrograde pyelography may be helpful. If the symptoms persist, laparotomy may be indicated.

FUNGOUS INFECTION OF THE EAR

To the Editor:—A woman aged 45 who lives on a farm has had a persistent fungous infection of the external auditory canal for several years. The fungus is black, and at times a whole colony can be seen as if on a culture plate. Since August 1946 there has been the complication of a chronic draining otitis media. Is there danger of the fungus growing in the middle ear? Mercresin, tyrothricin and 3 per cent gentian violet have been used.

M.D., Ohio.

ANSWER.—It is possible for a fungus to grow in the middle ear. In fact, the fungous growth starting inside the auditory canal may be responsible for the perforation of the drum membrane in the first instance, and for the invasion of the middle ear, according to Gill. However, this is infrequent. Molds may be mixed with pyogenic organisms in chronically infected ears, but the pyogens tend to crowd out the molds.

If the medicaments mentioned in the inquiry have failed, metacresyl acetate with small amounts (1 per cent) of thymol added might be tried. This is introduced on a cotton pledget or gauze wick after careful cleansing of the canal and left in situ for twenty-four hours.

Gill recommends insufflation of boric acid powder containing iodine, thymol and tricresol (1 per cent each) for patients who cannot come for daily treatment. Reeh suggests that such powders have some value "in resistant cases or in chronic otitis media where an associated fungous infection is known or suspected to exist."

Of late, much has been claimed for mixtures of the fatty acids and their salts in liquid powder or ointment form. One example is sodium or calcium propionate-propionic acid mixture.

References:

Gill, W. D., in Jackson, Chevalier, and Jackson, C. L.: Diseases of the Nose, Throat and Ear, Philadelphia, W. B. Saunders Company, 1945, p. 246.

Reeh, M. J.: Treatment of Otomycosis, *Ann. Otol., Rhin. & Laryng.* **51**: 146 (March) 1942.

Newer Fungicides, Queries and Minor Notes, THE JOURNAL, Dec. 7, 1946, p. 893.

PENICILLIN DURING LABOR

To the Editor:—Are there any published statistical studies of the use of penicillin during labor? I have used penicillin three times during labor and in each case there was intrapartum or postpartum death of the fetus. Two were cases of inadequately treated syphilis and in the third case there was temperature elevation of 103 F. twelve hours before the onset of labor, the membranes having ruptured spontaneously several days before. Temperature was normal during labor. It seemed possible that the penicilin may have had a deleterious effect on the fetus.

M.D., Ohio.

ANSWER.—It is well known that penicillin passes through the placenta to the fetus, and it will pass to the fetus as early as the tenth week of gestation. There is no evidence that penicillin is harmful to the fetus; in fact, infants born of syphilitic mothers have been found to be normal, so that the agent is an excellent one for use in the prevention of congenital syphilis.

References to articles in THE JOURNAL:

Woltz, J. H. E., and Wiley, M. M.: Transmission of Penicillin to the Previable Fetus, July 20, 1946, p. 969.

Ingraham, N. R., and others: Penicillin in the Syphilitic Pregnant Woman, March 16, 1946, p. 683.

Goodwin, M. S., and Moore, J. E.: Prenatal Syphilis, March 16, 1946, p. 688.

Ingraham, N. R., and others: The Syphilitic Infant, March 16, 1946, p. 694.

XEROSTOMIA

To the Editor:—A woman aged 47, mother of four children, began to complain of severe dryness of her mouth and lips fifteen years ago, five years after the birth of the last son. Until the present time she has not been able to obtain relief from a variety of treatments, including *estrogenic hormones and stimulation of the salivary glands.* A few weeks ago she consulted a physician in Canada, who recommended *study of* her mouth including her teeth with the idea that the different metals used for fillings might be the cause of this disturbance. Physically the patient does not demonstrate any pathologic lesions in the mouth, nose, throat or elsewhere. Her basal metabolic rate has been slightly below *normal at different times.* Please recommend a course of investigation for this patient and references.

M.D., Michigan.

Answer.—Analysis of the patient described in the query must be based on the assurance of negative local and general organic findings. Xerostomia, or oligosialia, may be noticed only during eating or there may be a constant dryness. Occasionally it may occur with a dryness of the nasal and conjunctival membranes. Specific causes include fever, local oral infection, belladonna and opiate drugs, diabetes mellitus and insipidus, chronic nephritis, local x-ray treatment and "nervous temperament" in the absence of other known cause.

The reflex secretion of saliva involves both the sympathetic and the parasympathetic division of the autonomic nervous system. These can both be affected through higher nerve centers and by drugs. A possible obscure method of producing dry mouth and thirst could be a decrease of the antidiuretic principle secreted by the posterior hypophysis, causing a general diuresis, dehydration and decreased salivation. An adrenergic syndrome is known to affect the nasal circulation in rare cases.

Questions which should be answered include: Is the mouth actually dry? Is there burning or paresthesia? Are the water intake and output and the salt intake normal? Is there glycosuria? Is there any evidence of autonomic imbalance in the heart action, gastrointestinal function or sweating? Has the patient had a neurosis, such as might come from a phobia, or marital and family difficulties? Has any medication been used for years, such as one for constipation, containing belladonna? Does she regularly use an astringent (zinc chloride) mouth wash?

However, in the case described in the query, because of the absence of any pathologic changes, the lack of results from treatment, the age, sex and long duration without other changes, it would seem most probable that the cause is functional or psychosomatic.

Treatment must depend on the results of the analysis. Such simple measures as stopping a pill or a gargle, or the use of a glycerin mouth wash, might be sufficient. The use of nicotinamide injections over long periods could be used if the tongue is not normal. A test of the effect of neostigmine on salivation (the best method available) could be tried both by tablets and by injections. Thyroid could be tried, if not already in use.

The theory that oral symptoms originate from a difference of electrical potentials between fillings of the teeth has not held up well. The symptoms due to such a condition have been described as prickling and burning, usually in certain areas, rather than a dryness.

Specialists who have recently published articles on oral medicine include two Philadelphians, Samuel Bradbury, M.D., Pennsylvania Hospital outpatient department, and Lester W. Burket, M.D., D.D.S., professor of oral medicine, University of Pennsylvania Dental and Post-Graduate schools.

EPINEPHRINE INHALATIONS FOR ASTHMA

To the Editor:—What are indications, dosage and dangers of 1:100 epinephrine inhalations for bronchial asthma in a 4 year old child?

M.D., New York.

Answer.—The indications for inhalation of 1 : 100 epinephrine for bronchial asthma in a 4 year old child are practically the same as for an adult. Such treatment is not as successful in children. Epinephrine inhalations are indicated where quick results are desired, with the minimum of side effects such as is obtained from oral or hypodermic medication, and where self medication offers an advantage. The greatest handicap to its use is the poor cooperation from youngsters of that age. The dosage of inhaled epinephrine is usually measured in terms of the number of compressions of the bulb of the nebulizer. With the usual nebulizer one to six squeezes of the bulb are required to nebulize sufficient drug to produce the desired effect. In practice this is determined for each patient and with each particular apparatus. When the effective dose is determined, this may be repeated in an hour or two. Excessive use of such epinephrine spray may cause sufficient absorption to result in tachycardia and nervousness as with hypodermic injection. It may also produce pharyngeal, nasal and gastric irritation.

INDICATIONS AND DANGERS OF SPINAL AND CAUDAL ANESTHESIA

To the Editor:—What is the status of caudal and spinal anesthesia in obstetrics? Have many hospitals banned its use because of sequelae such as backache or headaches or other untoward reactions? What dangers are there and how well qualified should the physician be who uses the method? Should this procedure be attempted by the general practitioner?

M.D., New York.

Answer.—There has been little change in the status of caudal and spinal anesthesia in obstetrics. Spinal anesthesia has an established place in obstetrics. The use of caudal anesthesia, after the recent tremendous interest and enthusiasm for it, professional and nonprofessional, is finally receding to take its proper place as a method of choice in anesthesia for obstetrics. It has its indications and, just as spinal anesthesia, its dangers. Either method requires technical skill, careful supervision and an adequate knowledge of each technic to lessen such sequelae as backache, headache and paresthesias. When properly administered, the aforementioned sequelae are rare, especially with the low anesthesia usually desired in obstetrics. In many of the larger institutions with adequately trained personnel, caudal and spinal anesthesias are methods of choice. In most hospitals the use of either method by inexperienced personnel is discouraged. In a few it is prohibited. These methods of anesthesia should not be attempted or routinely practiced by the general practitioner.

PROCIDENTIA

To the Editor:—A woman who weighs 300 pounds (136 Kg.) and has had five children now has a bothersome procidentia. She has had a subtotal hysterectomy and after repeated childbirth has little support from the perineum. She has tried wearing a pessary but reports that it is too irritating. Will a perineal repair give relief, or is some other procedure more desirable?

F. M. Middlebrook, M.D., Dalhart, Texas.

Answer.—A woman like the one described in the query might be relieved of symptoms by a Manchester operation combined with the necessary repair of the perineal damage.

BONE GRAFT FOR LEUKEMIA

To the Editor:—A white boy aged 8 years has been hospitalized for leukemia. The attending doctors state that he can live for only a few months. Would a bone graft be of value, for example into one or both tibias?

M.D., Pennsylvania.

Answer.—Transplantation of small amounts of marrow, obtained by sternal puncture from normal, compatible donors, has been tried in the treatment of leukemia but usually without clinical improvement. A five year remission has been reported in 1 patient (Shiro, H. S., and Weiss, H. B.: Acute Monocytic Leukemia, *Am. J. Med.* **1**:307 [Sept.] 1946).

There are no successful reports of bone grafts in leukemia. The danger of hemorrhage and infection makes the operation hazardous.

PREGNANCY AND LIBIDO

To the Editor:—A woman aged 21 has been pregnant for five months (primipara) and complains of complete loss of orgasm during coitus and increasing frigidity. Is this due to the pregnancy? M.D., Bronx, N. Y.

Answer.—As far as known, female animals do not permit coitus during pregnancy. Human beings, of course, do indulge in sexual intercourse during gestation. In most instances there is no interference with the normal libido. In fact, in some instances because of the absence of mechanical contraceptives and the removal of the fear of an unwanted pregnancy the desire and satisfaction are increased. On the other hand, many women lose their sexual desire and ability to have an orgasm and in some instances there is actual revulsion to coitus during pregnancy. In most cases there is a return of normal libido after delivery. If the libido does not reappear, there is usually a psychic reason.

DDT POWDER FOR FLIES

To the Editor:—The problem of use of DDT as it presents itself to Dr. Clarke in Queries and Minor Notes of Jan. 4, 1947 and to many others who use the insecticide can be resolved quickly if this simple method is used: Throw a small quantity of the dry DDT *powder on the floor* at a point where traffic is heaviest. Walking feet will spread the insecticide effectively. Flies will land on the floor often enough to make contact with the poison. Complex solutions and spraying are unnecessary. I have found that a tablespoon of the high concentrate powder thrown on the floor of any army barracks building is exceedingly effective in reducing the living fly population in that building.

J. G. Rosenbaum, M.D., Brecksville, Ohio.

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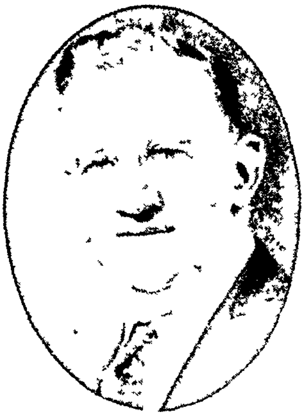

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The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 5 | Chicago, Illinois | May 31, 1947

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THE AMERICAN PHYSICIAN IN 1846 AND IN 1946

A Study in Professional Contrasts

RICHARD H. SHRYOCK, Ph.D.
Washington, D. C.

Centenary celebrations afford a natural occasion for comparisons of the old and the new. The century which has elapsed since the Northern Medical Association of Philadelphia was founded in 1846 was one in which most aspects of civilization changed with unprecedented rapidity, and medicine was no exception to this rule. Hence the contrast between the status and activities of the American physician in 1846 and in 1946 involves much that may seem unusual to the modern observer.

The glance backward may also reveal some things which are of more than antiquarian interest, for certain problems persist even through a century of change. The most commonly aired grievance of American physicians during the 1840's, for example, was the difficulty of collecting fees. "It runs me almost crazy," wrote a successful practitioner about 1840, "to think that with hundreds upon hundreds due me professionally I find the greatest difficulty in raising a simple fifty dollars."[1] No doubt there has been improvement in this respect; but rumor has it that even now there is occasionally some difficulty of this sort, and the whole matter of professional income is involved in current discussions of health insurance. The earlier experience of members of the medical profession with this or with any other persistent problem invites comparisons which may throw light on contemporary situations.

Many who contemplate the past—and who does not do this occasionally?—go to one of two extremes. Some accept uncritically the modern faith in progress and assume that everything was pretty backward until they came along, while others reverse this attitude and succumb to a nostalgia for the good old days. In 1925 a Maine physician wrote this inquiry: "I wonder if the medical man is held in as high esteem, or is as important a factor in the community, as was his confrère a half century ago?" The reply was a negative one: the questioner was convinced that the doctor of 1875 had much the better position.[2]

For a real answer to his inquiry, of course, one must examine the evidence. A wealth of material immediately appears, pointing in the opposite direction. Whether one sticks to the seventies or goes back to the forties makes little difference, for a definite improvement in the status of members of the American medical profession did not set in until almost 1900. There were no public opinion polls then, by which to measure attitudes toward a profession; but the difficult position of physicians may be easily illustrated by random references. The newspapers of the forties and fifties, for example, sometimes ridiculed medical students and medical practice. Occasionally they went to extremes of condemnation. Thus the Philadelphia *Item* denounced (1858) the "poisoning and surgical butchery" which were common in practice,[3] while in the next year a large daily paper declared that the whole medical guild was "a stupendous humbug."[4] Many lay critics had as low an opinion of professional behavior as they had of professional skill. "It has become fashionable," declared the editor of the *Cincinnati Medical Observer* during the fifties, "to speak of the Medical Profession as a body of jealous, quarrelsome men, whose chief delight is in the annoyance and ridicule of each other."[5] Alarmed by such attitudes, physicians had begun in the thirties to deliver addresses on "The Present Position of the Medical Profession." Two decades later they employed such frankly discouraged headings as: "To What Cause Are We to Attribute the Diminished Respectability of the Medical Profession in the Estimation of the American Public?"[6]

It is clear, after even such casual glances at the record, that all was not well with the profession a century ago. Granting that there still may be some cynicism about medicine, it is hard to imagine a daily paper referring to current surgical intervention as mere "butchery," or condemning professional practice as "a stupendous humbug." Compare with these epithets, for example, the respectful manner in which both contemporary newspapers and movies usually deal with physicians. About a decade ago there was a series of films which portrayed medical personnel in almost glamorous colors. These were embellished with such titles as "Men in White," "Women in White," "The White Parade" and so on. For a while anything "in white" was good for boxoffice returns. There were also such laudatory pictures as "Pasteur" and "The Magic Bullet," to say nothing of the late lamented "Dr. Kildare." If Hollywood is to be trusted, the medical profession has today a far higher position in public esteem than it did in great-grandparents' days.

Read at the Centennial Celebration of the Northern Medical Association of Philadelphia, Dec. 5, 1946.

From the University of Pennsylvania School of Medicine and American Council of Learned Societies.

[1] Shryock, R. H.: Letters of Richard D. Arnold, First Secretary of the American Medical Association, Trinity College Historical Society Papers 18-19, Durham, N. C., Duke University Press, 1929, p. 21.

[2] Mann, F. W.: The Public Status of Our Profession, J. Maine M. A. **16**: 137, 1925.

[3] Philadelphia City Item, Nov. 6, 1858.

[4] M. & S. Reporter **1**: 356, 1859.

[5] Editorial, Cincinnati M. Observer **2**: 129, 1857.

[6] Editorial, M. & S. Reporter **1**: 141, 1859. There were many other such titles; Bauer, L.: On the Declining Relations of the Medical Profession to the Public, Cincinnati M. Obs. **2**: 97, 1857.

To what circumstances may one attribute the uncertain status of physicians a century ago? There is no one simple answer to this, any more than there is a single explanation of professional prestige at the present time. Various factors must be noted, if one is to understand the position in which physicians found themselves at the time this association was founded.

In an analysis of the status of any profession, one first thinks of the original process by which personnel is selected. One envisages today the years of college education and the standards of grade A medical schools, all of which tend to prevent the lazy or incompetent student from taking the Doctor of Medicine degree. But in 1846 almost any man with an elementary education could take a course of lectures for one or two winters, pass an examination and thereby automatically achieve the right to practice medicine by state law. Since the old training under an experienced physician (preceptor) had been gradually abandoned, doctors could be turned out in less than a year. As late as 1900 there were medical schools which admitted students who could not gain entrance to a good liberal arts college. To be sure, some college graduates went to the better medical schools; but a study made at Yale in 1850 indicated that most graduates preferred law and theology, and that those who did enter the field of medicine were usually not of high standing in their classes.[7]

It would be of interest to inquire, in passing, whether the first women to secure medical education were of superior caliber. One might expect this, in view of the opposition they had to overcome. Most physicians and laymen were shocked at the very thought of a "doctress"; but after the Woman's Medical College was opened in Philadelphia in 1850 some newspapers encouraged the idea, and there was occasional support even in the medical journals.[8]

Whatever standards were maintained by the few "female" colleges, most schools admitted youths without higher education and with uncertain secondary school backgrounds. In 1854 a candidate requested admission to the Savannah Medical College on the impressive ground that he was proficient in the use of his own language. A professor in reply said that it would help if the student also knew something of the classics but added hastily that he could pick this up "with perfect ease" while attending the lectures. The student was invited to enter and reminded that he could not find a better college in that part of the country.[9]

This last remark was significant. The Savannah College was apparently a proprietary school, even though a superior one, and the practitioners who owned it needed the tuition fees. By 1850 the original university schools were pressed by the competition of proprietary institutions that sprang up all over the country. This proliferation has been ascribed to the increase of population and the consequent demand for more practitioners than the old schools could supply. But since the country already seemed oversupplied with physicians by the fifties other influences must have been at work. The late Dr. William H. Welch believed that the English medical schools (without university connections) set a bad example here. But the London schools were at least associated with hospitals, while American institutions sometimes lacked this advantage. The truth is that there was money in a successful medical college, since the owners maintained it simultaneously with their private practice. The lower the standards, outside a few main centers, the higher were the registration figures and the profits. No wonder that schools multiplied, and that intense jealousies developed between the members of rival medical faculties.

Competition from mediocre schools hurt even the better institutions. When Pennsylvania tried to raise its entrance and course requirements during the forties, many youths were reported to be leaving for "easier quarters." The editor of the *Item*, already quoted, declared that even the Philadelphia students were coarse, crude and ignorant; a New York paper added the adjective "licentious" in describing the young medicos of that city.

Due allowance may be made for editorial exaggeration in such statements. But since they were supplemented by ample testimony from leading medical practitioners themselves, it is clear that the recruitment of the members of the profession was a rather casual process. This was of grave concern to professional leaders, and their efforts to form state medical societies were motivated in part by the effort to reform medical education. This was desired not only to provide better training per se but also to overcome the jealousies of rival schools. The same motives inspired the founding of the American Medical Association in 1847.[10] The national body encountered great difficulties, however, in seeking reform. Influential practitioners throughout the country were interested in proprietary schools and opposed standards which would have eliminated them. When Oliver Wendell Holmes, for example, condemned what he termed "inferior schools, wrongly located," he raised a storm throughout the South and West. Medical professors in those areas viewed this as a sectional attack on themselves and ridiculed Holmes's "highfalutin Boston notions."

Tied in with low standards in the schools was the general laxity of state licensing laws. Early in the nineteenth century certain states had enacted fairly good statutes, which provided for examination by state medical societies or boards. But it proved simpler to license automatically all who graduated from the schools; and as the latter deteriorated, licensing became almost a farce. Some reformers advocated federal licensure,[11] while others considered that the M.D. degree had become meaningless and urged that it be replaced for able men by some such designation as M.A.M.A. (Member, A. M. A.).[12] This would not control licensing, but would at least indicate the real physicians. Such protests achieved little until almost the end of the century, when the impact of scientific progress enabled the national Association to initiate a really effective reform movement.[13]

Another problem which faced medical societies a century ago was the relation of one practitioner to another. After the student had taken his degree, such as it was, he found himself in sharp competition on entering practice. By 1860 there was 1 practitioner for every 572 persons in the population as a whole.

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[7] Hooker, W.: Report of the Committee on Medical Education, Tr. A. M. A. **4**: 409, 1851.

[8] Shattuck, G. C.: The Medical Profession and Society, Boston, D. Clapp & Son, 1866, p. 29.

[9] Shryock,[1] p. 68.

[10] Fishbein, M.: History of the American Medical Association, J. A. M. A. **132**: 637 (Nov. 16) 1946.

[11] New York J. Med. **5**: 415, 1845.

[12] Sponsored by the New Jersey State Medical Society in 1858; M. & S. Reporter **1**: 283, 1859.

[13] The detailed story of medical education before 1860 is given in Norwood, W. F.: Medical Education in the United States Before the Civil War, Philadelphia, University of Pennsylvania Press, 1944.

The ratio was apparently higher in rural than in urban areas—just the reverse of the present situation. The rural physician was then in great demand and suffered few such disadvantages as he does at present. In the North (relatively urban) there was 1 physician to 534 inhabitants; in the South, 1 to 526, and in frontier states, 1 to every 417. The general average of 1 to 572 may be compared with that of 1938, which was 1 to 764.[14] The excess of physicians was such that many young graduates failed to secure a decent practice and abandoned the profession. The pressure of competition not only caused bitterness against sectarians but also created friction within the regular profession.

Prior to about 1800 there had been no rules to the game, and physicians even condemned one another in the newspapers. A famous illustration of professional friction in Philadelphia had been Benjamin Rush's newspaper debate with colleagues over the best methods of treating yellow fever. Laymen took sides, and in the course of this debate one critic referred kindly to Rush's method as "one of those great discoveries which are made from time to time for the depopulation of the earth."[15] Rush denounced his colleagues, resigned from the College of Physicians and viewed himself as a much-abused figure. This was typical of many professional quarrels.

These difficulties were not to be entirely explained by the competitive factor. This affected lawyers and business men as well, yet physicians were notorious for the peculiar rancor of their quarrels. Perhaps the vital nature of medical work made for unusual bitterness between rivals. Many a doctor, at a time when medicine was much more of an art than a science, honestly believed that competitors were killing their patients rather than curing them. Or, if the rival was not actually liquidating his clientele, he was doubtless doing them no good and overcharging them in the process. The welfare of the public as well as self interest demanded that he be exposed.

It was gradually realized, however, that the scandal of medical quarrels was injuring the reputation of the profession. Even Rush, a born controversialist, sensed this in his last years. He then pleaded that physicians should cease to condemn one another just because of different theories of practice and urged that "the whole odium of the hostility of physicians" be ascribed to "their competition for business and money."[16]

Medical societies, fully aware of the frictions resulting from competition, sought to standardized principles of professional behavior. Percival's "medical ethics," adopted in London toward the end of the eighteenth century, was the basis of the code accepted by the American Medical Association at the time of its founding, and this English statement was also largely incorporated in the principles accepted by state and local societies.[17] These codes expressed certain general ideals and stated the duties of physicians to patients, to each other and to the public. They have since been criticized as providing "trade union rules" or "books of etiquette" rather than true ethics. Some critics object to the limitations set on criticisms of one physician by another, lest these shield the mediocre man at the expense of his patients. The codes may need overhauling today to fit them to modern conditions,[18] but any one who recalls the time when physicians did boast openly of their own merits and of the inferiority of their rivals will recognize the real service which these statements provided.

Even after medical societies had been organized there was no little recrimination within the profession. In 1851, for example, the therapeutic claims of a certain physician were attacked on the floor of a state society. In retaliation the man then published a pamphlet referring to the "meanness and baseness" of the society's procedure, adding that the state organization contained only "the pest boys and inexcusable ignoramuses" of the profession. A member of the society, writing to a colleague, began by inquiring: "Have you seen the dirty pamphlet of Dr. X? . . . The more I reflect on this man's attack on the state society the more angry I feel. . . . After I read his account of pneumonia and his never having lost a single case out of 179! I might have swallowed his 'obstetricy' (where did he get that word?) but I choked at his pneumonia statistics. . . . I wish no controversy with such a man . . . but I shrink from no responsibility."[19] One can see from such correspondence that the officers of early medical societies had their hands full in preserving professional harmony.

Long before ethical codes were adopted the early medical societies had sought to deal with the strictly economic factor in competition. They realized, apparently earlier than did business interests, that uncontrolled competition in an entirely free market was not in the interests of competitors. Perhaps the guild tradition in medicine had never permitted the acceptance of a *laissez faire* philosophy so extreme as that embraced by merchants. At any rate, a prime motive in the founding of the pioneer state medical society (New Jersey, 1766) had been the standardization of fees. The fee bill issued by that society listed charges of 25 cents and up for calls in country practice, according to mileage, and such other items as $3.50 for deliveries. When it is recalled that annual tuition at Princeton was then only $4, these charges seem by no means low.[20]

Much the same comment may be made on the fee bills published by medical societies about seventy-five years later; that is, for the era just before the Civil War. Between 1835 and 1860, a fee of 50 cents or $1 was common for an office call at the physician's home in town practice, and rates were higher in the large cities.[21] These charges were at least the equivalent in purchasing power of $2 to $5 at the present time. Such comparisons are difficult to make for home

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14. Eighth Census (Washington, D. C., 1860), pp 670 and 677, cited by Stern, B. J.: American Medical Practice In the Perspectives of a Century, New York, Commonwealth Fund, 1945, p. 63 The ratio of physicians to population remains higher today in the United States than in Europe, but contrasts are not so extreme as a century ago An American Medical Association committee reported in 1848 that this ratio was five times as great here as in France (Fishbein, M History of American Medical Association, J. A. M. A. **132**:852 (Dec 7) 1946.

15. Cobbett, W.· The Rush Light, New York, Feb 28, 1800

16. Gross, S.: Lives of Eminent American Physicians, Philadelphia, Lindsay & Blakeston, 1861, p. 314; cited by Butterfield, L. H.: Benjamin Rush: A Physician as Seen in His Letters, Bull. Hist Med. **20**:138 (July) 1946.

17. Leake, C. D.. Percival's Medical Ethics, Baltimore, Williams & Wilkins Company, 1927, p. 33.

18. That of the American Medical Association has been revised several times and is now being reconsidered again by the Judicial Council; Fishbein, M.: History of American Medical Association, J. A. M. A. **132**:783 (Nov. 30) 1946.

19. Shryock, R. H.: Selections from the Letters of Richard D. Arnold: Medical Series, 1834-1875, Bull. Johns Hopkins Hosp. **42**:156, 1928, p. 174.

20. Marsh, E. J.: An Outline History of the Medical Society of New Jersey to 1903, Proc. New Jersey Hist. Soc. **60**:5 (Jan.) 1942.

21 Rosen, G.. Fees and Fee Bills: Some Economic Aspects of Medical Practice in Nineteenth Century America, Bull. Hist. Med, 1946, supp 6, p 11

calls, because the physician then charged in proportion to the distance traveled. The rural doctor also charged for medicines, so that it is hard to isolate the costs of professional services from those for drugs. Thus Dr. Tomlinson Fort of Milledgeville, Ga., included such items as the following in bills for 1841:[22]

Visit, 4 miles in rain, and med.	$ 7.00
Visit, nocturnal, 4 miles	8 00
Visit, 4 miles, $5.00 med., for gonorrhea	15.00

If one at least doubles these figures in order to estimate their purchasing power today, the fees seem relatively high.

Due allowance must be made here for certain variables. Dr. Fort's bills went to a planter who was probably wealthy and was perhaps charged accordingly. Bills sent to the rank and file may have been lower. Actual charges to most patients, moreover, were sometimes less than those stated in the fee bills. There were complaints to this effect, for a published schedule was after all only a gentleman's agreement. But, keeping in mind all these factors, it seems likely that fees in general practice a century ago were little if any lower in real value than are current charges.

This is surprising when one recalls, first, how low the costs of medical education and equipment then were; and second, the common impression that rising professional costs have forced fees up since that time. Present protests against medical costs are not caused by higher fees in general practice but result rather from the many specialized services now required.

Had the average total cost of medical care been as high in 1846 as it is at present, it would have been quite impossible for the great majority of patients to have met it. The average, per capita real income then was less than half what it is today.[23] In other words, the ability to maintain present levels in medical costs—even as well as is now done—results from improvements in living standards all along the line.

Total medical costs were relatively low in 1846 because most persons were served simply by the family physician. Those in and near towns could reach pharmacists and dentists, and they occasionally resorted to consultants; but most rural folk, who then made up about 85 per cent of the population, received only bills for office or home calls from a single physician. Many of these charges, moreover, were not paid—a simple way of keeping down medical costs.

Difficulties in collecting fees inclined some physicians to accept so-called "contract practice." A physician would care for a family in return for a fixed payment in advance, perhaps for as little as $5 or $10 a year. There were then few opportunities for salaried positions, and contract work may have appealed to practitioners in need of income. Similar procedures were sometimes followed in Europe, where they had had a long history.[24] The arrangement involved the prepayment principle for families only as a matter of individual agreement; whereas the insurance of entire groups, basic to current prepayment plans, was not introduced into American insurance until after 1910.[25] Just how extensive contract practice was in the United States before the Civil War is difficult to say, for one learns of it chiefly through objections voiced by professional leaders, who viewed the arrangement as demoralizing. It is doubtful if it was ever widely followed.

While on the subject of finances, one may well raise the old question: Why did the doctor's bill come last? The butcher, the baker, the candlestick-maker—all these must be paid promptly, but not the physician. Doctors themselves were none too meticulous about these matters, and many of them asked for settlement only at year's end. If not met then, the account was likely to go over another year, and so on. One of Dr. Fort's bills, noted previously, totaled $73.75. Under this was added the laconic statement: "8 yrs. int., 8 %, $47.20."

The answer to the question just posed probably lies in the conflicting traditions of the profession. From the Middle Ages was inherited a semiclerical status—physicians should be more concerned with service than with profits. Hence arose the obligation to give freely to the poor, a generosity which was rarely expected of merchants. But modern capitalism had involved physicians in a competition for income which could not be ignored and which they tried to reconcile with the service ideal in ethical codes already mentioned.[26] The public, although it recognized medical charges as an obligation, tacitly assumed that these would not be pressed. Was not the physician the friend of the family, and was not this relationship above mercenary considerations? Professionally speaking, the practitioner thus lived a double life—half benefactor, half business man—with all the difficulties this entailed. The basic problem remains today, though it seems less acute under prevailing urban forms of practice.

Close personal relations between physicians and patients reflected both scientific and social conditions. Medical science, as will be noted later, then had small bearing on therapeutics. Hence few physicians felt it necessary to give much time to current scientific developments. They were, on the other hand, under constant pressure to meet the immediate needs of their neighbors. The established practitioner in a small urban or rural environment knew the lives of his patients and the affairs of the community. There was continuity in practice, for he had brought his patients into the world and seen their fathers out of it. Other things being equal, these circumstances were of real advantage in his work. The good family physician sensed environmental and personal factors in illness: he was his own medical social worker and authority on psychosomatic relationships. Mr. X would not be sick, his doctor would remark, if he could lift the mortgage on his farm. Mrs. Y's case needed what no one could give her—the return of her lost child. The physician would use either bread pills or bitter doses if these were indicated by personal factors. Most important on the psychic side was the influence of his own authority and personality. Here he was aided by the almost instinctive desire of patients to have faith in the man to whom they entrusted their lives.[27]

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[22] Shryock, R H.: Medical Practice in the Old South, South Atlantic Quart **29**: 173 (April) 1930

[23] Martin, R. F.: National Income in the United States, 1799-1938; cited by Stern[9]

[24] M. & S. Reporter **1**: 142, 1858. Letourneur, L. B A: Rapports du medicin avec la societé en general, thesis, Paris, no 155, 1821, p 26

[25] Sickness benefits paid to members by lodges or mutual benefit societies, however, may be viewed as anticipating present group health insurance

[26] Sigerist, H. E: Medicine and Human Welfare, New Haven, Conn. Yale University Press, 1941, p. 116.

Although there was a growing tendency after 1830 to distrust medical science in general, even the person who shared this feeling was apt to believe that his particular physician could always be of help.[28] Such faith, when misplaced, might have tragic consequences. Amid all the praise of the old family doctor it must be remembered that when incompetent he was of little use and may at times have done considerable harm. But faith in a competent man had its merits. The nice question, then as now, was how to distinguish between the able and the mediocre practitioner. Only in or near towns could there have been much range of choice, and in such locations the personal factor and sheer accident must have played major roles in the selection of family physicians. Hospital or medical school connections, often urged today as indications of professional merit, were then less significant or simply nonexistent. Graduates of certain schools seem to have had a superior reputation in special sections, as those of Harvard in New England, of Columbia and of Bellevue in New York and adjacent states, and of Pennsylvania and Jefferson in the Middle Atlantic area and the South. One authority at Yale suggested that patients, in considering a man as a prospective family physician, should engage him in conversation. If he spoke well on general matters the chances were that he was also intelligent in his practice. Beyond this there seems to have been little consideration of a problem which was so vital to the individual layman.[29]

Once having selected his physician, the American of the early nineteenth century was likely to place the greatest trust in him. Contemporary physicians might well envy the Dr. Watkins mentioned in the following note, in view of the naive confidence displayed by his patient. The latter was Miss Virginia Randolph, a granddaughter of Thomas Jefferson and an intelligent and cultivated young woman. In a letter to her fiancé in 1822 she confided that:[30]

> We have had a rather sick family lately . . . and I am on Dr. Watkins' list. He has bled me twice, and prescribed a course of calomel which I am getting safely through . . . and I expect soon to be perfectly restored. You must not expect . . . that my health is worse than it frequently is, in summer, but Dr. Watkins wishes to make a permanent cure at once of all my complaints. . . . I have no doubt that his advice is most judicious.

The cynical reader will observe that it was the "course of calomel" rather than the illness which the patient was "getting safely through," and will no doubt marvel at Dr. Watkins' determination to cure *all* her difficulties *permanently* and *at once.* Yet Miss Randolph was probably none the worse for her faith in this case, and perhaps it sustained her in later and more serious "complaints."

The successful physician was then, as now, an overworked man. In the case of the city practitioner this was a matter of many patients—particularly if he were associated with a hospital. "The average of my private patients in the late summer and fall months," wrote a physician in 1849, "is generally between 30 and 40, and to get through with these . . . I am going the round from sunrise to 9 or 10 o'clock at night." In addition, he saw daily from 60 to 70 hospital patients. "The profession," he added on another occasion, "is one which certainly requires that a man should give up almost every social enjoyment and is therefore one which a person like myself who has so keen an enjoyment of such pleasures ought never to have chosen."[31]

This does not mean that all physicians were denied social diversions, though clearly their evenings were not as free as those of other men, and they had little time for political activities or public affairs. Lawyers could run for legislature or Congress; physicians seldom had the time. In the large cities, however, prosperous physicians enjoyed the social life of medical clubs. One of the two original secretaries of the American Medical Association, en route to the organizing meeting in 1846, wrote as follows of professional hospitality in Philadelphia:

> This is a delightful House. . . . The assortment of wines, sherry, sauterne, champagne, and madeira was delicious. . . . After dinner we went to the Opera. . . . We were obliged to lose the third act, to go to Dr. Bell's Medical Club. The physicians here are very sociable amongst each other and meet three times a week at each other's houses. . . . We returned to the Opera and heard the third act and after that Dr. Clymer took me to the Club . . . I had an idea that they were all as stiff as if done up in buckram, but at this club, which is held at a large house in Walnut Street occupied solely by it, [there are] reading rooms below, card rooms and supper room on the second floor and billiard rooms on the third. I met Drs. Wm. Rush, Randolph, Biddle, Gerhard and Fox. . . . Without knowing it I played a game of five-dollar whist, but as soon as I was square I stopped playing.[32]

The country practitioner had no such opportunity for professional sociability, and such diversions as he had were those of the community at large. However, his lack of contact with colleagues was nothing like the deprivation that this seems today in isolated areas. The nature of practice was so simple that there seemed little technical need for a hospital or for professional discussions. Deliveries were made at home, and the kitchen table still seemed adequate for emergency surgical procedures. Incidentally, the introduction of anesthesia in the late forties aided surgical practice in country homes as well as in city hospitals.

The rural physician handled all phases of practice, including pharmacy and dentistry. While he saw fewer patients than did his urban colleague, he was kept just as busy by long hours spent on the road. It is not easy to picture this old routine, though much has been written about "the horse and buggy doctor." As a matter of fact, the buggy was not the only means of transportation. The physician often rode an old mare equipped with saddlebags which contained drugs and a surgical kit. He was on the road so much of the time that he could have no regular office hours: patients must take their chances on finding him at home. When a railroad reached a community, the physician would use that if possible, sometimes being extended the doubtful privilege of riding the freight cars. Occasionally he even sallied forth on a "railroad tricycle."

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[27] Pusey, W. A.: A Doctor of the 1870's and '80's, Springfield, Ill., Charles C Thomas, Publisher, 1932, p. 87.

[28] See North American Rev. **33**: 368, 1831.

[29] Cf. Swackhamer, G.: *Choice and Change of Doctors*, New York Committee on Research in Medical Economics, 1939.

[30] Randolph, V., to Nicholas Trist, Monticello, Va., July 26, 1822, in Trist Manuscripts, Library of Congress.

[31] Shryock,[19] Arnold to his daughter Ellen, Nov. 3, 1849, p. 170.

[32] Shryock,[19] Arnold to his wife, April 13, 1846, p. 166.

similar to the later handcar.[33] These devices, like runaway horses or modern automobiles, had their own peculiar risks.

One form of practice was peculiar to the days before the Civil War. This was the care of slaves. On southern farms of moderate size practice was usually in the hands of the mistress or of overseers, who were guided by tradition and by family medical manuals. Dr. Samuel Cartwright referred in 1850 to "the practice among 3 millions of people [Negroes] that the overseers have mostly got." [34] Even slaves themselves occasionally acquired a reputation as folk practitioners.

It was argued in defense of slavery that it gave the master a financial interest in preserving the health of his "people," and this was doubtless true in the case of the more enlightened and prosperous planters. Such men would hire Irish laborers rather than put their slaves into dangerous work. If a slave died, there was a loss of several hundred dollars; if an Irishman perished, there was just one less Irishman in the world! [35]

Wealthy planters would regularly employ a prominent local physician to look after their plantations. This gave slaves as good care as was then available and provided them with a rough equivalent of modern health insurance. There were certain legal aspects here which were peculiar to slavery. In cases which required surgical intervention, for example, the master's permission rather than that of the patient was required. (In one curious instance the great gynecologist Marion Sims could not secure such permission and actually purchased a patient in order to operate on her.[36]) After emancipation most of this service was lost, and the rural southern Negro now receives less medical care than do members of any other large element in the population.

Implicit in all that has been said is the fact that nearly all physicians in 1846 were general practitioners. Certain persons became especially interested in surgery, but they seldom abandoned general practice entirely. This combination of the physician and surgeon in one practitioner came down from a time of primitive colonial conditions, when differentiation would have been impractical. As a result surgery always maintained equal prestige with internal medicine, in contrast to the professional and social distinctions which had been traditional in Britain.

It is usually assumed that specialization was lacking at this time simply because there was not enough knowledge to justify it. This was indeed one factor in the situation. But there was another basic explanation. Prior to about 1830, American physicians did not usually think in terms of a localized pathologic process or of specific diseases. Speculative pathologies had dominated medical thought up to that time. All forms of illness were ascribed to one or two generalized conditions, such as impurities of the blood or the existence of excessive tension or laxity in the nervous and vascular systems. These were appealing theories, since they solved all pathologic problems at once and also opened up a royal road in therapeutics. If all illness was due, as Benjamin Rush claimed, to excessive tension in the blood vessels, then all patients could be cured by bleeding to relieve that tension. Any one could see that if the patient was bled long enough he would relax—sooner or later! Hence the physician should put no faith in the healing powers of nature but rather should interfere with nature as promptly as possible.

As long as all forms of illness were viewed as expressing a single, underlying condition, there was no occasion for specialization in practice. Every physician considered that he had the remedy that was "good for what ailed you," since by definition the same thing ailed every one. Incidentally, there was also no use for major surgical operations, for one could hardly operate on the blood or on a vague condition common to the whole vascular system.[37] Hence surgical practice remained largely a matter of fractures, amputations and other superficial emergencies, and here again there was little need for specialization.

Only when a localized, structural basis for pathology replaced the speculative systems was specialization made possible. When specific diseases were identified by correlating lesions with symptoms, the possibility of treatment by removing these lesions became obvious. Surgery, was therefore beginning, by 1840, to move from the periphery toward the center of medical practice. And there was now some reason for specializing, in other fields than surgical practice, in work on a particular part or system.[38] But these new points of view, imported from Paris by returning American students after 1820, percolated slowly into average practice. Not until after the Civil War did specialization really get under way, even in the cities.[39] There was strong opposition at first, partly because of the fear that it would injure the interests of both patient and practitioner; [40] partly because in the earlier day only quacks had claimed to specialize. Dr. S. Weir Mitchell could recall the time in Philadelphia when to specialize meant to be professionally ostracized.[41]

The French school of 1800-1850 was as critical of the traditional therapeutics as it was of the older pathologies. Since it identified diseases by symptoms as well as by lesions found at autopsy, it developed methods for improving clinical observation. The stethoscope and clinical statistics are cases in point. But the use of the latter showed the ineffectiveness of bleeding, purging and the old drugs. Hence French clinicians gradually lost interest in therapeutics. How could there be an *intelligent search for the causes and cures of diseases* until the diseases themselves had first been found?

Medical research thereupon became nihilistic; it was focused on diagnosis rather than on treatments. The latter were viewed as useless in most cases. Oliver Wendell Holmes, on his return from Paris, informed the American people that if most of the medicines used here were thrown into the sea it would be all the better for mankind and all the worse for the fishes![42] What was needed, he felt, was less medical interference and a revived confidence in the healing powers of nature. This critical view affected average practice only after a long interval; indeed, Osler was still preaching it in the first edition of his textbook near the close of the century.[43]

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[33] Pusey,[27] p. 39. Hertzler, A. E.. The Horse and Buggy Doctor, New York, Harper & Brothers, 1938, p. 61.

[34] Cited by Fenner, E D.: Southern Medical Reports, New Orleans, B. M. Norman, D. Davies & Son, 1850-1851, vol. 2, p. 423.

[35] Phillips, U. B.: Life and Labor in the Old South, Boston, Little, Brown & Co, 1929, p. 186.

[36] Shryock,[27] p. 172.

[37] Sigerist, H. E.: Surgery at the Time of the Introduction of Antisepsis, J Missouri M. A. **32**: 169, 1935.

[38] Rosen, G.: The Specialization of Medicine, New York, Froben Press, 1944, p 15.

[39] The gradual transition from general practice to specialization in surgery in a small city about 1880 is described in Wheeler, J. B: Memoirs of a Small-Town Surgeon, New York, Garden City Publishing Company, 1935, p 176.

[40] Ware, J.: Success in the Medical Profession, Introductory Lecture, Massachusetts Medical College, Boston, D. Clapp, 1851, p. 9.

[41] Mitchell, S. R.: The History of Instrumental Precision in Medicine, Univ. M. Mag. **4**: 1, 1891.

It is true that by the fifties some younger physicians indoctrinated by French-trained professors were becoming less inclined to bleed and purge, less given to excessive medication. But most practitioners clung to traditional forms of treatment. Some of the older men, even those who taught in the better schools, were still defending venesection in the seventies.[44] This half century lag in bringing practice into harmony with research is an interesting phenomenon which has never been adequately studied.

In reaction to such professional conservatism, popular opposition developed against heroic treatments. Such was the protest against calomel (mild mercurous chloride), for example, that a large and thriving medical sect—the Thomsonian or "Botanic System"—based its appeal on the condemnation of all mineral or metallic remedies that had come into use since the days of Paracelsus. Echoes of its propaganda survive today in the advertisements of secret remedies that "contain only vegetable compounds."

Popular distrust of medical treatments was based, by 1840, on more than a dislike of unpleasant or dangerous remedies. By this time physical science was making such headway that all could appreciate it. But where were the *medical* equivalents of the steam engine or the telegraph? Medicine seemed to have fallen behind the other sciences: indeed, the leading professors of medicine now admitted that their science was of little utility. Perhaps the old medical "systems," with their speculative pathologies, were really more valuable. They had at least promised cures. So encouraged, various theorists revived the doctrine that there was one cause and therefore one cure of disease. Thus Hahnemann reduced most pathologic conditions to the itch and most treatments to the "like cures like" theory and the high dilution formulas, somewhat as Dr. Still would later reduce all pathologic processes to spinal conditions and all therapeutic practice to spinal manipulations.

Regular medicine, which had accepted such oversimplifications in Rush's day, was now more critical and would have none of them. Homeopaths and Thomsonians thereupon became the modern medical sects. They founded their own schools and journals and so contributed to the confusion in education and licensing which has previously been mentioned.[45] On the other hand, the sects probably did more than did French nihilism to create a salutary demand for milder treatments.

The more credulous or nervous folk also flocked to a whole series of minor cults which promised sure and pleasant cures. Nearly every conceivable type of humbug preyed on the people—hydropathy, chronothermalism, mesmerism, herb doctors, faith doctors, indianopathists and what you will! Meanwhile national advertising in newspapers was originated by the manufacturers of secret remedies, and more money was spent for nostrums than for prescriptions. When regular physicians protested, they were viewed merely as opposing competitors. Was not this a free country, and did not every American have an inalienable right to life, liberty and quackery? A writer in one of the journals of opinion suggested that "the public will act as an umpire" between the regulars and the sectarians, and reach its decision "after a careful perusal of the undertaker's bills."[46]

It is to be recalled that this was an age of social ferment and reform, the day of the great temperance, antislavery and women's rights movements as well as of minor utopian aspirations. "We learn from the papers," observed Dr. William Alcott in 1835, "that the American Seventh Commandment Society, the New York Female Benevolent Society, the New York Ladies' Moral Reform Society, and the Anti-Tobacco Society held their annual meetings at New York about the middle of May, and that some of these meetings were interesting."[47] In such an atmosphere it was natural that a utopian health cult should arise, advising all to maintain health by staying away from the physicians and by cultivating personal hygiene. Their views represented the logical extreme of the "trust nature" philosophy, which was preached in more moderate form by physicians who had been influenced by French nihilism. Sylvester Graham, the leader of the cult, preached during the forties the virtues of bathing, of exercise and of a whole-wheat diet. In his spare time he originated an interesting literary tradition later known by the phrase "What a Young Man Should Know." His antimedical doctrine was spread by "Ladies Physiological Reform Societies," and he is unconsciously recalled to this day in the terms "Graham bread" and "Graham crackers."[48]

The appeal for personal hygiene had some merit at a time when the Saturday night bath was a real victory for sweetness and light. But more significant was the public hygiene of the period. About the end of the eighteenth century, the medieval doctrine of contagion in epidemics was partially replaced by a revival of the classic "airs and waters" hypothesis. If epidemics originated in the local contamination of air and water, then quarantines were of little use. "Noxious Miasms" could be eliminated only by cleanups, by sanitary reform. Philadelphia led the way, after its bitter experiences with yellow fever, in constructing one of the first steam-powered water works in the country (1802) and by other municipal improvements. Bitter controversy continued, however, over whether certain diseases were spread by miasms or by contagion.

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[42] Holmes, O. W.: Currents and Counter-Currents in Medical Science, Boston, Ticknor & Fields, 1861, p 39.

[43] By that time such nihilism was almost out of date, for pharmacology and bacteriology already held real promise for both prevention and cure.

[44] I. e., as a general procedure in many forms of illness See, e. g., Littell, S.: Memoir of George B. Wood, Trans Coll Physicians, Philadelphia **5**: XXV, 1881. Shryock,[1] p 135.

[45] Some forty Thomsonian journals were published in the United States between 1825 and 1850. For bibliography of the sects, Shryock, R. H.: Public Relations of the Medical Profession in Great Britain and United States, Ann. M. Hist. **2**: 308, 1930 [notes 41-44].

[46] The Medical Controversy, United States Democratic Rev. **35**: 263, 1855.

[47] Boston Moral Reformer **1**: 225, 1835.

[48] Shryock, R. H.: Sylvester Graham and the Popular Health Movement, Mississippi Valley Hist. Rev. **18**: 172, 1931.

Quite naturally, as epidemic diseases were more clearly identified, distinct causal factors were sought in terms of one of these theories or the other. Specific pathology led in turn to a search for specific etiology. Those who held to miasms tried to find poisons in the air peculiar to given diseases, while those who accepted contagion turned to the old theory that animalcules or micro-organisms might convey specific infections. Such American physicians as Daniel Drake of Cincinnati, J. C. Nott of Mobile, Ala., and J. K. Mitchell of Philadelphia wrote during the 1840s in support of the animalcular hypothesis.[49] Their views, based on an intelligent interpretation of epidemiologic data, represented more than mere speculation. But they failed to verify their theories by laboratory studies. Hence the pioneer work in parasitology and medical bacteriology between 1840 and 1870 was left largely to Europeans.

The failure of Americans to contribute much to medical science prior to the present century may be explained by a number of factors.[50] Notable was the indifference of a commercially-minded people to research that promised no immediate utility. Why should any one encourage studies in pathology or in physiology, if these were of no help to patients? Professional prestige here was acquired rather through a fashionable practice, which presumably aided the sick and at the same time bore the hallmark of financial success. Such a practice left small time for original investigations.[51]

It is true that a few physicians also acquired reputations through professorships and consulting practices, but this was by no means the same thing as research. These men edited European works, "putting British portraits of disease in American frames," and occasionally compiled textbooks of their own; but it is remarkable how infrequently even the famous professors made any systematic investigations. A committee of the American Medical Association reported in 1850 that only two "experimental memoirs" of any importance had appeared during the preceding year—one on poisons and one on the nervous system of the alligator![52]

While the American public was relatively indifferent to pure science, it was much concerned with applied science. Hence arose all the debate about medical practice and the search for immediate cures. Most pressing in the public mind was the fear of epidemics. Outbreaks of yellow fever had inspired the beginnings of sanitary reform by 1800, but it was the terrifying specter of cholera which during the thirties and again in the fifties aroused a real demand for protection. Meanwhile, municipal authorities were disturbed by the rising death rates of various communicable diseases and learned with interest of similar concern abroad. Since sanitation seemed as much a matter for engineers and statisticians as for physicians, laymen at first assumed leadership in the public health movement. Thus Lemuel Shattuck, onetime teacher, submitted an excellent plan for a state department of health in Massachusetts (1850), which was in part the basis for the state board eventually set up there in 1869.

A few socially-minded physicians realized, however, that public health programs needed medical as well as mathematical guidance. At the start of its career the American Medical Association appointed a committee on public hygiene, which submitted valuable reports on the sanitary—or rather, unsanitary—condition of American cities and called for remedial legislation.

Soon after these reports had been made, one of the leaders of the Northern Medical Association took the center of the national stage. It happened that an international sanitary conference was called in Paris in 1855 in order to discuss cooperation in quarantine legislation. This suggested to Dr. Wilson Jewell, of the Philadelphia Board of Health, that state quarantine laws were just as diverse in the United States as were national statutes in Europe and that Americans faced the same need for coordination. He therefore persuaded his board to call a national sanitary convention, which met in Philadelphia in 1857. Subsequent meetings were held, during the ensuing three years, in Baltimore, New York and Boston. Municipal officials and socially-minded physicians joined in discussions of quarantines, sanitary regulations and the need for pure food and drug laws. This principle of bringing laymen and physicians together for the promotion of health programs was later to be employed effectively by such voluntary organizations as the National Tuberculosis Association.

Jewell was the leading spirit in these first national sanitary conventions. That of 1860 planned to transform the meetings into a permanent national health association, but the session of 1861 was unfortunately prevented by the Civil War.[53] A national body was not actually formed until the American Public Health Association came into being in 1872. It would be interesting if more could be learned about Dr. Jewell, both in relation to his leadership in health reform and to his professional career in Philadelphia. It is ironic that a leader who felt he had inaugurated "a new era in the domain of American Science"[54] has been so largely forgotten in the annals of public health.

This brings me back to my starting point, the advent of this Association, for Jewell was one of its founders.[55] Evidently he was concerned with the problems of private practice as well as with those of public hygiene. Not all aspects of such practice have been considered here, but enough has been said to suggest that the physician of a century ago faced some problems that were peculiar to his time and others which persist today. The better physicians of 1846 would be proud of the present status of medical science and of the medical guild. Indeed they would be amazed by it all. The physician of today also should take a little pride in them, for they labored long under difficult circumstances to advance the interests of their patients and of their profession.

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49. Allen, P.: Early American Interest in Etiology, Hist. J. Med. & Allied Sc., to be published.

50. Shryock, R. H.: American Medical Research: Past and Present, New York, Commonwealth Fund, 1947, to be published.

51. See the contemporary protest against this situation in Jackson, S.: Address to the Medical Graduates of the University of Pennsylvania, Philadelphia, T. K. & P. G. Collins, 1840, p. 15.

52. Fishbein, M.: History of American Medical Association, J. A. M. A. **132**: 920 (Dec. 14) 1946.

53. On Jewell's leadership, see his letter to Dr. J. H. Griscom, in the Proceeds. of the Third National Quarantine and Sanitary Convention, New York, 1859, p. 3 ff. Plans for a permanent national association are noted in Proceedings and Debates, Fourth National Quarantine and Sanitary Convention, Boston, 1860, p. 8.

54. Jewell's words at the first meeting in Philadelphia.

55. A centennial history of the Association has been prepared by its president, Dr. Maurice Jacobs.

RENAL DEFICIENCY ASSOCIATED WITH SHOCK

Chairman's Address

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Many writers[1] have noted that the development of shock is accompanied by oliguria or anuria and by the retention of nitrogenous wastes, often leading to uremia if the subject survives a few days This feature is not one of the debatable aspects of shock, yet its mechanism and significance are not adequately discussed in medical literature. It has been shown[2] that shock is accompanied regularly by severe parenchymatous degeneration, especially pronounced in the kidneys; often this produces necrosis of the tubular epithelium. The possibility that these changes are related to the functional deficiency deserves thoughtful consideration.

In some instances a state of sublethal shock continues for several days; then renal deficiency often dominates the clinical picture. The urine is dark, smoky in color and has a high specific gravity. It contains albumin, hemoglobin, débris, epithelial cells, erythrocytes and casts, both granular and hyaline; frequently the casts are deeply pigmented with derivatives of hemoglobin. These features are accompanied by progressive retention of nitrogenous wastes leading to the clinical syndrome of uremia.

The occurrence of shock is not limited to trauma, burns and the aftermath of extensive surgical intervention. Harkins[3] listed more than thirty conditions in which shock may develop. These included burns, freezing, vascular occlusions, intestinal strangulation, heat stroke, radiation burns, sunburn, bile peritonitis, visceral perforations, the effects of various drugs and poisons, venoms, peptone, anaphylaxis, transfusion reactions, metabolic intoxications and infections of fulminating severity. I have reported the occurrence of shock under these and other conditions and have collected evidence on renal deficiency associated with many of them. That evidence is too extensive for detailed review here. It included, among others, Bell's[4] report on clinical acute nephritis as distinct from glomerulonephritis, Bordley's[5] and Daniels'[6] contributions on renal effects of transfusions, Lambret and Driessens'[7] studies on surgical shock, the reports of Helwig[8] and Boyce[9] on uremia associated with so-called "liver death," Christophe's[10] observations on acute nephritis as a regular feature of burns, both clinical and experimental, Bywaters'[11] observation on uremia from compression of limbs and the review of Jeghers and Bakst[12] on extrarenal uremia

The reported conditions under which acute uremia developed independent of glomerulonephritis included intestinal obstruction, toxic jaundice, hepatorenal syndrome, extensive surgical intervention, intestinal perforation, poisoning with phenobarbital, cinchophen and other drugs, streptococcic cellulitis and other severe infections, diabetic coma, Addison's disease, anaphylactic reactions, transfusion with incompatible blood, acute pancreatitis, cerebral lesions such as abscess or hemorrhage, sublethal shock from trauma as in the crush syndrome and burns.

I have confirmed the pathologic features described by others under the conditions mentioned. Grossly the kidneys may be of normal size or moderately enlarged; usually they are soft, indicating edema. The capsule strips with unusual ease; the stellate veins in the cortical surfaces are engorged. The color varies, depending on relative degrees of congestion and of parenchymatous changes. Cloudy swelling causes varying degrees of pallor; but when congestion predominates the color is deep red. Hemorrhagic streaks are seen in the medulla, and the cortical markings frequently are obscured. Petechiae may be seen in the parenchyma and in the pelvic lining.

The microscopic picture presents varying degrees of changes within a regular pattern. Usually hyperemia of the glomerular tufts and of the intertubular vessels is conspicuous. Sometimes capillary hemorrhages are present. Frequently amorphous material is seen in the capsular spaces. The epithelium of the convoluted tubules shows acute degeneration ranging to necrosis. When death occurs after several days, the cells are low or cuboidal in shape and the lumens are wide. The cytoplasm is granular; more advanced degeneration is indicated by vacuolization of the cytoplasm or by disintegration of the cells. Nuclear changes, especially karyolysis and hyperchromatism, are conspicuous.

Usually these changes are more pronounced in the upper segment, sometimes in the lower, but in general all portions of the convoluted tubules are affected. Plugs of débris often form in the lumens of the lower segments because such débris, originating in the upper portion of the nephron, collects in the narrow lumen of the lower portion. Hyaline droplets may form in the cytoplasm when degeneration is advanced; the lumens may contain masses of this deep red material when the cells containing it have disintegrated. Hyaline, granular and, sometimes, pigmented casts, débris, erythrocytes, nuclei and masses of desquamated epithelial cells occur in the collecting tubules. Edema is a varying feature, more pronounced in the medullary than in the cortical zones.

A widely known instance of this condition is the crush syndrome reported by Bywaters. Persons in buildings destroyed by explosions often were pinioned for many hours beneath masonry and débris. Some had no external wounds or broken bones, but extensive areas of flesh had been affected by continued heavy pressure. When rescued, these victims showed no serious effects except numbness and paralysis of the

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Permission for the publication of data from the Army Institute of Pathology was granted, but sanction for the author's interpretations was disclaimed by the Medical Department of the United States Army.

Read in a symposium on "Renal Insufficiency in the Shock Syndrome" before the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946

[1] Whipple, G H; Smith, H P., and Belt, A E Relationship of Blood Proteins to Shock, Am J. Physiol **52**: 72, 1920 Aub, J C., and Wu, H Chemical Changes in the Blood in Traumatic Shock, ibid **54**: 416, 1920 1921. Peters, J. P., and Van Slyke, D D Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1931, vol 1, p 292, vol 2, p 590 Blalock, A. Principles of Surgical Care, Shock and Other Problems, St Louis, C V. Mosby Company, 1940, p. 94.

[2] Moon, V. H, and Kennedy, P. J. The Pathology of Shock, Arch Path **14**: 360 (Sept) 1932. Moon, V H Shock Dynamics, Occurrence and Management, Philadelphia, Lea & Febiger, 1942, chap 9 and 15.

[3] Harkins, H N. Study and Management of Traumatic Shock, Surgery **9**: 231, 1941

[4] Bell, E. T.· Pathology and Pathogenesis of Clinical Acute Nephritis, Am J Path **13**: 497, 1937. Renal Diseases, Philadelphia, Lea & Febiger, 1946, pp 254 264

[5] Bordley, J, III· Reactions Following Transfusions of Blood with Urinary Suppression and Uremia, Arch Int Med **47**: 288 (Feb) 1931.

[6] Daniels, W. B, Leonard, B W, and Holtzman, S Renal Insufficiency Following Transfusion, J A M A **116**: 1208 (March 22) 1941.

[7] Lambret, O, and Driessens, J Les modifications humorales post opératoires, J internat. de chir. **2**: 223, 1937

[8] Helwig, F. C, and Schutz, C B A Liver Kidney Syndrome, Surg, Gynec & Obst **55**: 570, 1932.

[9] Boyce, F F, and McFetridge, E M So Called "Liver Death," Arch. Surg **31**: 105 (July) 1935

[10] Christophe, L.· La mort des brules, Paris, Masson & Cie, 1939

[11] Bywaters, E G. L · Effects on Kidney of Limb Compression, Brit. M J. **2**: 884, 1941.

[12] Jeghers, H, and Bakst, H. J.: The Syndrome of Extrarenal Azotemia, Ann Int. Med. **11**: 1861, 1938.

compressed limbs. Presently signs of shock developed, but these were counteracted by transfusions of blood and of plasma. Even though satisfactory circulation and blood pressure were maintained, renal function did not return and the victims died of uremia.

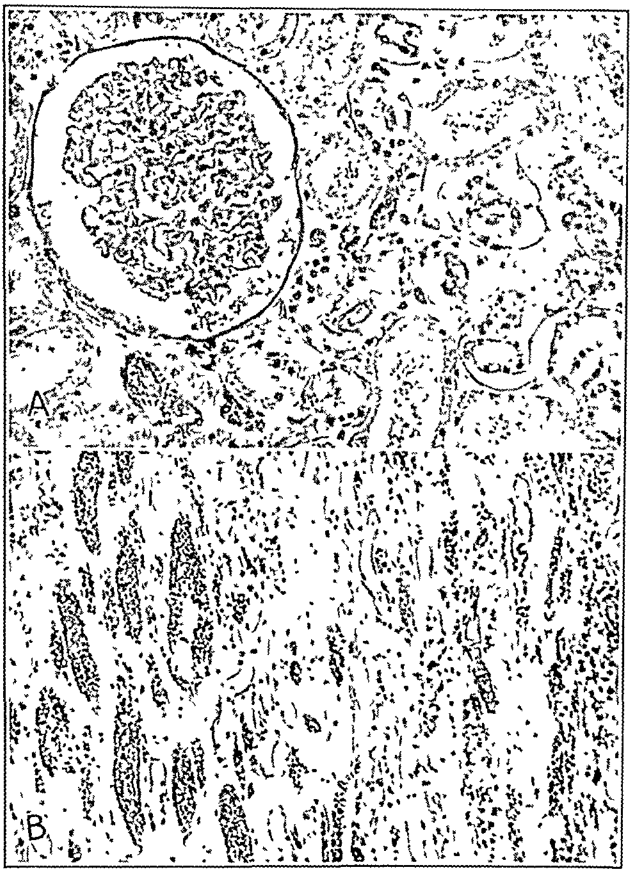

Fig 1 (case 1) —Photomicrograph (*A*) of renal cortex after traumatic shock Note the granular material in the capsular spaces and in the lumens The epithelium is cuboidal and the lumens wide, the cells show parenchymatous degeneration, and some are necrotic The nuclei are hyperchromatic, some have disappeared There are casts and desquamated cells in the lower segments of the tubules (Army Medical Museum, negative 86832) *B*, medullary portion of the same kidney as *A*. Desquamation of lining, blood casts, pigmented casts and edema are shown (Army Medical Museum, negative 86839).

The kidneys in such cases presented the picture just described. It was considered that the renal deficiency was due to mechanical blockage of the collecting tubules by plugs of pigmented débris. Were this the case, the majority of the tubules should show stoppage, and the gross size of the kidneys should be greatly increased. In sections from a patient with a typical case of shock syndrome furnished by Dr. Bywaters, only a minority of the collecting tubules were obstructed. The histologic features were identical with those resulting from surgical shock or from low atmospheric pressure (figs. 1 and 2).

Numerous instances of renal effects were found during a study of shock in the records and specimens collected by the Army Institute of Pathology. A few typical cases will be cited.

REPORT OF CASES

CASE 1.—A man aged 39 suffered lacerations, contusions and multiple fractures of the femur, ankle and ribs. He was in profound shock on admission to the Station Hospital; the pulse and blood pressure could not be determined. Transfusions of blood and fluids given intravenously were ineffective; he died of progressive circulatory failure thirty hours after the accident. The kidneys (fig. 1) show all the characteristic changes previously described, although the subject died before renal deficiency became advanced.

CASE 2—Resection of rectal carcinoma, performed under spinal anesthesia on a man aged 59, "was followed immediately by marked shock from which he did not entirely recover." Repeated transfusions of blood and of plasma did not restore circulatory efficiency. The blood pressure fluctuated between 60 and 100 diastolic. Urination was almost completely suppressed. The nonprotein nitrogen and creatinine rose progressively, and death occurred on the fourth day. The clinical diagnosis was uremia secondary to severe postoperative shock

The kidneys weighed 210 and 190 Gm.; the subcapsular vessels were engorged; the cortex was thickened, opaque and pink The tubular epithelium showed granular degeneration, decided vacuolization and beginning necrosis, which involved chiefly the upper segment. The tubules contained débris and desquamated epithelium, and there was moderate edema of the stroma.

The literature contains many observations on the renal effects of burns, so I shall give only 1 additonal example:

CASE 3.—This young man's clothing was saturated with gasoline and ignited. He sustained first, second and third degree burns of the entire body. Treatment for shock with morphine, plasma and dextrose-saline injections was begun at once; the burned areas were debrided, and pressure dressings were applied. The urine was scanty and dark; it contained albumin, red blood cells and blood casts. On the fourth day the total output was only 200 cc. of coffee-colored urine. No chemical determinations were made. Death occurred at the end of the fourth day.

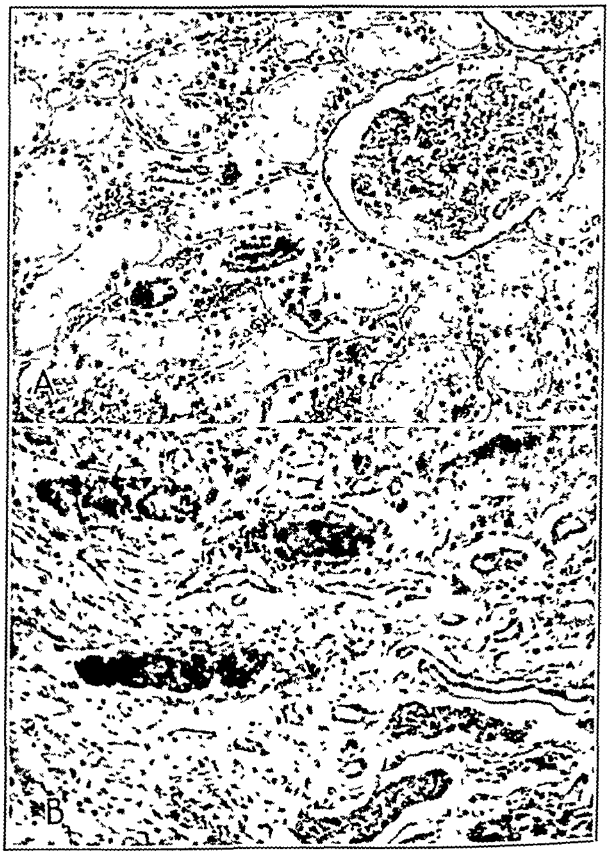

Fig. 2 (case 7) —Photomicrograph (*A*) of renal cortex after shock from low atmospheric pressure. Pronounced hyperemia, granular material in capsular spaces and in lumens, hyperchromic nuclei, degeneration and necrosis of epithelial cells, blood and pigmented plugs within the tubules are seen (Army Medical Museum, negative 86841). *B*, renal medulla from the same case. Desquamation of the lining and cellular, hyaline and pigmented casts are shown.

The visceral findings at necropsy were those usually seen after death from burns. The kidneys weighed 200 and 240 Gm, respectively; they were soft, swollen and grayish pink; the cortical markings were obscure, and the superficial vessels were engorged. Amorphous material was present in the capsular spaces; the tubular epithelium showed advanced degenerative changes; it was low cuboidal in form, and the lumens contained débris and casts consisting of red blood cells, hyaline and dark brown pigment. The color of the pigment is of particular interest because the patient had not received transfusions of blood, sulfonamide compounds or other drugs except penicillin. Evidently the occurrence of pigmented casts is not dependent on transfusion or on sulfonamide therapy.

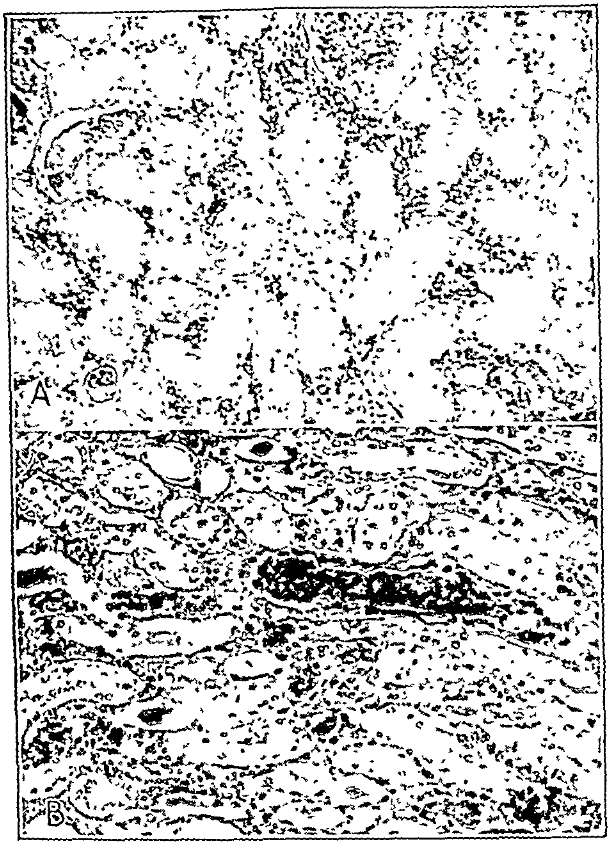

Fig. 3—Photomicrograph (*A*) of renal cortex after death from burns. Pronounced hyperemia, erythrocytes in capsular space, epithelial degeneration and necrosis, debris and pigmented plugs within the lumens are shown (Army Medical Museum, negative 89865). *B*, photomicrograph of renal medulla after shock from intestinal obstruction plus surgical intervention. Hyaline and pigmented casts, erythrocytes within the lumens and desquamation of the lining are shown (Army Medical Museum, negative 86830).

It is commonly known that severe infections of various types often disturb renal function. This seems to depend on the severity rather than on the species of the infection. Numerous accounts of febrile albuminuria may be found; only occasionally did the authors of such articles recognize a relationship to shock. The following is an instance.

CASE 4.—Severe illness developed in this man, with moderate leukocytosis and a temperature of 103 to 104 F. He was treated with sulfonamide drugs and penicillin without effect. The blood pressure declined to 80 systolic and 60 diastolic. He became anuric, and uremic crystals covered the cutaneous surfaces. The nonprotein nitrogen rose to 288 mg. and the creatinine to 6.6 mg. per hundred cubic centimeters of blood, on the eleventh day of illness. He died in coma on the twelfth day. From the character of the illness and the postmortem observations a provisional diagnosis of systemic tularemia was made.

The necropsy revealed numerous scattered nodules in the lungs and spleen. These contained necrotic areas, fibrin and monocytic infiltration such as occur in tularemic inflammation. The spleen and liver were enlarged, the viscera were hyperemic. The kidneys were moderately swollen and contained capillary hemorrhages. There was extensive degeneration and necrosis, especially severe in the proximal portion of the convoluted tubules. The lumens contained débris and casts, both hyaline and granular. These features were of the same order as those seen in renal deficiency from other causes.

It is well known that either hyperthermia or heat stroke may cause circulatory collapse; in some instances the subject may survive several days in a state of sublethal shock accompanied by renal deficiency. The following case reports are instances.

CASE 5.—Circulatory collapse developed in this man after six hours at 107 F. in hyperthermic treatment for gonorrhea. On his removal from the cabinet the blood pressure fell to 50 systolic and 30 diastolic. The pulse rate was 156, and the urea nitrogen of the blood was 22 mg. per hundred cubic centimeters. There were oliguria and albuminuria, and the urine contained erythrocytes and casts. Supportive treatment was inffective, the circulatory deficiency continued and the blood urea nitrogen level rose to 77 mg. per hundred cubic centimeters. Death came ninety-eight hours after the therapeutic hyperthermia.

As is usual in such cases, the visceral findings were those characteristic of secondary shock. The kidneys, weighing 240 and 250 Gm., were swollen and reddish brown. The cortical markings were obscure, and the pelvic lining contained petechial hemorrhages. Microscopically, both cortex and medulla were hyperemic. The tubular epithelium was severely degenerated; the lumens were wide and contained débris and desquamated cells; the collecting tubules contained casts and many erythrocytes. The stroma was edematous.

CASE 6.—In this man there developed nausea, vomiting, weakness and circulatory deficiency while he was working in excessive heat. Other observations were a rapid pulse rate, low blood pressure and hemoconcentration. The following day the urine was scanty; it contained albumin, red cells and casts. The circulatory deficiency continued despite the administration of plasma and saline fluids intravenously. The blood urea level rose progressively, and death occurred six days after the collapse. Clinically this case was designated as heat exhaustion. Pronounced visceral hyperemia, serous effusions, edema, petechial hemorrhages and severe parenchymatous degeneration were revealed at necropsy. The renal observations were similar to those in the preceding case, except that tubular necrosis was more advanced and there were more casts in the lumens.

In military aviation at high altitudes circulatory collapse resembling surgical shock often developed even though oxygen was adequately supplied. "The most dangerous aspects are seen after a latent period of one to six hours, resulting in a full-blown vicious circle of peripheral circulatory insufficiency, tissue anoxia and marked hemoconcentration."[13] I had the opportunity to examine the records and material in 5 such cases. The following is a typical example.

CASE 7.—This man was undergoing a test in the low pressure chamber at a relative altitude of 38,000 feet when pains and distress developed. After gradual recompression he seemed drowsy and incoherent, and he was put to bed immediately. The pulse rate then was 80, and the blood pressure, 110 systolic and 80 diastolic. Severe circulatory deficiency developed four hours later; the pulse could not be obtained, the hematocrit reading had risen to 64.9, the patient was sweating and apparently was in profound shock. He was given plasma and isotonic solution of sodium chloride intravenously and oxygen by inhalation. Severe hyperpyrexia developed like that which accompanies heat stroke; the rectal temperature rose to 108.4 F. The urine was scanty and contained albumin 4 plus. No blood chemical tests were made. Despite the administration of intravenous fluids and other measures the circulatory deficiency persisted; death came forty-five hours after the patient's removal from the low pressure chamber.

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[13] Physiology of Flight, Air Forces Manual 25-2, United States War Department, Army Air Forces, 1945, pp. 17 and 36.

The necropsy observations were the same as those seen in secondary shock from other causes. Microscopic examination of the kidneys revealed the identical pattern of changes seen in the crush syndrome or after transfusion with incompatible blood. It is highly significant that numerous pigmented casts were found, although no transfusions and no therapy with sulfonamide compounds or other drugs had been given.

Space is lacking for details of other instances. These would include intestinal obstruction, peritonitis, perforations of viscera, coronary occlusion, radiation sickness, toxic jaundice, transfusion reaction, anaphylaxis, poisoning with various chemicals, reaction to arsenical therapy, overdoses of sedatives and of sulfonamide drugs, diabetic crises and others. Each of these conditions, if its severity is maximal, will result in the syndrome of shock leading to death. Each of them, when less severe, may cause the syndrome of uremia leading to delayed death. The morphologic changes in the kidneys are of the same pattern, regardless of the causative condition.

Several factors may operate to cause degeneration and necrosis of the tubular epithelium. Poisons, as mercury, arsenic and others, are believed to damage the cells directly. Toxins and other products of bacterial metabolism may have a similar action. Many believe that toxic factors are concerned in shock from trauma or burns. In open contaminated wounds bacterial metabolic agents are an additional factor. Bile and other metabolic agents in abnormal concentration may be injurious to parenchymatous cells. Hence, in cases of poisoning, infections, contaminated wounds and metabolic intoxications, it is possible that the agents mentioned may be responsible for the cellular damage. However, exactly the same pattern of degenerative changes develop in shock from anaphylaxis, transfusion with incompatible blood, asphyxia and anoxia of various types, coronary occlusion, heat stroke and low atmospheric pressure. The effects in these conditions cannot be explained satisfactorily as due to toxic agents. One concludes that other factors, such as neural influences or anoxia play an important role. The degeneration and necrosis of tubular epithelium probably do not result from a single cause but from several causes which operate in varying combinations.

Because of the diverse conditions of its development, the frequency of this renal disorder is high. My observations confirm those of Jeghers and Bakst[12] that "azotemia is much more commonly due to the mechanisms discussed than to organic renal disease." The patient may die of circulatory or renal failure or from their combined effects. When he survives for a time, the oliguria may suddenly give place to polyuria. This is regarded as a favorable sign, indicative of the return of renal function and the beginning of convalescence. When recovery occurs the tubular epithelium regenerates and there are no residual alterations, either morphologic or functional, in the kidneys.

Several explanations have been proposed for renal deficiency associated with sublethal shock. It has been suggested that glomerular filtration, which depends partly on capillary blood pressure, is decreased because of the low arterial pressure which accompanies shock. Reduced filtration would reduce renal elimination correspondingly. However, the blood pressure is not regularly below normal; this syndrome frequently develops even though the blood pressure is maintained at adequate levels by intravenous therapy.

Again, it has been suggested that the glomeruli are unable to produce a filtrate from blood which is above normal concentration. This factor may be of importance when hemoconcentration is pronounced. However, renal insufficiency is present often in the absence of hemoconcentration; in many cases reported, uremia was severe but the blood was not concentrated.

Several have suggested that the deficient excretion of urine is due to mechanical blockage of the tubules by plugs of débris. If this were the chief factor in reducing renal elimination, the kidneys should be swollen beyond the maximum size recorded in any such cases. Also, I have never seen an instance in which as many as 20 per cent of the tubules were obstructed by casts. The *remaining* 80 per cent of unobstructed tubules should be adequate to maintain renal elimination within physiologic limits.

Richards'[14] investigations on renal function provide an acceptable explanation for renal deficiency associated with damage to the tubular epithelium. They showed that degeneration of the epithelium reduced its function of selective absorption, by which the glomerular filtrate is concentrated during its passage through the convoluted tubules. When these were seriously damaged they allowed the entire filtrate to be resorbed into the circulation by a process of diffusion. This produced decided oliguria or anuria by the interruption of renal secretion. Without attempting a final explanation for renal functional deficiency associated with shock, I lean toward the interpretation suggested by Richards.

This form of renal disease is not new; it was described by internists fifty years ago under such terms as acute nephritis, acute Bright's disease and acute parenchymatous nephritis. Osler[15] cited poisoning with various chemicals and drugs, diphtheria, influenza and other severe infections, surgical operations, trauma and burns among the conditions of its occurrence. The clinical signs included oliguria, albuminuria, hematuria, casts, dark or smoky urine having a high specific gravity and uremia.

Pathologists contemporary with Osler (Ziegler,[16] Kaufmann,[17] Coplin,[18] Adami,[19] Delafield and Prudden[20]) described the chief morphologic features, as given in a preceding paragraph, under such terms as acute tubular nephritis, acute parenchymatous nephritis, desquamative or degenerative nephritis and acute Bright's disease. The conditions of its occurrence were those given by the internists. Both Adami and Ziegler stated that it may be impossible to distinguish between cloudy swelling and this form of nephritis.

When the present terminology of renal disease was proposed, acute parenchymatous nephritis or tubular disease had been dropped from the list; hence both clinicians and pathologists have lost sight of its importance. This terminology is deficient in that it provides no name for this entity. Such terms as acute tubular disease, tubular nephrosis or toxic nephrosis would indicate this condition adequately.

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14. Richards, A. N.: Changes in Function of the Renal Tubule, Tr. A. Am. Physicians **44**: 64, 1929.

15. Osler, W.: *Principles and Practice of Medicine*, ed. 1, New York, Appleton & Co., 1892, p. 741; also in all later editions.

16. Ziegler, E.: Pathologische Anatomie, Jena, G. Fischer, 1898, vol. 2, pp. 749-757.

17. Kaufmann, E.: Lehrbuch der speziellen pathologischen Anatomie, ed. 6, Berlin, G. Reimer, 1911, vol. 2, pp. 830-833.

18. Coplin, W. M. T.: Manual of Pathology, Philadelphia, P. Blakiston's Son & Co., 1911, pp. 656-657.

19. Adami, J. G., and Nicholls, A. G.: Principles of Pathology, Philadelphia, Lea & Febiger, 1909, vol. 2, pp. 740-743.

20. Delafield, F., and Prudden, T. M.: Textbook of Pathology, ed. 10, New York, William Wood & Company, 1914, pp. 757-760.

SUMMARY

Oliguria or anuria occurs regularly during the development of secondary shock. Deficiency of renal function becomes a prominent feature if a state of sublethal shock persists for a time.

This deficiency is manifested clinically by oliguria, albuminuria, hematuria, casts and the progressive retention of nitrogenous wastes often terminating in uremia.

The pathologic renal features include hyperemia and edema, parenchymatous degeneration ranging to necrosis of the tubular epithelium, desquamation of the lining, débris, and hyaline, granular and sometimes pigmented casts in the lumens.

These changes may result from toxic or from anoxic effect on the renal epithelium. This form of renal disorder is of common occurrence because of the various conditions which may cause shock. If the causative condition is abated, recovery may follow In such cases the cells regenerate and no permanent structural changes result.

This renal disorder formerly was known to pathologists and clinicians as acute parenchymatous, desquamative or acute tubular nephritis. It is not discussed adequately in recent medical treatises.

THE RENAL LESIONS IN EXTENSIVE CUTANEOUS BURNS

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and
F. W. HARTMAN, M D
Detroit

The literature dealing with the pathologic anatomy of the kidneys following severe cutaneous burns is extensive. Descriptions of the gross lesions were published by Cumin[1] in 1823 and by Long[2] in 1840, but these are chiefly of historical interest The modern concept of the renal changes associated with burns began with Wertheim's[3] description in 1867 of his findings in dogs, supplemented in 1868 by study of a severely burned patient. Utilizing the observations of Schultze[4] (1865) on the degenerative changes in red blood cells on a heated *microscopic stage*, Wertheim described crystals of blood pigment in the renal tubules in both his experimental animals and patients. The parenchymatous changes he referred to as a form of "Bright's kidney."

The presence of hemoglobin in the renal tubules after severe burns was confirmed by Ponfick[5] (1876), Fraenkel[6] (1889) and others. Ponfick also described "intensive congestion of the larger renal arteries, vasa afferentia and glomerular loops, with red blood cells, as well as a moderate, fatty infiltration and hyaline casts in the convoluted tubules." Fraenkel suggested that the plugging of the renal tubules with blood pigment might be responsible for the oliguria and renal changes in the presence of serious burns.

Welti[7] (1889) found scattered hyaline and granular thrombi in the arteriolae rectae and other renal vessels of rabbits burned with hot water. Similar thrombi were produced experimentally by Silbermann[8] (1890) and were recorded in human necropsies by Bardeen[9] (1897), Weiskotten[10] (1919), Vogt[11] (1929) and others.

Inflammatory changes in the tubules of the cortex, with the formation of an exudate, were demonstrated by Schjerning[12] (1884). Wilms[13] (1901) and Marchand[14] (1908), however, denied the existence of a *nephritis due to burns, though they* both noted the degenerative changes in the tubules reported by earlier workers; and Marchand asserted, in agreement with Wertheim, that these changes were due to the excretion of hemoglobin. Dohrn[15] (1901) was able to find pathologic lesions of the kidneys attributable to burns in only 3 of 9 necropsies which he reported.

In a study of the internal lesions of patients dying of superficial burns, McCrae[16] (1901) noted an endothelial hyperplasia in the glomerular capillaries. In 3 cases recorded by Raysky[17] (1910) the alterations in the kidneys were of varying intensity. In 1 only slight changes in the glomeruli were present, while in another there was a diffuse necrosis. In the remaining case, which was intermediate between the others in severity, there was an infiltration of round cells, "chiefly localized about the glomeruli," but without glomerular destruction. Heyde and Vogt[18] (1913) observed an accumulation of lipoids in the interstitial tissues of the kidneys, and Zinck[19] (1938) found a high grade edema in the large renal vessels and calcium deposits in the tubular epithelium.

Moon and Kennedy[20] (1932), studying the shock syndrome, demonstrated "dilatation and engorgement of the capillaries and venules," including those of the kidneys and lungs, and increased "permeability of the capillary walls, as indicated by petechial hemorrhages and effusion into serous cavities." In his subsequent extensive work on the pathologic anatomy of shock,

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Because of lack of space this article is abbreviated in THE JOURNAL by omission of part of the illustrations

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Read in a symposium on "Renal Insufficiency in the Shock Syndrome" before the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946

[1] Cumin, W Cases of Severe Burn, with Dissection and Remarks, Edinburgh M & S J **19:** 337 344, 1823

[2] Long, J On the Postmortem Appearances Found After Burns, London M Gaz **1:** 743, 1840

[3] Wertheim Experimentelle Studien ueber Verbrennung und Verbruehung, angestellt an Hunden, Wien med Presse **8:** 1237 1239, 1867, Ueber die pathologisch mikroskopische Veraenderung des Blutes bei Verbrennungen, Wien med Wchnschr **18:** 826, 1868

[4] Schultze, M Ein heizbarer Objecttisch und seine Verwendung bei Untersuchungen des Blutes, Arch f mikr Anat **1:** 1 43, 1865

[5] Ponfick, E Ueber ploetzliche Todesfaelle nach Verbrennungen Berl klin Wchnschr **17:** 225 228, 1876

[6] Fraenkel, E Ueber anatomische Befunde bei akuten Todesfaellen nach ausgedehnten Verbrennungen, Deutsche med Wchnschr. **15:** 22 23, 1889.

[7] Welti, E Ueber Todesursachen nach Hautverbrennungen, Beitr. z. path Anat **4:** 521 555, 1889, Drei Falle von Verbrennungstod, Centralbl f allg Path u path Anat **1:** 537 550, 1890

[8] Silbermann, O Untersuchungen ueber die Krankheitserscheinungen und Ursachen des raschen Todes nach schweren Hautverbrennungen, Virchows Arch f path Anat **119:** 488 523, 1890

[9] Bardeen, C R A Study of the Visceral Changes in Extensive Superficial Burns, J Exper Med **2:** 501 514, 1897, A Review of the Pathology of Superficial Burns with a Contribution to Our Knowledge of the Pathological Changes in the Organs in Cases of Rapidly Fatal Burns, Johns Hopkins Hosp Rep **7:** 137 179, 1898

[10] Weiskotten, H G Histopathology of Superficial Burns, J A M A **72:** 259 261 (Jan 25) 1919

[11] Vogt, W Ueber histologische Befunde beim Verbrennungstod, Virchows Arch f path Anat **273:** 140 153, 1929

[12] Schjerning Ueber den Tod in Folge von Verbrennung und Verbruehung vom gerichtsaerztlichen Standpunkte, Vrtljschr d gerichtl Med **41:** 24 273, 1884

[13] Wilms, M Studien zur Pathologie der Verbrennung Die Ursache des Todes nach ausgedehnter Hautverbrennung, Mitt a d Grenzgeb d Med u Chir **8:** 393 442, 1901

[14] Marchand, F, in Krehl, L, and Marchand, F Handbuch der allgemeinen Pathologie, Leipzig, S Hirzel, 1908, vol 1, p 80

[15] Dohrn, K Zur pathologischen Anatomie des Fruehtodes nach Hautverbrennungen, Deutsche Ztschr f Chir **60:** 469 499, 1901

[16] McCrae, J The Nature of Internal Lesions in Death from Superficial Burns, Tr A Am Physicians **16:** 153 165, 1901

[17] Raysky Beitrag zur Kasuistik der lokalen und allgemeinen Veraenderungen beim Tode durch Verbrennung, Virchows Arch f path Anat **201:** 208 219, 1910

[18] Heyde and Vogt, W Studien ueber die Wirkung des aseptisch chirurgischen Gewebzerfalls und Versuche ueber die Ursachen des Verbrennungstodes, Ztschr f d ges exper Med **1:** 59 104, 1913

[19] Zinck, K H Gefaess und Organveraenderungen nach Verbrennung, Klin Wchnschr **17:** 278 279, 1938

[20] Moon, V. H, and Kennedy, P. J · Pathology of Shock, Arch Path **14:** 360 371 (Sept) 1932 Moon, V. H Shock Its Dynamics, Occurrence and Management, Philadelphia, Lea & Febiger, 1942, pp 97-135, 136 154 and 186 195

Moon indicated the many points of similarity between "burn shock" and shock due to other causes.

In 2 patients who died five hours and five days, respectively, after extensive burns, Davis[21] (1940) found a "congestive hemorrhagic and edematous visceral appearance," which he interpreted as typical of the shock syndrome. Olson and his co-workers[22] (1944), however, were able to differentiate between burn shock and tourniquet and hemorrhagic shock in dogs on the basis of the renal output following infusions of saline solution. In the unburned animals renal output was increased by the infusion, but no such change was observed in those suffering from shock incident to burns.

The most extensive clinicopathologic correlations in cases of burns are those of Christophe[23] (1939). On the basis of detailed clinical and autopsy records of 164 burned dogs he postulated the presence of an "acute glomerulonephritis" characterized clinically by: (1) oliguria with albuminuria and casts, or anuria, for twenty-four to forty-eight hours; (2) progressive rise in the nonprotein nitrogen and blood urea nitrogen; (3) lowering of plasma osmotic pressure and reversal of the albumin-globulin ratio; (4) decrease in total blood volume; (5) decreased alkaline reserve and p_H of the blood; (6) decreased plasma chlorides, and (7) increased blood cholesterol. The renal lesions were described by Christophe as identical with those of "acute glomerulonephritis," consisting in extensive glomerular congestion and tubular degeneration. He asserted that there is a toxic principle in the blood returning from the burned area; that in the first ten hours after the burn this principle is absorbed, and that to it, and secondarily to its effect on the brain, the visceral lesions are due.

TABLE 1.—*Summary of Renal Changes Associated with Extensive Burns*

I. Exclusively early changes (first 72 hours): hemoglobin casts in the tubules, bilateral cortical necrosis

II. Exclusively late changes (after 72 hours): acute interstitial nephritis, metastatic abscesses

III. Changes seen both early and late:

1. Degenerative changes in the tubules
    - (*a*) Albuminous degeneration, vacuolar degeneration, and simple necrosis, particularly of the proximal convoluted tubule, and Henle's loop, less frequently of the distal convoluted tubules
    - (*b*) Degenerative fatty infiltration of the tubules
2. Congestion of the blood vessels with erythrocytes
3. Interstitial and submucosal hemorrhages
4. Thrombi: hyaline in the glomerular loops, granular in the larger vessels
5. Infarcts: hemorrhagic and anemic
6. Glomerular endothelial hyperplasia
7. Hyaline, granular and hemoglobin casts
8. Interstitial edema

This recapitulation is based on the observations of previous investigators.

A similar attempt to correlate the clinical and pathologic data was made by Goodpastor and his associates[24] (1946) in 47 patients with severe thermal burns, some of them victims of the Cocoanut Grove disaster of 1942. In 20 patients definite morphologic changes in the kidneys were demonstrated at necropsy. In addition to necrosis and the presence of pigment and cellular casts in the tubules, these writers reported in some instances a regeneration of the tubular epithelium, which they interpreted as "indicative of repair of tubular necrosis."

Brown and Crane[25] (1943) reported a case of bilateral cortical necrosis of the kidneys in a woman who died the sixth day after receiving severe burns involving 40 per cent of the body surface. The renal vascular damage in this case—probably the most extensive to be recorded in the literature—apparently coincided with the period of deep shock, the first forty-eight hours after the burn occurred.

Bell[26] (1946) described a vacuolar degeneration of the epithelium of the proximal convoluted tubules. Other important contributors to the literature on the renal pathology in burns include Simonart[27] (1937); Wilson, MacGregor and Stewart[28] (1938); Erb and associates[29] (1943); Baker[30] (1945); Gibson[31] (1945); Pack[32] (1926), and Shen, Ham and Fleming[33] (1943).

A brief recapitulation of the essential findings of previous workers on the renal changes associated with extensive burns is presented in table 1.

OBSERVATIONS ON CURRENT STUDIES

The present report is based on a study of 84 experimentally burned dogs and 20 cases in man. The experimental observations were made at the Henry Ford Hospital on a series of animals which has served as a basis of previous papers on other aspects of thermal burns (Hartman,[34] 1941, 1943 and 1946). Data on 14 of the human cases were obtained from the autopsy files of the Department of Pathology of the University of Michigan, while data on the other 6 came from the Henry Ford Hospital.

On the trunks of dogs previously anesthetized with morphine and chloroform, second and third degree burns were inflicted by steam jet in 12 instances and by Bunsen burner in 72. The burns were of uniform depth and extent, comprising about 60 per cent of the body surface. The animals were kept under morphine sedation, and dressings of various types (tannic acid, tannic acid-silver nitrate, ferric chloride, boric acid ointment and petrolatum) were continuously applied. As these dressings appeared to have no influence on the renal changes, further reference will not be made to them. In a few instances treatment with penicillin was given; although this seemed to retard infection and thus prolonged life; it was apparently without effect on the pathologic process. The dogs were observed until death, and autopsies were performed immediately. A few moribund animals were killed.

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[21] Davis, H. A.: Pathology of Shock in Man: Visceral Effects of Trauma, Hemorrhage, Burns and Surgical Operations, Arch. Surg. **41:** 123-146 (July) 1940.

[22] Olson, W. H.; Walker, L., and Necheles, H.: Study of Anuria in Experimental Shock, Proc. Soc. Exper. Biol. & Med. **56:** 64-67, 1944.

[23] Christophe, L.: La mort des brûlés, Paris, Masson & Cie, 1939.

[24] Goodpastor, W. E.; Levenson, S. M.; Tagnon, H. J.; Lund, C. C., and Taylor, F. H. L.: A Clinical and Pathologic Study of the Kidney in Patients with Thermal Burns, Surg., Gynec. & Obst. **82:** 652-670, 1946.

[25] Brown, C. E., and Crane, G. L.: Bilateral Cortical Necrosis of Kidneys Following Severe Burns, J. A. M. A. **122:** 871-873 (July 24) 1943.

[26] Bell, E. T.: Renal Diseases, Philadelphia, Lea & Febiger, 1946, pp. 260 and 273.

[27] Simonart, A.: Troubles circulatoires après brûlures étendues, Bruxelles med. **17:** 1402-1407, 1937.

[28] Wilson, W. C.; MacGregor, A. R., and Stewart, C. P.: Clinical Course and Pathology of Burns and Scalds Under Modern Methods of Treatment, Brit. J. Surg. **25:** 826-865, 1938.

[29] Erb, J. H.; Morgan, E. M., and Farmer, A. W.: The Pathology of Burns, Ann. Surg. **117:** 235-255, 1943.

[30] Baker, R. D.: The Internal Lesions in Burns with Special Reference to the Liver and the Splenic Nodules, Am. J. Path. **21:** 717-739, 1945.

[31] Gibson, T.: Studies of Burns and Scalds: VI. Post-Mortem Findings in Thirty Fatal Cases of Burning, Medical Research Council, Special Report Series no. 249, London, His Majesty's Stationery Office, 1945, pp. 192-202.

[32] Pack, G. T.: The Pathology of Burns, Arch. Path. **1:** 767 (May) 1926.

[33] Shen, H. C.; Ham, T. H., and Fleming, E. M.: Studies on the Destruction of Red Blood Cells, New England J. Med. **229:** 701-713, 1943.

[34] Buis, L. J., and Hartman, F. W.: Histopathology of the Liver Following Superficial Burns, Am. J. Clin. Path. **11:** 275-287, 1941. Hartman, F. W., and Romence, H. L.: Liver Necrosis in Burns, Ann. Surg. **118:** 402-416, 1943. Hartman, F. W.: Curling's Ulcer in Experimental Burns: I., ibid. **121:** 54-64, 1945; Curling's Ulcer in Experimental Burns: II. The Effect of Penicillin Therapy, Gastroenterology **6:** 130-140, 1946..

The renal observations in the animals and the human beings are summarized in table 2.

Vascular Congestion; Hemorrhages; Infarcts; Pyelonephritis.—Congestion of the renal vessels was present in at least 70 per cent of the human material and 75 per cent of the experimental animals. It was found to be greatest in the outer medulla and cortex and to involve chiefly the capillaries and venules.

Hemorrhage was not frequently observed. When it occurred independent of infarcts, it was usually in the outer zone of the medulla. Here, according to von Mollendorff[35] (1930), there are groups of fifteen to thirty small blood vessels (capillaries, arterioles, venules), and it is about these congested vessels that hemorrhages were most commonly seen, though they occurred also in the loose connective tissue beneath the pelvic mucosa.

TABLE 2.—*Renal Observations in Extensive Cutaneous Burns*

	20 Cases in Human Beings			84 Cases in Dogs		
	Present	Doubtful	Absent	Present	Doubtful	Absent
Venous and capillary congestion	14	5	1	63	9	12
Albuminous degeneration and simple necrosis of the proximal convoluted tubule	18	1	1	66	5	13
Albuminous degeneration and simple necrosis of Henle's loop	14	2	4	45	2	37
Vacuolar and necrotic changes of the collecting tubules	3	0	17	25	1	58
Necrosis and débris in Bowman's capsule	7	0	13	25	3	56
Glomerular endothelial hyperplasia	3	3	14	17	1	66
Acute interstitial nephritis	1		19	34		50
Pyelonephritis	3		17	8		76
Infarcts	3		17	8		76
Hemorrhages	4		16	13		71
Casts	7		13	9		75

Glomerular congestion was of much the same degree as that in the capillaries except in the presence of small contracted glomeruli or glomerular endothelial hyperplasia.

No hyaline or granular thrombi, such as those produced experimentally by Welti (1889), Silbermann (1890) and Simonart (1937) were seen in our materials. A possible explanation for this lies in the duration of the burning. Their animals were burned for much longer periods than ours, and it may be that the prolonged heat bears a direct relation to the production of thrombi. Septic bacterial emboli were present in 8 of our dogs and 3 of the human cases, with resultant hemorrhagic infarcts and pyelonephritis.

Albuminous Degeneration.—The albuminous degeneration and simple necrosis of the proximal convoluted tubules and of the ascending thick segments of Henle's loop did not differ from these changes as described by others, from Ponfick (1876) to the present day.

Presumptive evidence of regeneration of the tubular epithelium was seen in 29 of the 79 dogs that lived more than two days after burning. Such evidence consisted in (*a*) the presence of necrosis of the tubular epithelium, usually manifested by coarse eosinophilic debris in the lumen, without the formation of casts, and (*b*) new, well-defined low tubular epithelial cells with normal staining qualities. No mitotic figures such as those described by Goodpastor and his associates[24] (1946) and shown in their photomicrographs were encountered. While we have accepted the criteria previously noted as presumptive evidence of regeneration, we realize that they constitute only a doubtful basis for such an assumption. In the proximal convoluted tubules the medial border of the epithelium is sharply defined, and neither the brush border of the normal cell nor the frayed-out border of the necrotic cell is seen. It is extremely difficult, if not impossible,

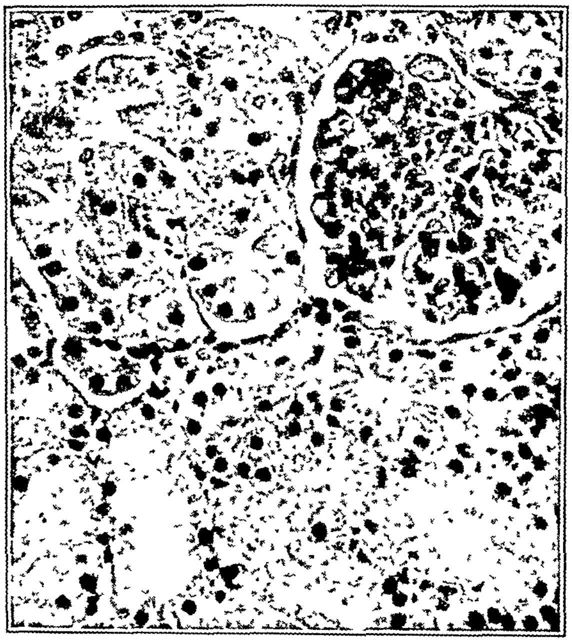

Fig 1 (case 3).—Photomicrograph of renal cortex (medium power). The survival time was twelve hours Note the albuminous degeneration and necrosis of the proximal convoluted tubules in contrast to the glomeruli, which appear normal

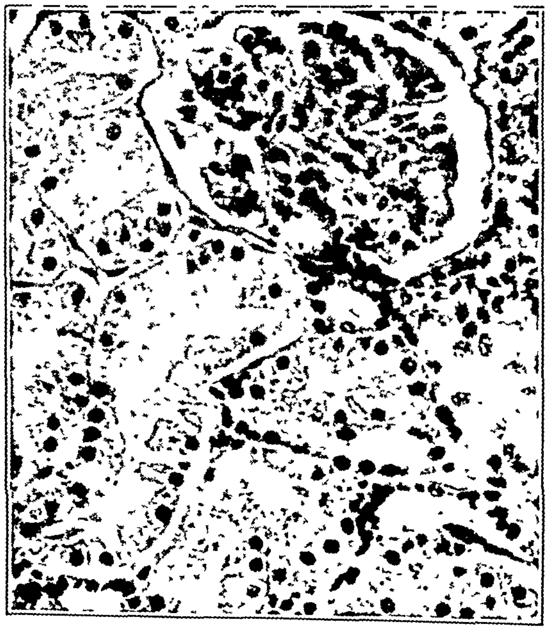

Fig 2 (case 3).—Photomicrograph of renal cortex (medium power). Note the albuminous degeneration and necrosis of proximal convoluted tubules

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35 von Möllendorff, W., Harn und Geschlechtsapparat, Berlin, Julius Springer, 1930, pt. 1, pp 253 255

to distinguish a regenerated epithelial cell from epithelial cells that have simply survived the early phases of the burn. Tilp[36] (1925), who has written extensively on "intracanalicular regeneration" of tubular epithelium, has stated that the process is characterized by the appearance of mitotic figures, the presence of new epithelium and the appearance of epithelial multinucleate giant cells.

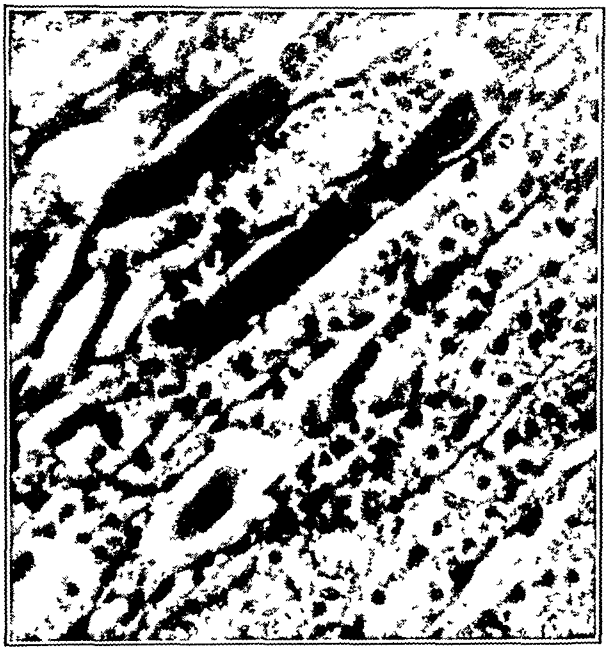

Fig 3—Photomicrograph of the medulla (inner zone) of the kidney of dog 3280 (medium power). The survival time was eleven days Note the hyaline casts and the vacuolar changes in the collecting tubules

Vacuolar and Necrotic Changes in the Tubules—Vacuolar degenerative changes in the proximal convoluted tubules were seen in 3 of the dogs but were not present in any of the human cases In no instance were they of the extreme degree shown by Bell[26] (1946) in his photomicrographs. The vacuolar and necrotic changes in the collecting tubules were principally confined to the medullary rays in the cortex. The vacuoles were of various sizes. Many filled the entire cytoplasmic portion of the cell. In such cells the nuclei were pyknotic. The cell borders were strikingly clear as prominent eosinophilic lines. The cytoplasm, however, was so modified that only a small amount of eosinophilic dust was seen in the large vacuoles. In the areas of milder change the cells had the appearance of hydropic degeneration, in other areas they appeared necrotic. These vacuolar and necrotic changes in the collecting tubules were found in 25 animals, 18 of which were in the first nine day survival group.

Similar changes were recorded in 3 of the human cases. The cause of this vacuolar change is obscure, but similar necrotic changes have been produced in the proximal convoluted tubules of rabbits by repeated injections of sucrose and dextrose (Helmholtz,[37] 1933). It is of interest that in 1 instance (case 10), that of a child aged 2½ years who showed hydropic degeneraion of the proximal convoluted tubules at necropsy, 100 cc. of a 25 per cent solution of dextrose had been administered two hours before death.

Necrosis and Débris in Bowman's Capsules Casts—Many of the degenerating tubules and capsules of Bowman were observed to contain eosinophilic amorphous débris, but true casts were infrequent. Three patients who died within seventy-two hours after receiving their burns showed casts of erythrocytic débris. Hyaline casts were also infrequent, being observed in only 9 dogs and 7 human cases. A few fresh eosinophilic hyaline casts were noted in distended collecting tubules, and in 1 instance numerous older, partially calcified, hyaline casts were present in undistended tubules. This was the only evidence of calcification in the kidney which was encountered in our study. Extensive calcification of the renal tubules after burns was reported by Zinck[10] (1938) and attributed by him to hypochloremia.

Fatty Infiltration.—Degenerative fatty infiltration of the kidney was noted in 6 of 14 autopsies in which fat stains were used. The small round orange globules of fat, stained with sudan III, were just visible at the base of the tubular epithelial cells. In some of these cases there was an associated fatty degenerative infiltration of the heart and liver. This change was considered to be due to the same factors as those which produce albuminous degeneration and simple necrosis, i. e, anoxia and metabolic poisons. In some of the cases reported here the process was so mild as to appear reversible.

Glomerular Endothelial Hyperplasia.—Glomerular endothelial proliferation was infrequent and, except in a few cases of old infected burns, was of a minimal and even questionable nature. In no case was the endothelial proliferation great enough to occlude the capillary lumens. Necrotic changes were also infrequent and, when they did occur, were usually attributable to embolic infections and postmortem change. We agree

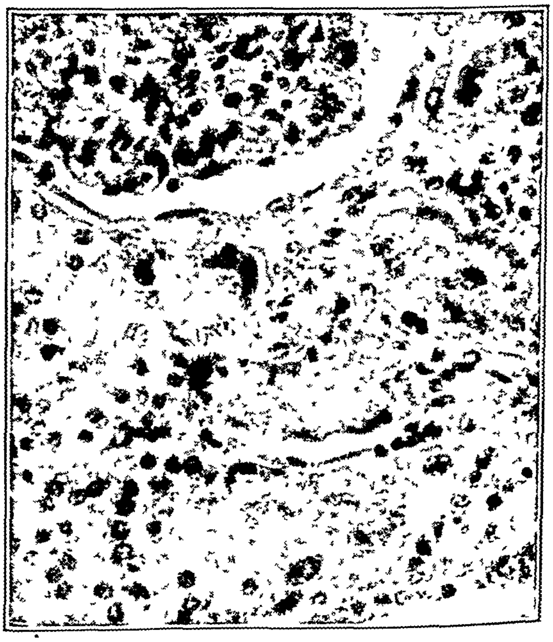

Fig 5 (case 8)—Photomicrograph of renal cortex (medium power) The survival time was forty six hours Different degrees of necrosis are shown in the proximal convoluted tubules Note the complete necrosis of the proximal convoluted tubules in contrast to the well preserved nature of the malpighian corpuscle

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36 Tilp, cited by Lubarsch, O: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1925, vol 6, pt. 1, pp. 583 584

37. Helmholtz, H F · Hydropic Degeneration Produced by Sucrose, J. Pediat 3: 144 150, 1933

with Wilms, Marchand, Vogt and others that there is no acute glomerulitis due to burns. This point, however, argues neither for nor against a circulating burn toxin.

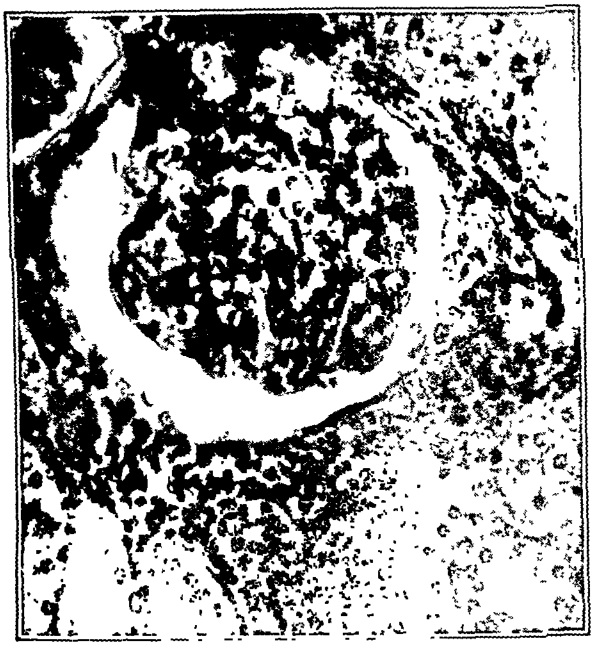

Fig 8—Photomicrograph of renal cortex of dog 3096 (medium power) The survival time was ten days Note the lymphocytic infiltration about the parietal wall of Bowman's capsule.

Acute Interstitial Nephritis.—In 34 of our dogs and in 1 of our human patients (case 17) an acute interstitial nephritis was observed. In an apparently similar case reported by Raysky (1910) the patient died three days after being burned. In no instance in our experience was acute interstitial nephritis seen before the third day, and in no case did it occur in the absence of secondary infection of the kidney. Classic descriptions of acute interstitial nephritis have been published by Councilman[38] (1897), Reichel[39] (1905), Marchand[40] (1913) and Aschoff[41] (1913). Our cases showed numerous foci of lymphocytic and plasma-cell infiltration in the lymph spaces and in the interstitial spaces immediately adjacent to the capsules of Bowman and the small blood vessels. The cortex was predominantly involved, but there were areas of infiltration also in the loose connective tissue about the larger vessels and beneath the pelvic mucosa. Seldom did the foci of infiltration surround the entire capsule of Bowman; when they did, the adjacent capsular epithelium became swollen and necrotic. In some such areas the glomerular loops were also contracted and degenerating. In general, in the immediate vicinity of small foci of infiltration the tubules were not altered in appearance, but in the more extensive foci of infiltration the tubules were replaced by infiltrating cells. The foci often followed the medullary rays through the cortex as prominent dark blue streaks. It is not known whether the lymphocytes come from the lymphoid structures in and about the kidney or from the blood. In the opinion of Fahr[42] (1925) they represent a response by the patient to the presence of a powerful bacterial exotoxin, such as those formed in diphtheria, scarlet fever and certain wound infections. The data in our cases suggest the presence of such an exotoxin associated with secondary infection of the burn areas. Fahr stated that kidneys showing such lymphocytic infiltration might return to normal with perhaps some scarring.

COMMENT

In summary, the most important pathologic lesions in the kidneys following extensive burns in the animal and human series here reported were found to be: (1) degenerative changes in the tubules; (2) congestion of the capillaries and venules; (3) tubular casts of the products of intravascular hemolysis, and (4) lesions due to infection.

The two principal pathologic-physiologic mechanisms which are believed to cause this damage are: shock and intravascular hemolysis. The significance of shock is twofold: Prolonged shock produces irreversible tubular degeneration and causes extrarenal uremia. With a fall of systolic blood pressure of 50 per cent, the volume of blood circulating through the kidney may be reduced 95 per cent, according to Richards[43] (1944). The result is oliguria or anuria with extrarenal azotemia.

The significance of intravascular hemolysis is less well understood. Earlier writers reported hematuria in a small minority of burn cases. Goodpastor (1946) found hemoglobinemia in all of his 20 patients with renal lesions and in all but 6 of the remaining 27 without pathologic changes in the kidneys. The frequency of intravascular hemolysis in the presence of extensive cutaneous burns is strikingly demonstrated by these figures.

Monke and Yuile[44] (1940) showed in experimental studies on dogs that the excretion of hemoglobin has a true renal threshold—about 100 mg. per hundred cubic centimeters—above which it is eliminated by the kidney at a rate directly proportional to its concentration in the plasma. They offered considerable evidence to show that, below this level, the hemoglobin in the glomerular filtrate is completely absorbed by the renal tubules, without injury. Recently Yuile, Gold, and Hinds[45] (1945) have reviewed the literature on the toxicity of the products of hemolysis on the kidney and, on the basis of their experimental material, have asserted that precipitation of hemoglobin in the renal tubules, and hence renal tubular necrosis, is primarily dependent on antecedent damage to the tubules and not on the acidity or alkalinity of the urine or the amount of hemoglobin in the blood. This antecedent damage to the kidneys may be produced by ischemia, shock or chemical poisoning. It is etiologically nonspecific.

Others have speculated on the possibility of a more toxic product of intravascular hemolysis, from either the erythrocyte stroma or a derivative of hemoglobin, as the cause of the extensive tubular necrosis about the hemoglobin casts.

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[38] Councilman, W. T: Pathology of Acute Interstitial Nephritis, Am J. M. Sc **114**: 23-44, 1897.

[39] Reichel, H. Ueber Nephritis bei Scharlach, Ztschr f Heilk **26**: 72-103, 1905

[40] Marchand, F.: Ueber die Herkunft der Lymphozyten und ihre Schicksale bei der Entzuendung, Verhandl. d deutsch path. Gesellsch. **16**: 5-80, 1913

[41] Aschoff, L: Pathologische Anatomie, Jena, Gustav Fischer, 1923, pp 448-450.

[42] Fahr, T., in Lubarsch, O Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1925, pp 362-365.

[43] Richards, D W. Circulation in Traumatic Shock in Man, Bull. New York Acad. Med **20**: 377, 1944.

[44] Monke, J V., and Yuile, C. L: The Renal Clearance of Hemoglobin in the Dog, J Exper. Med **72**: 149-165, 1940.

[45] Yuile, C. L; Gold, M. A, and Hinds, E. A: Hemoglobin Precipitation in Renal Tubules, J. Exper. Med **82**: 361-373, 1945.

There is a striking similarity between the hematuric "burn" kidney and the renal observations in other conditions characterized by intravascular hemolysis, such as those following incompatible transfusions of blood, in hemolytic reactions to sulfonamide therapy and in malaria. The "crush syndrome" kidney, in which casts of a myohemoglobin are present, exhibits a comparable picture.

Finally, it may be stated that, while the renal lesions following extensive cutaneous burns are usually of a minor, secondary and probably reversible character, with little danger to the patient, there are in a minority of cases more serious lesions caused by prolonged shock or by a combination of shock and intravascular hemolysis, or by infection, which may lead to renal insufficiency, renal destruction and death.

REPORT OF CASES

Abstracts of the 20 human burn cases follow:

Case 1.—A white man aged 37 had second and third degree burns involving 90 per cent of the body surface received from steam in a railroad accident. The survival time was four to five hours; there were multiple fractures and a history of shock. Autopsy observations included: multiple pulmonary fat emboli, severe catarrhal bronchitis with ulceration, aspiration bronchitis, edema of meninges and brain substance and congestion and edema of the lungs. The renal examination showed gross cloudy swelling, mild congestion of the vessels including the glomeruli, severe albuminous degeneration and necrosis of the proximal convoluted tubules and thick ascending portion of Henle's loops, hyaline casts; submucosal hemorrhages in the kidney pelvis, moderately severe postmortem changes and mild degenerative fatty infiltration of the tubules.

Case 2.—A white girl aged 3 years fell into a brush fire. First, second and third degree burns involved over 50 per cent of the body surface. The survival time was seven hours. There was a history of severe shock. Observations at autopsy included: cerebral edema, aspiration of food into the bronchi, pulmonary congestion and edema, patchy emphysema and atelectases, with terminal right-sided cardiac dilatation. The kidneys showed congestion of vessels including glomeruli with red blood cells, decided albuminous degeneration and some necrosis of the proximal convoluted tubules and ascending thick portion of Henle's loop, with vacuolar degeneration of the collecting tubules in the cortex.

Case 3.—A white boy aged 5 had his clothes ignited while he was playing with matches. Second and third degree burns involved the entire trunk from pubis to chin including the neck and arms, with some charring. Sixty to 70 per cent of the body surface was involved. The survival time was twelve hours, with a history of severe shock and hematemesis. The treatment had been débridement and 5 per cent tannic acid spray. Autopsy observations included acute catarrhal bronchitis, pulmonary congestion and edema. The kidneys showed mild congestion of the blood vessels, including the glomeruli, with erythrocytes; there was albuminous degeneration and necrosis of the proximal convoluted tubules.

Case 4.—A Negro woman aged 50 had the anterior surface of the body, comprising 30 per cent of the body surface, burned with steam or hot water. She suffered first and second degree burns. The survival time was less than twenty-four hours; the exact time is not known. There was a history of shock. At autopsy the observations were: right-sided cardiac dilatation with relative tricuspid and pulmonary insufficiency; atrophy, passive congestion and parenchymatous degeneration of all organs; syphilitic aortitis, and lipoidosis of the adrenals. In the kidneys the gross observations were as follows: The capsule stripped with some increased difficulty; the surface was slightly granular. Acute passive congestion, atrophy and one old infarct were seen. Microscopic examination revealed congestion of the vessels and glomeruli. There were albuminous degeneration and necrosis of the proximal convoluted tubules and ascending thick portion of Henle's loops, interstitial edema in the medulla, hyaline casts, sclerosis of the vessels and postmortem changes.

Case 5.—A white woman aged 80, whose clothes ignited while she was smoking in bed, had 75 per cent of the body surface involved in second and third degree burns. The survival time was twenty-four hours. Treatment consisted in petrolatum gauze and pressure bandages, plasma and fluids for shock. There was a history of oliguria (60 cc. after burn). Autopsy examinations showed acute tracheobronchitis, pulmonary congestion and parenchymatous degeneration of the liver and adrenals The kidneys on gross examination showed atrophy; the capsule stripped with slightly increased difficulty, leaving a finely granular surface; congestion was evident. Microscopic study revealed some congestion of the arterioles, capillaries and small veins but not of the glomeruli; also evident were glomerular endothelial hyperplasia, interstitial edema of the medulla, albuminous degeneration of the proximal convoluted tubules and thick ascending portions of Henle's loop and sclerosis of the vessels.

Case 6.—A white girl aged 3 years suffered second and third degree burns from the explosion of a gasoline stove, with 25 per cent of the body surface burned. The survival time was twenty-eight hours. A history of "toxic encephalitis" and terminal bilateral pneumonia was recorded. Autopsy observations were: acute passive congestion of all organs, petechial hemorrhages in the lungs, moderate parenchymatous degeneration of heart, liver and kidneys, acute catarrhal gastroenteritis and congestion and edema of the brain. The kidneys on gross examination showed severely congested, ground-glass appearance on cut section. Microscopic study disclosed congestion of the vessels and glomeruli with erythrocytes, albuminous degeneration of the tubules and ascending thick portion of Henle's loops, slight generalized glomerular endothelial hyperplasia, no lipoidosis and some foci of round cell infiltration.

Case 7.—A Mexican girl 2 years of age fell into a tub of scalding water. There were second and third degree burns over 35 per cent of the body surface. The survival time was forty hours. Tannic acid spray, 5 per cent, and blood transfusions were included in the treatment. There was a history of convulsions and pulmonary edema. At autopsy there was seen dehydration of all tissues with anhydremia, acute parenchymatous degeneration of the liver with beginning fatty metamorphosis, hemorrhage into the right adrenal gland and lymphadenopathy of the mesenteric glands. The kidneys on gross examination showed extreme congestion. Microscopic study disclosed congestion of the vessels with erythrocytes, albuminous degeneration of the proximal convoluted tubules and ascending thick portion of Henle's loops. There was some postmortem change.

Case 8.—A white man aged 38 was burned in an automobile accident. He had first, second and third degree burns involving 40 per cent of the body surface. The survival time was forty-six hours. He was treated with tannic acid and there was a history of shock and anuria. At autopsy the observations were: generalized edema, gangrene of the ileocecal region and sigmoid with thrombosis of the mesenteric veins and hemorrhage into the gastrointestinal tract, localized fibrinopurulent peritonitis, acute purulent bronchitis and lobar pneumonia, thrombi in the pulmonary arterioles, severe esophagitis and a small infected infarct of the adrenal. The gross renal examination showed some edema. Microscopic study of the kidneys revealed congestion of the vessels and glomeruli, petechial hemorrhages beneath the pelvic mucosa and in the medulla, casts of erythrocytic débris in the collecting tubules, albuminous degeneration and simple necrosis of the epithelium of the proximal convoluted tubules and ascending thick portion of Henle's loops. Abundant protein débris was present in the tubules; there was a slight arteriolosclerotic nephropathy, with mild fatty infiltration of the collecting tubules.

Case 9.—A white girl aged 6 years, whose clothes caught fire from a gas stove, had 45 per cent of the body surface involved in first, second and third degree burns. The survival time was forty-eight hours. Treatment included débridement, 7 per cent tannic acid jelly, adrenal cortical extract and blood transfusions. The history told of pulmonary edema and oliguria, prolonged and repeated emesis. There was a coroner's autopsy. Sections of heart, lungs, spleen, kidneys and liver were returned to Henry Ford Hospital. Autopsy observations were: edema and congestion of the lungs and myocardial degeneration. The kidneys exhibited mild congestion of the vessels but not of glomeruli, albuminous degeneration and simple necrosis of the proximal convoluted tubules and the ascending thick portion of Henle's loop. There were casts of erythrocytic débris in the collecting tubules.

Case 10.—A white girl aged 2½ years sat in a bucket of hot water. She suffered first and second degree burns which involved 50 per cent of the body surface The survival time was seventy-five hours. The burns were treated with tannic acid jelly and the child received repeated transfusions of blood. There was a history of prolonged stupor, acidosis and rapidly progressive anemia. Autopsy observations included: multiple petechial hemorrhages in the subperitoneal connective tissue, mesentery, omentum and gastrointestinal tract and beneath the visceral pleura; there was hemorrhage into the gastrointestinal tract; generalized edema was present with 400 cc. of ascitic fluid and 100 cc. of pleural fluid in each pleural cavity; decided parenchymatous degeneration of the liver had taken place; pulmonary congestion and hemorrhage were evident. The kidneys on gross examination exhibited several small hemorrhages in the peripelvic tissue and along the left ureter. The microscopic study showed widespread severe hydropic degeneration of the proximal convoluted tubules. ("Patient expired shortly after receiving 100 cc. of 25 per cent glucose" and 100 cc. of blood.) There was mild congestion of the vessels but not of the glomeruli. Erythrocytic débris was seen in the collecting tubules.

Case 11.—A white boy aged 2½ years died two days after extensive second degree burns involving the abdomen, axilla, back, buttocks, genitalia and lower extremities. There was a history of pulmonary edema and symptoms of toxicity. The autopsy showed: acute purulent bronchitis and fibrinopurulent lobar pneumonia; severe pulmonary congestion; edema and hemorrhage; patchy emphysema and atelectasis; lipoidosis of the myocardium, liver, adrenal cortex and kidneys, and intense acute passive congestion and edema of all viscera. The kidneys showed gross evidence of congestion and cloudy swelling. The microscopic observations were: congestion of vessels and glomeruli, albuminous degeneration and simple necrosis of the proximal convoluted tubules and ascending thick portion of Henle's loop, mild glomerular endothelial hyperplasia and severe degenerative fatty infiltration of the proximal convoluted tubules.

Case 12.—A Negro man aged 36 was burned by spilled molten iron, which ignited his clothes. Second and third degree burns involved 40 per cent of the body surface. The survival time was four days. Treatment consisted in the application of 7 per cent tannic acid jelly and the transfusion of blood. There was a history of bleeding from the gums the day before death. After the coroner's autopsy portions of liver, spleen, kidneys, adrenals and skin were returned to Henry Ford Hospital for sections. The autopsy showed generalized edema, ascites and hydrothorax, myocardial degeneration and extensive passive congestion of the liver, spleen and kidneys. Microscopic study of the kidneys showed congestion of the vessels but not of the glomeruli, albuminous degeneration of the proximal convoluted tubules and ascending thick portions of Henle's loops, necrosis of Bowman's capsule with intracapsular débris and granular casts in the collecting tubules.

Case 13.—A white man aged 24 died four and a half days following first, second and third degree burns involving approximately 30 per cent of the body surface. Autopsy revealed moderate infection and early healing of burned areas; agglutination thrombi in the pulmonary capillaries; cerebral and meningeal edema; a pronounced degree of acute passive congestion of the liver and spleen; patchy interstitial myocarditis; acute catarrhal bronchitis; localized superficial ulceration of the larynx; patchy Zenker's necrosis of the diaphragm, and lymphocytic infiltration of the adrenal gland. The kidneys on gross examination revealed cloudy swelling. The microscopic study disclosed: congestion of the vessels and the glomeruli; albuminous degeneration and simple necrosis of the proximal convoluted tubules, and ascending thick portions of the loop of Henle; recent hemorrhage into the submucosa of the pelvis; no lipoidosis; necrotizing ulceration of the pelvic mucosa, and a basophilic precipitate in some collecting tubules (probably a sulfonamide compound). There was minimal glomerular endothelial hyperplasia.

Case 14.—A white man aged 44 suffered second and third degree burns of the face, neck, hands, feet and right leg when a kerosene can exploded as he was lighting the kitchen stove. A history of secondary infection of burns and septicopyemia was recorded. The survival time was eight days. Autopsy revealed: pyemic abscesses of the lungs, myocardium, kidneys, testes and small intestine; acute fibrinopurulent pericarditis and endocarditis; acute purulent bronchitis and bronchopneumonia; pulmonary congestion, hemorrhage and edema; terminal cardiac dilatation with relative tricuspid and pulmonary insufficiency; acute passive congestion and parenchymatous degeneration of all organs. On gross examination of the kidneys several irregular light-colored areas were seen on the surface. Cut section showed these to be pyramidal, with the base at the periphery. Microscopic study revealed "multiple small embolic abscesses"; many of these contained colonies of cocci. There was albuminous degeneration of the proximal convoluted tubules and ascending thick portion of Henle's loop and congestion of the vessels and glomeruli. Lipoidosis was not observed.

Case 15.—A white woman aged 16 received second and third degree burns from an open furnace door ten days before her death. Autopsy disclosed intense acute passive congestion of the lungs, moderate chronic pulmonary edema and a small hemorrhagic infarct in the lung, with central abscess. Also there was evidence of acute purulent bronchitis, petechial hemorrhages in the submucosa of the bronchioles and congestion of all viscera. The kidneys on microscopic examination exhibited congestion of the vessels and glomeruli, albuminous degeneration and simple necrosis of the proximal convoluted tubules and ascending limb of Henle's loops and minimal glomerular endothelial hyperplasia. There was no lipoidosis.

Case 16.—A white boy aged 18 had his clothes catch fire while he was smoking in bed. There were second and third degree burns of the face, neck, thorax, right arm, abdomen, back, thighs and genitalia. From 60 to 65 per cent of the body surface was involved. The survival time was fourteen days. Autopsy disclosed acute purulent bronchitis and lobar pneumonia, older organizing fibrin in many alveoli and bronchi, bronchiolitis obliterans, pulmonary congestion and extensive hemorrhage, adhesive pleuritis, organizing mural thrombus in the heart, slight degenerative fatty infiltration of the myocardium, edema of the brain and meninges, widespread petechial hemorrhages beneath the serosal surfaces, hemorrhage and necrosis of the urinary bladder and colonic mucosa and submucosa, bone marrow giant cell emboli in the heart and renal glomeruli, shallow acute laryngeal ulcer, small fresh hemorrhagic splenic infarct and hydropericardium. Gross examination of the kidney revealed congestion. Microscopic study showed congestion of the vessels and glomeruli, albuminous degeneration and necrosis of the proximal convoluted tubules with calcification, vacuolar degeneration of Henle's loops and the collecting tubules and small hemorrhages in the medulla. There was no lipoidosis.

Case 17.—A white girl aged 8 years had her clothes catch fire while she was playing with matches. Death resulted fourteen days after extensive first and second degree burns of the neck, thorax, abdomen, back and arms. The treatment included tannic acid dressings. Autopsy revealed cerebral congestion and edema, subepicardial and pulmonary petechial hemorrhages, acute pulmonary edema, patchy atelectasis, degenerative fatty infiltration of the myocardium, liver and kidneys, slight chronic catarrhal tracheobronchitis and shallow acute esophageal ulcers. On gross examination the kidney was softer than usual, with cloudy swelling. Microscopic study revealed congestion of the vessels and glomeruli, lymphocytic infiltration beneath the pelvic mucosa, well advanced fatty degeneration of the tubular epithelium, moderate glomerular endothelial proliferation and acute interstitial nephritis with lymphocytic infiltration about blood vessels.

Case 18.—A white boy aged 3 years died the twenty-fifth day after scalding water caused extensive superficial burns (first, second and third degree) involving the skin of the back, abdomen, thighs, arms and genitalia. There was a history of infection of the burned areas. Autopsy examination disclosed infected burns, pronounced acute passive congestion and parenchymatous degeneration of all viscera, edema of the left foot and the scrotum and emphysema. On cut section of the kidneys a triangular abscess was seen in the upper pole of the left kidney. Microscopic study revealed: albuminous degeneration of the proximal convoluted tubules and ascending thick portion of Henle's loops; congestion of the vessels; areas of recent hemorrhage; early embolic purulent nephritis with several small necrotic foci around small vessels containing infected emboli, and slight degenerative fatty infiltration of the tubular epithelium.

Case 19.—A white boy 10 years of age was splashed with burning oil and 25 per cent of the body surface was involved in second and third degree burns. The survival time was twenty-six days; the burns were treated with tannic acid. Autopsy revealed: acute toxic encephalopathy; severe infection of unhealed burns with pyoderma; acute passive congestion and parenchymatous degeneration of the liver and kidneys; acute ulcerative and purulent esophagitis; agglutination of the red and white cells in the blood stream with multiple small emboli in the meninges and substance of the brain. The kidneys on gross examination were flabby, with cloudy swelling; they were moderately congested and minute yellow granules were adhering to the pelvic mucosa. Microscopic study disclosed congestion of the vessels, albuminous degeneration and simple necrosis of the proximal convoluted tubules, slight degenerative fatty infiltration of the tubules, minimal glomerular endothelial hyperplasia and sulfanilamide casts in the collecting tubules.

Case 20.—A white man aged 38 had gasoline burns of second and third degree, which involved 70 per cent of the body surface. The survival time was twenty-nine days. The burns were secondarily infected. Observations at autopsy were as follows: infected burns; acute chronic adhesive pericarditis; vegetations of the aortic, pulmonary and tricuspid valves; subepicardial fatty infiltration; subendocardial degeneration and fatty infiltration; endocardial sclerosis with fibrosis extending into the myocardium; terminal right-sided and left-sided cardiac dilatation; chronic adhesive and acute fibrinous pleuritis; early acute purulent bronchitis; pulmonary congestion, edema and atelectasis; multiple infarctions in the spleen and kidneys, and passive congestion and parenchymatous degeneration of all the organs. The kidneys on gross examination exhibited a smooth surface with mottled yellow areas in purple-red background; yellow areas were noted in the cortex on cut section. Microscopic study showed multiple infected infarcts, metastatic abscesses, congestion of the tubules and thick ascending portions of the loops of Henle and minimal glomerular endothelial proliferation.

CRUSH SYNDROME: POST-TRAUMATIC ANURIA

Observations on Genesis and Treatment

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Traumatic shock is thought of as an acute state from which no threatening residues persist. As regards recovery of renal function, doubt was cast on this view by reports from the scene of the Messina earthquake and by detailed studies of cases of post-traumatic uremia occurring in the German Army in World War I.[1] Crush syndrome was rediscovered, named and studied on a wider scale during the London blitz.[2] Similar cases have been reported from the accidents of civilian life.[3] Many others, civil and military, have probably gone undiagnosed because fatal shock and sepsis have probably overshadowed the defect of renal function.

Typically, the syndrome is initiated by crush of a limb or occlusion of its arterial supply for several hours. Release from débris or restoration of blood flow is followed by swelling, with whealing at the sites of compression. The limb becomes hard, paralyzed and anesthetic. Loss of plasma into the area of injury causes hemoconcentration. Shock may supervene and be relieved by transfusion. Urine passed during the first twenty-four hours is colored red or brown with myoglobin, contains albumin and shows many brown and black granular pigment casts. Urinary output and specific gravity thereafter diminish. The patient passes into restless delirium with thirst and vomiting. Arterial pressure and concentration of serum potassium are increased. Azotemia rises to about the sixth day, when death suddenly occurs in about two thirds of the cases. The volume of urine of those who are to recover increases about this time, and their renal function is slowly restored in succeeding months.

The anuria which may follow intravascular hemolysis, as by transfusion of incompatible blood, is familiar. Myoglobin, the red pigment of muscle, has the same basic structure as hemoglobin. The fact that its molecule is only a fourth as large permits it to be filtered through glomerular capillaries into renal tubules at about twenty-five times the rate of hemoglobin. Renal failure in crush syndrome was then, by analogy, attributed to deposition of myoglobin casts in the renal tubules.

The exact mechanism of hemoglobinuric nephrosis is not established. There is compelling evidence which associates it with urinary acidity. Renal damage in crush syndrome was therefore attributed to the coincidence of myoglobinuria—due to release of myoglobin from crushed muscle—and aciduria—due to the outpouring of lactic and phosphoric acids from damaged muscle cells.

From the Research Division of the Cleveland Clinic Foundation.

Read in a symposium on "Renal Insufficiency in the Shock Syndrome" before the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Minami, J.: Ueber Nierenveränderungen nach Vershüttung, Virchows Arch. f. path. Anat. **245**: 246, 1923.

[2] Bywaters, E. G. L., and Beall, D.: Crush Injuries with Impairment of Renal Function, Brit. M. J. **1**: 427, 1940. Mayon-White, R., and Solandt, O. M.: Case of Limb Compression Ending Fatally in Uraemia, *ibid.* **1**: 434, 1941.

[3] McClelland, J. C.: Anuria: A Report of Three Types of Cases, Canad. M. A. J. **45**: 332, 1941. Husfeldt, E., and Bjering, T.: Renal Disturbances in Traumatic Shock, Hospitalstid. **78**: 781, 1935. Caplan, A., and Dunkerley, G. E.: Traumatic Anuria in Miner, Lancet **1**: 147, 1945.

Others thought it more likely that renal injury in crush syndrome is a consequence of prolonged arterial hypotension with renal ischemia and anoxia; they viewed the blocking of renal tubules with pigment as more a result than a cause of renal damage.

Another view attributes renal injury to toxic substances liberated from injured tissues, either acting directly on renal tubule cells or acting indirectly by decreasing the rate of renal blood flow.

These differences in the point of view are significant, for prevention and treatment of crush syndrome depends on a knowledge of the mechanism which must be countered.

MECHANISM AND TREATMENT OF CRUSH SYNDROME

I. *The Pigment Theory.*—Our experience on the effect of intravenous injection of myoglobin and hemoglobin in normal dogs[4] and in rats with acid urine shows that the renal injury thus produced is highly variable and seldom serious. The renal function most depressed is that of tubular secretion. The degree of impairment is directly proportional to the amount of pigment retained in the kidneys. The amount of pigment retained does not depend directly on urinary p_H within the range 5.0 to 5.8. Rather, renal injury and pigmentary retention seem to depend on the coincidence of aciduria with oliguria (see the accompanying table).

Others[5] have observed renal injury which is occasionally severe in rabbits with acid urine injected with human myoglobin. Our conclusions vary from theirs in that we were unable to cause fatal uremia in normal animals and in our attribution of renal damage to the combination of aciduria with oliguria.

The fact that oliguria as well as aciduria is a requisite of myoglobin renal damage seems to explain some of the divergent reports on the renal effects of hemoglobinuria.[6] Other mechanisms of hemoglobinuric injury have been invoked, as in the suggestion that injection of hemoglobin solutions causes severe renal vasoconstriction.[7] This is not borne out in our experience, for injections of sterile solutions of both myoglobin and hemoglobin and even the initiation of intravascular hemolysis and hemoglobinuria cause no change in renal blood flow. The discrepancy may result from the injection of nonsterile solutions of hemoglobin.

Hemoglobinuric and myoglobinuric renal damage seem largely dependent on the precipitation of pigment casts within the renal tubules. This is most likely to occur when the urine is highly concentrated, i. e., oliguric and acid. These casts injure by causing hydronephrosis of nephrons and groups of nephrons. Pressure from distended nephrons may interfere with the function of some which are still patent. It is not clear that this is the sole mechanism of renal injury from pigment precipitation. Hematin is cytotoxic and when intravenously injected in large amounts causes severe renal as well as hepatic injury.[8] Myoglobin and hemoglobin in acid solution tend to form metamyoglobin and methemoglobin, respectively, and to be precipitated as such. Hematin is easily liberated from these metaforms of the pigments by tissue and urinary enzymes. Part of the renal tubular damage in hemoglobinuria and myoglobinuria may be due to release of hematin from precipitated heme-globin pigments.

II. *Shock, Hypotension and Renal Ischemia.*—Clamping the renal artery for periods of more than an hour results in severe renal structural and functional damage[9] with prolonged ischemia, degeneration largely of the proximal convoluted tubules, azotemia and oliguria, loss of the secretory aspects of renal function and impairment even of the normal selective impermeability of renal tubules. This last injury creates a glomerulovenous circulation of tubular fluid which tends to increase oliguria due to ischemia and may facilitate pigmentary aggregation in the tubules. But clamping of the renal artery reduces renal blood flow to less than 10 per cent of normal. It is not at first apparent that this low level of blood flow can be present in clinically recoverable shock and in the absence of severe hypotension.

Effects on Renal Function of Myoglobin Injection in Rats

Group		Blood Urea Nitrogen, Mg./100 Cc. 24 Hrs. After Injection	48 Hrs. After Injection	72 Hrs. After Injection	No. of Animals in Group
1	Aciduria (p_H 5.2)........	17	17.5	..	16
2	Aciduria (p_H 5.0)........	32	29.0	20	12
3	Aciduria (p_H 5.1) with prior dehydration	58	36.0	28	15

Effect of aciduria alone at two levels of urinary p_H and of aciduria with prior deprivation of water for twenty-four hours in normal rats given 40 mg. of beef metamyoglobin intravenously. Values given for urinary p_H and blood urea nitrogen are means of the observations in each group.

Pertinent to this problem, we have shown that successive periods of prolonged hypotension and early shock due to bleeding result in progressive renal vasoconstriction, such that restoration of arterial pressure and blood volume to normal by transfusion fails to restore renal blood flow to more than 50 per cent of normal.[10] To mimic more closely the conditions of crush syndrome we turned next to studies of renal blood flow and function in dogs to which tourniquets had been applied[11] which all but obliterated arterial inflow to the limbs. Within a few minutes after beginning the experiments, renal blood flow was reduced to 50 per cent of normal, and at the end of an hour it was down to about 20 per cent of normal. Interruption of vasomotor pathways by renal denervation, prevention of hemoconcentration and transfusion with restoration of arterial pressure and blood volume are measures which restore only a fraction of the normal renal blood flow. Concurrent measurements of the vasoconstrictor properties of plasma show that a vasoconstrictor substance appeared in it with the onset of renal ischemia. Such a substance also appears in animals subjected to bleeding or burns.[12] The demonstration of a vasoconstrictor in the plasma suggests that the vasoconstrictive ischemia is of humoral origin. A similar renal ischemia occurs in shock in human beings.[13]

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[4] Corcoran, A. C., and Page, I. H.: Renal Damage from Ferroheme Pigments Myoglobin, Hemoglobin, Hematin, Texas Rep. Biol. & Med. **3**: 528, 1945.

[5] Bywaters, E. G. L., and Stead, J. K.: The Production of Renal Failure Following Injection of Solutions Containing Myohemoglobin, Quart. J. Exper. Physiol. **33**: 53, 1944.

[6] Foy, H.; Altmann, A.; Barnes, H. D., and Kondi, A.: Anuria, with Special Reference to Renal Failure in Blackwater Fever, Incompatible Transfusions and Crush Injuries, Tr. Roy. Soc. Trop. Med. & Hyg. **36**: 197, 1943. Ross, J. F.: Hemoglobinemia and the Hemoglobinurias, New England J. Med. **233**: 691, 732 and 766, 1945.

[7] Hesse, E., and Filatov, A.: Experimentelle Untersuchungen über das Wesen des hämolytischen Schocks bei der Bluttransfusion und die therapeutische Beeinflussung desselben: die Nierenfunktionsstörungen im akuten Experiment, Ztschr. f. d. ges. exper. Med. **86**: 211, 1933. Mason, J. B., and Mann, F. C.: Effect of Hemoglobin on Volume of Kidney, Am. J. Physiol. **98**: 181, 1931.

[8] Anderson, W. A. D.; Morrison, D. B., and Williams, E. F., Jr.: Pathologic Changes Following Injections of Ferrihemate (Hermatin) in Dogs, Arch. Path. **33**: 589 (May) 1942. Corcoran and Page.[4]

[9] Scarff, R. W., and Keele, C. A.: Effects of Temporary Occlusion of Renal Circulation in Rabbits, Brit. J. Exper. Path. **24**: 147, 1943. Phillips, R. D., and Van Slyke, P. D.: Personal communication to the authors. Selkurt, E. E.: Renal Blood Flow and Renal Clearance During Hemorrhagic Shock, Am. J. Physiol. **145**: 699, 1946.

[10] Corcoran, A. C., and Page, I. H.: Effects of Hypotension Due to Hemorrhage and of Blood Transfusion on Renal Function in Dogs, J. Exper. Med. **78**: 205, 1943.

[11] Corcoran, A. C.; Taylor, R. D., and Page, I. H.: Immediate Effects on Renal Function of the Onset of Shock Due to Partially Occluding Limb Tourniquets, Ann. Surg. **118**: 871, 1943.

Since even the early stage of shock, and more particularly of shock elicited by injury to skeletal muscles, is associated with an intense renal vasoconstrictive ischemia, it seems logical to attribute the phenomena of crush syndrome to persistent renal ischemia with resultant tubular renal injury.[14]

Unfortunately, in the dog, shock severe enough to result in intense renal ischemia is almost always fatal, so that nothing corresponding to crush syndrome was observed in a large series of experiments. Further, the muscles of dogs contain myoglobin, so that the question whether crush syndrome results from renal ischemia alone or from the coincidence of renal ischemia and myoglobinuria could not be answered. We therefore turned to studies in rats. The muscles of these animals do not contain much myoglobin. Their resistance to shock seems to be greater than that of dogs

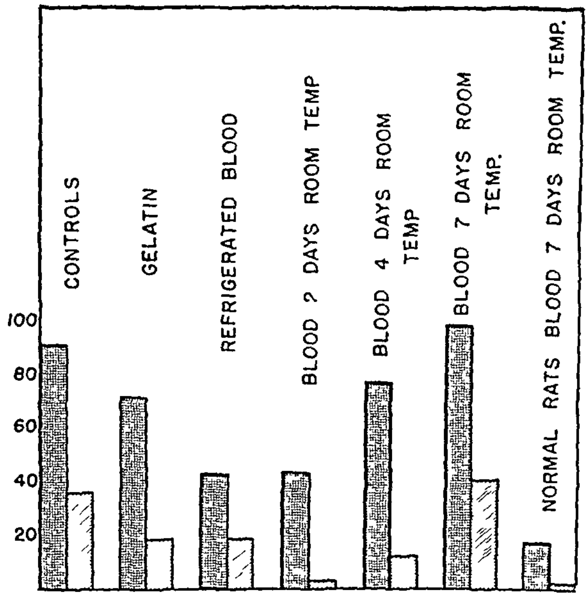

Chart 1.—Comparative levels of blood urea nitrogen and mortality (1) in normal rats given deteriorated blood and (2) in crushed, myoglobinuric rats treated with intravenous injection of gelatin and of blood under various conditions of preservation The blood urea nitrogen level (mg./100 cc., in the crosshatched columns) is the mean of observations made forty-eight hours after treatment The mortality (diagonally shaded columns) is given as the per cent of animals dying within seventy-two hours of treatment

Two groups of rats were subjected to crushing injury of one hind leg. One group received myoglobin solution intravenously one hour after release of the crush and the other, an equal volume of isotonic solution of sodium chloride.[15] Moderate azotemia was frequent in rats not given myoglobin and was accompanied by minor renal cytologic changes, notably cloudy swelling and the formation of hyaline casts. In contrast, severe and frequently fatal renal failure, accompanied with severe degenerative changes in the distal convoluted tubules and accumulation therein of pigment casts occurred in the group crushed and injected with myoglobin.[16]

We concluded that renal failure in crush syndrome is due to the coincidence of renal vasoconstrictive ischemia with myoglobinuria.

The mechanism of crush syndrome can thus be visualized. Vasoconstrictive renal ischemia occurs with the onset of shock or even of injury. The urine is acid and small in volume. The muscle cells are fragmented, so that when circulation is restored through crushed areas myoglobin diffuses into the blood, whence it is filtered into the renal tubules. Thus the conditions of pigmentary precipitation (aciduria, oliguria) are met, while the kidney is further damaged by lack of blood flow. It has been demonstrated[17] that hemoglobin precipitation in renal tubules is facilitated by prior injury, whether from ischemia or injection of a nephrotoxin (tartrate). However, it is not clear from these experiments whether the factor responsible was cellular injury as such or oliguria resulting therefrom. In either case the conditions of precipitation are present in crush syndrome.

III. *Hemoglobinuria.*—The participation of myoglobinuria in crush syndrome raises the question of hemoglobinuria and of its effect. This problem was explored in many of the early cases of crush syndrome, in which it was definitely shown that the patients' urinary pigment was myoglobin and not hemoglobin.[18] But 8 cases of renal failure have been reported following war injury,[19] in at least 2 of which the renal injury of the patients seems to have resulted from intravascular hemolysis following transfusion of compatible blood.

Gibson, Aub and Evans[20] and their co-workers have shown that refrigerated whole blood preserved in acid citrate medium can be transfused with complete safety (less than 10 to 20 per cent hemolysis of donor cells in four hours after transfusion). Short periods of exposure to room temperature greatly shortens the life of the transfused cells. Several days of such exposure need not result in visible hemolysis of the blood in the flask, but nearly all the cells of such blood may break down in less than four hours in the recipient's circulation, with resultant hemoglobinemia.

In collaboration with these workers we therefore examined the safety, as regards renal function, of blood stored under various conditions when transfused in normal rats with neutral and acid urine and in rats with one crushed limb. In some experiments the survival of donor cells was traced by tagging their hemoglobin with radioactive iron (Fe^{56}).

Results of these experiments are summarized in chart 1. Transfusion of sterile, refrigerated blood which has been preserved for one or two weeks greatly decreases the amount of renal injury which results from crushing and myoglobin injection in untreated rats. Exposure of such blood to room temperature for two days does not impair the benefit of the transfusion, unless the blood is contaminated by bacteria. Infected blood was almost instantly lethal in crushed rats.

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[12] The nature of the vasoconstrictor is unknown It is not angiotonin [illegible] it adenosine or histamine Page, I H [illegible] Substance in Blood During Shock Induced [illegible]urns, Am J. Physiol **139:** 386, 1943

[13] Lauson, H. D., [illegible], S E, and Cournand, A: Renal Circulation in Shock, *J. Clin Investigation* **23:** 381, 1944.

[14] Maegraith, B G.; Havard, R E, and Parsons, D S Renal Syndrome of Wide Syndrome Distribution Induced Possibly by Renal Anoxia, Lancet **2:** 293, 1945

[15] Corcoran, A. C., and Page, I H. Post Traumatic Renal Injury Summary of Experimental Observations, Arch Surg **51:** 93 (Sept) 1945.

[16] Dr Paul N Harris, Eli Lilly and Company Research Laboratories, kindly undertook the appraisal of structural changes in experimental crush syndrome Drs Tracy Mallory and Balduin Lucke confirmed the opinion that the changes produced in crushed, myoglobinuric rats closely mimicked those of crush syndrome

[17] Yuile, C L, Gold, M A, and Hinds, E. G.: Hemoglobin Precipitation in Renal Tubules, J. Exper. Med. **82:** 361, 1945.

[18] Bywaters, E. G. L, Delorg, G. E; Rimington, C, and Smiles, J: Myohaemoglobin in the Urine of Air Raid Casualties with Crushing Injury, Biochem. J. **35:** 1164, 1941.

[19] Darmody, E. M., and others Traumatic Uraemia Reports on Eight Cases, Lancet **2:** 809, 1944

[20] Gibson, J G., 2d, Evans, R D, and Aub, J C Personal communication to the authors

The benefit due to transfusion in experimental crush syndrome is lost when the blood has been maintained at room temperature for four days, and blood kept at room temperature for seven or nine days is definitely injurious to crushed rats. The injury such blood causes is largely renal. Calculations made by Dr. Gibson show that in the rat, as in the human being, such blood is rapidly hemolyzed (chart 2) in the recipient's circulation. About 40 per cent of the hemoglobin present in the transfusion (50 per cent of that hemolyzed in the circulation) appears in the kidneys.

In strong contrast, transfusion of blood maintained at room temperature for more than a week under sterile conditions into normal rats did not cause either functional or anatomic renal injury.

It is therefore apparent, as the paper of Darmody and others[10] has suggested, that what seems to be crush syndrome may result from intravascular hemolysis. Blood not visibly hemolyzed but inadequately refrigerated may be lethal in injured subjects, although harmless enough in normal recipients.

IV. *Renal Toxins in Crush Syndrome: Allied States.*—The major renal lesion in crush syndrome is epithelial. Renal epithelium is sensitive to a variety of toxins. Thus, a cellularly toxic substance liberated into the blood during states of shock and injury might participate in the renal damage caused by renal ischemia and the precipitation of pigment. Most toxins injure the proximal tubule more than they do the distal. This hypothetic toxin would have to differ from known nephrotoxins in that it would act in the distal convoluted tubules, for it is in these that the renal injury of crush syndrome is concentrated. No such directly-acting cellular toxin has been demonstrated.

There may be a variety of vasoactive substances in the blood during shock and states of severe injury which tend to damage renal epithelium indirectly by depressing blood flow. The vasoconstrictor substance of shock[12] has been previously noted. Eggleton[21] has shown that from injured muscle something is released into the blood and partially destroyed in the liver and that this substance depresses renal function, presumably by decreasing renal blood flow. Bielschowsky and Green[22] suggested that adenosin pyrophosphate and similar substances liberated from muscle might account for some of the vascular collapse, including that of the kidneys. Bollman and Flock[23] have since shown that adenosine triphosphate cannot account for the effects of tourniquet shock. A vasoexcitor substance of supposed renal origin has been found in plasma in early shock.[24] But it would be inaccurate to refer to these as renal toxins, since their effect on renal function seems to be indirect and due to the renal ischemia they may provoke.

The case for the primacy of renal ischemia is not complete. The principal renal lesion which results from complete obliteration of renal arterial inflow is degeneration of the proximal convoluted tubules, which resembles that of cortical renal necrosis. The localization of renal damage in crush syndrome in distal tubules suggests that ischemia of crush syndrome must differ from that which follows clamping of the renal artery. We[10] have shown that renal blood flow is irregularly distributed during states of hypotension, and it may be that this irregularity of distribution accounts for the distal tubular localization.[24a]

Whatever the mechanism by which the injury concentrates in this site, it is increasingly evident that such damage occurs in a wide variety of conditions. In many of these the major cause seems to be liberation of heme-globin pigments into the blood (transfusion-induced hemolysis, burns, blackwater fever, other hemoglobinurias, crush syndrome and other myoglobinurias). But there are many states in which liberation of pigment into the blood is not a major concomitant (yellow fever, spirochetal jaundice, Asiatic cholera, typhus fever, postpartum shock, shock due to obstetric accidental hemorrhage, and that due to exposure to high altitudes). In these also renal failure may occur with distal tubular injury and accumulation in the tubules of variable numbers of casts, including some composed of pigment. Similar injury, usually without pigmentary cast accumulation, occurs in the anuria of delayed hepatorenal syndrome and in that of diabetic coma.

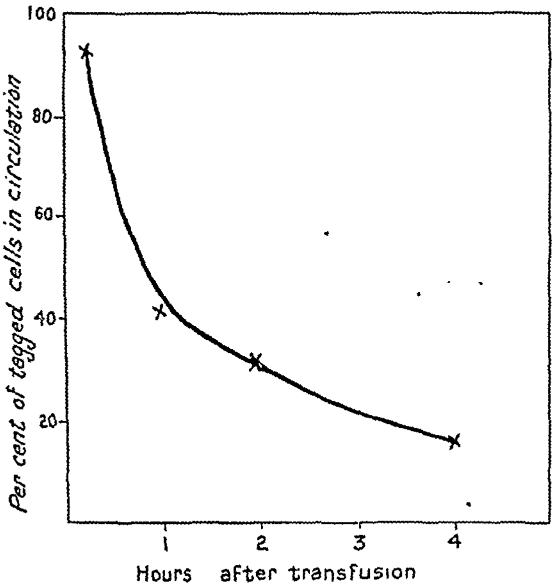

Chart 2.—Course of destruction in the recipient's circulation of transfused blood kept at room temperature for seven to nine days. (Data provided by Dr. John G. Gibson 2d.)

In most of these conditions there is widespread damage of tissue, and it may be assumed that vasoconstrictive renal ischemia is present. The pigment casts may form from intravascularly liberated hemoglobin or may form intratubularly from small glomerular capillary leak of red cells. The primary lesion is ischemia, and tubular obstruction and injury from the formation of casts is secondary and additive. Peters[25] has suggested that increased intrarenal pressure due to tubular obstruction and inflammatory edema is a further mechanism of renal damage in these disease states, although the evidence for this is incomplete. Thus, the mechanisms of what has been recently termed "lower nephron nephrosis" are probably multiple.

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[21] Eggleton, M. G.: Crush Kidney Syndrome in the Cat, Lancet **2**: 208, 1944.

[22] Bielschowsky, M., and Green, H. N.: Shock-Producing Factors from Striated Muscle: Fractionation, Chemical Properties and Effective Doses, Lancet **2**: 153, 1943.

[23] Bollman, J. L., and Flock, E. V.: Changes in the Phosphate of Muscle During Tourniquet Shock, Am. J. Physiol. **142**: 290, 1944.

[24] Shorr, E.; Zweifach, B. W., and Furchgott, R. F.: On the Occurrence, Sites and Modes of Origin and Destruction: Principles Affecting the Compensatory Vascular Mechanisms in Experimental Shock, Science **102**: 489, 1945.

[24a] See the addendum.

[25] Peters, J. T.: Oliguria and Anuria Due to Increased Intrarenal Pressure, Ann. Int. Med. **23**: 221, 1945.

V. *Treatment.*—Treatment is directed toward the underlying mechanisms. These mechanisms in crush syndrome with myoglobinuria or hemoglobinuria are, in their probable order of significance, (*a*) vasoconstrictive renal ischemia; (*b*) myoglobinemia and myoglobinuria or hemoglobinemia and hemoglobinuria with (*c*) oliguria and (*d*) aciduria and (*e*) tubular cellular injury due to renal ischemia. In the allied states of anuria associated with distal tubular lesions but without pigmentary participation the factors responsible are apparently (*a*) renal ischemia and (*b*) resultant cellular injury.

The primary problem in both types of renal damage is renal ischemia. This renal ischemia is due to vasoconstriction. The vasoconstriction results largely from the action of a vasoconstrictor present in blood, which in our view is liberated from injured tissues. Thus the primary issue is to decrease the supply of vasoconstrictor by (1) slowing its absorption and (2) decreasing its formation.[26] The absorption of such a substance from injured tissue is slowed and the renal ischemia minimized by use of a compression bandage.[11] The formation of vasoconstrictor seems to be due in part to circulatory failure; consequently, it should be slowed by restoration of circulatory function, i. e., by transfusion and similar measures. It may be that refrigeration would decrease both formation and liberation of vasoconstrictor.

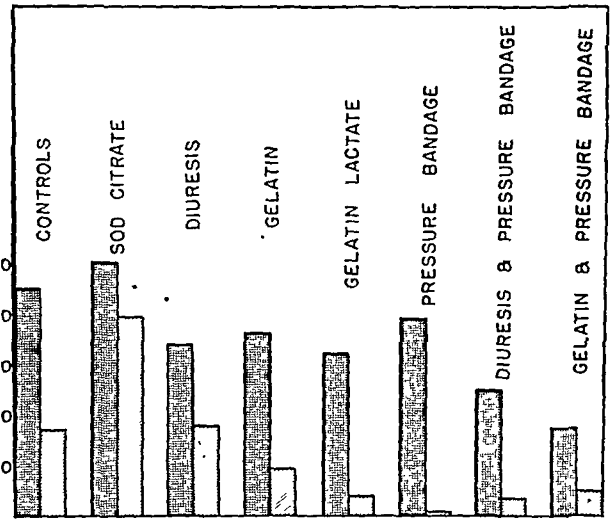

Chart 3.—Effect of various forms of treatment on experimental crush syndrome. Data are summarized as in chart 1.

Oliguria in these conditions is due in part to renal ischemia with decreased glomerular filtration and, it would seem, also to excessive reabsorption of water through injured tubular cells. It is countered by the restoration of blood volume and blood pressure, by decreasing renal ischemia and by the use of diuretics.

Aciduria in crush syndrome is due to absorption of acid metabolites from injured muscle. This absorption is slowed by application of pressure bandages. Urinary acidity may then be decreased by the supply of alkali, oral or intravenous, as sodium lactate, bicarbonate or citrate.

Finally, if there exists a nephrotoxin acting on the tubular cells from the tubular fluid, it is apparent that restoration of a rapid rate of urinary flow will decrease its local concentration.

Thus, the basic preventative measures in crush syndrome are (1) pressure bandaging of the injured limb, (2) rapid treatment of shock with restoration of blood volume and blood pressure, (3) provision of adequate fluid, (4) provision of a diuretic and (5) the administration of an alkali.

The efficacy of some of these measures in experimental crush syndrome may be judged from chart 3. The intravenous administration of diuretics in doses of 0.1 mg. per gram of body weight of mannitol or sucrose (approximately 5 to 10 Gm. in a human being) or sodium sulfate (the equivalent of 1 Gm. in a patient), definitely decreased the degree of renal injury. Intravenous injection of 4 per cent gelatin solution (the equivalent in a patient of about 1 to 2 liters of plasma) further decreased renal injury and also decreased mortality. Treatment with gelatin seemed slightly more effective when the solution was made up in sixth-molar sodium lactate solution rather than isotonic solution of sodium chloride. Tolerance of crushed animals to rapid injection of gelatin was increased by the addition of calcium lactate (the equivalent of 1 Gm. in a human being).

The best result in the prevention of crush syndrome in rats was obtained by application of a pressure bandage to the injured limb within an hour after release from the crush, together with intravenous injection of gelatin in sodium lactate with added calcium lactate.

Prompt transfusion of refrigerated blood was at least as effective as infusion of gelatin (chart 1).

The problem of urinary alkalinization has been widely discussed, and most recommendations for the treatment of crush syndrome and allied states include the liberal prescription of alkali compounds, intravenously and orally, in amounts totaling 30 to 40 Gm. daily. The recommended intravenous dose of sodium citrate is 5 Gm. In crushed, myoglobin-injected rats the intravenous injection of a comparable dose of sodium citrate (0.1 mg. per gram of body weight) often caused severe tetany which was either immediately fatal or which added to the shock and renal injury, to cause delayed and excessive mortality (chart 3). Sodium bicarbonate in equal dosage, although not as immediately toxic, was equally ineffective in preventing renal injury. Thus the prevention of crush syndrome by alkalinization alone is dangerous and unjustified. The dangers of alkali treatment in these states, particularly in blackwater fever, has been recently emphasized by Maegraith and Havard[27] who justly point out that it may be impossible for an injured kidney to form alkaline urine, so that pushing alkali therapy to the point of urinary alkalinization may lead to depression of renal function[28] and dangerous alkalosis.

Our recommendations for the preventive treatment of crush syndrome and allied states are (1) pressure bandaging of the injured area and (2) prompt treatment of shock by transfusion of blood or plasma, (3) together with the infusion of 1 or more liters of sixth-molar sodium lactate and the injection of a diuretic, such as sucrose or mannitol, in repeated doses of 5 to 10 Gm. or of sodium sulfate in a dose of 1 Gm. intravenously.

Unfortunately, once the damage has been done to the kidney, the evolution of the renal injury is largely unaffected by treatment, which is supportive. Renal decapsulation has been advocated for the relief of increased interstitial pressure.[29] It is not clear that this mechanism is always significant. The value of decapsulation is not easily assessed in a disease which tends in a large number of cases to recede spontaneously at the end of one week. Histologically, the kidneys in experimental and clinical crush syndrome show extremely active regeneration of tubular cells in injured areas. Therefore, were it possible to maintain life during the period of renal injury until sufficient regeneration had occurred, it is possible that recovery would then be assured. Peritoneal dialysis[30] may answer this requirement.

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[26] Our observations indicate that provision of renal vasodilators is harmful. The aim is to prevent vasoconstriction rather than to cause vasodilation.

[27] Maegraith, B. G., and Havard, R. E.: Dangers of Intensive Alkali Treatment in Blackwater Fever, Lancet **2**: *338, 1944.*

[28] Effect of Large Doses of Alkali on Kidney Function, Army Malaria Research Unit, Oxford, Lancet **2**: 701, 1945.

SUMMARY

Post-traumatic anuria (crush syndrome) is a special instance of a group of related states of renal injury. These fall in two groups, namely, those in which the principal lesion is obstruction of the renal tubules by pigmented (myoglobin, hemoglobin) casts and those in which the injury lies principally in necrosis of the epithelium of the distal convoluted tubules. The underlying mechanism in all of these, and especially in those associated with trauma to muscle tissue, is vasoconstrictive renal ischemia. This ischemia results in oliguria, which, associated with aciduria, predisposes to precipitation of pigment casts. Tubular injury due to ischemia and a hypothetic toxic agent may contribute to the renal damage.

In the presence of such renal ischemia, myoglobinuria and hemoglobinuria, which cause little injury under normal conditions, result in severe renal injury. Attention is directed to the danger of transfusing blood which has been inadequately refrigerated.

Treatment of crush syndrome and the related states is preventive and consists in the prevention of renal vasoconstrictive ischemia by prompt treatment of shock (transfusion of blood or plasma), the lessening of absorption from areas of injury by pressure bandaging and the establishment of a rapid rate of urinary flow by the administration of a diuretic. Urinary alkalinization is advisable, but vigorous treatment with alkalies is dangerous.

ADDENDUM

Since this manuscript was submitted, it has been shown by direct means that stimulation of renal vasomotor nerves results in a change in the pattern of renal blood flow by which the cortex, which normally receives most of the renal blood flow, becomes ischemic, the stream being diverted into the medulla.[31] It has been suggested that this vasomotor mechanism may underlie the renal cortical ischemic injury of crush syndrome and allied states and that the prevention of renal injury due to this mechanism may be accomplished by procedures which block renal vasomotor pathways (splanchnic block, high spinal or caudal anesthesia).

Our failure to demonstrate an important vasomotor participation in experimental crush syndrome may result from our observations having been made in anesthetized animals. In these, by indirect means, we had shown[10] that some redistribution of cortical blood flow occurs in the renal ischemia due to bleeding or tourniquet shock. This renal ischemia was only slightly affected by renal denervation. It thus seems likely that the humoral vasoconstrictors of severe shock act on the renal circulation in a manner similar to that of intense vasomotor stimulation, i. e. by causing constriction of the cortical interlobular arteries, with cortical ischemia and diversion of blood into the medulla. Clinically, the use of procedures which block renal nerves should therefore be explored in the early treatment of crush syndrome and related states. The nature of the renal lesions does not suggest that such treatment will be of avail once renal ischemic damage and pigmentary occlusive and toxic injury are well established.

An authoritative study of crush syndrome and related renal lesions has been published by Lucké.[32]

EXTRARENAL AZOTEMIA AND TUBULAR DISEASE

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Extrarenal azotemia may be defined as a pronounced retention of nitrogenous metabolites not caused by disease of the kidneys. The term azotemia seems preferable to uremia, since the clinical signs of uremia are not always present. This form of azotemia is not a circumscribed entity but a condition which may result from a number of unrelated causes. The essential features are oliguria or anuria, azotemia, and no anatomic lesion in the kidneys sufficient to explain renal insufficiency.

In hospitals in which routine determinations of blood urea are made during the last few days of life a surprisingly large number of patients will be found to have an elevation of blood urea to uremic levels. This report is based on a study of 84 cases of this type in which the blood urea nitrogen concentration of the patient attained a level of 50 mg. per hundred cubic centimeters or higher before death. In most instances the renal tubules show no structural changes, but often they show hydropic degeneration and, infrequently, other degenerative changes which may be partly or entirely responsible for renal failure. For this reason it is difficult to make a sharp differentiation between true extrarenal azotemia and azotemia due to tubular injury.

The cases have been arranged in several groups in accordance with etiologic factors which seem to be of major importance, but often more than one influence is present and there remains a large miscellaneous group in which the etiology has not been clearly established.

I. AZOTEMIA FROM DEHYDRATION

Azotemia from dehydration[1] (table 1) results from (*a*) decreased fluid intake, (*b*) intestinal obstruction and (*c*) excessive diarrhea.

A. *Decreased Fluid Intake.*—When an animal is deprived of water the diuresis decreases gradually and

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29. Vest, S. A.: Renal Crush Syndrome, paper presented before the Section on Urology, American Medical Association, San Francisco, July 5, 1946. Peters.[25]

30. Seligman, A. M.; Frank, H., and Fine, J.: Treatment of Experimental Uremia by Means of Peritoneal Irrigation, J. Clin. Investigation **25**: 211, 1946. Abbott, W. E., and Shea, P.: Treatment of Temporary Renal Insufficiency (Uremia) by Peritoneal Lavage, Am. J. M. Sc. **211**: 312, 1946.

31. Franklin, K. J.; Barclay, A. E.; Daniel, P.; Trueta, J., and Pritchard, M. M. L.: Renal Pathology in the Light of Recent Neurovascular Studies, Lancet **2**: 239, 1946.

32. Lucké, B.: Lower Nephron Nephrosis: The Renal Lesions of the Crush Syndrome, of Burns, Transfusions and other Conditions Affecting the Lower Segment of the Nephron, Mil. Surgeon **99**: 371 (Nov.) 1946.

From the Department of Pathology, University of Minnesota Medical School.

Read in a symposium on "Renal Insufficiency in the Shock Syndrome" before the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. Borst, J. G. G.: Acta med. Scandinav. **97**: 68, 1938; Ztschr. f. klin. Med. **117**: 55, 1931.

the urine becomes more concentrated. Finally there is complete anuria, and the blood urea increases to uremic levels. All the fluid is withdrawn from the tissue spaces, and the animal has a shrunken dehydrated appearance. The tissue spaces are emptied of fluid, but the blood will not give up any fluid to form urine when to do so would seriously reduce the blood volume.

In table 1 are tabulated 6 cases in which the azotemia was due to a decreased intake of fluid. In cases 1, 2, 3 and 5 the patients could not take fluid because of obstruction of the stomach, and in cases 4 and 6 fluid was refused because of the mental state. Only a little fluid was administered to any of these patients by the parenteral route.

In no instance of this group was there any enlargement of the kidneys, and microscopically the renal tubules were entirely normal. These 6 cases appear to be instances of true extrarenal uremia due to a decreased intake of fluid.

B. *Intestinal Obstruction*.—Dehydration from intestinal obstruction[2] (table 1) occurs most frequently from obstruction of the small intestine, less often from pyloric obstruction and paralytic ileus, and it is due in most instances to excessive loss of fluid by vomiting. So much fluid is lost in the vomitus that the patient becomes dehydrated and oliguria ensues. Chlorides are also lost excessively, and the blood chloride falls well below the normal level. For this reason the term hypochloremic uremia has been used. It was formerly believed that the loss of chloride caused retention of urea to maintain the osmotic pressure of the blood; but Kerpel-Fronius in a series of papers showed clearly that the azotemia is due to dehydration and not to low blood chloride. Experimentally he produced hypochloremia without azotemia, and he showed that in azotemia with hypochloremia the former may be corrected by the administration of water without salt. Chlorides correct the alkalosis but not the azotemia. Mach and associates found that in cirrhosis of the liver repeated drainage of the ascitic fluid reduced the blood chlorides as low as 300 mg. per hundred cubic centimeters without producing any elevation of blood urea.

In table 1 are shown 6 cases in which intestinal obstruction appears to be the major cause of the azotemia. In cases 7 to 11 there was excessive vomiting; but there was none in case 12. Possibly the accumulation of fluid in the intestinal tract may be sufficient

TABLE 1.—*Azotemia from Dehydration*

Case	Age	Sex	Disease	Blood Pressure, Mm. Hg	Blood Urea Nitrogen, Mg./100 Cc.	Specific Gravity of Urine	Weight of Kidneys, Gm.	Renal Tubules	Comment
			Subgroup A. Dehydration Due to Decreased Fluid Intake						
1	77	♂	Carcinoma of stomach	....	65	1.029	225	Normal	Severe oliguria
2	48	♀	Lymphosarcoma of stomach	....	65	.....	360	Normal	
3	80	♂	Carcinoma of stomach	....	110	1.014	170	Normal	
4	75	♀	Encephalomalacia	150/ 90	87	.....	180	Normal	
5	76	♀	Carcinoma of stomach	140/100	97	.....	235	Normal	Severe ascites
6	85	♀	Encephalomalacia; pneumonia	....	83	.....	170	Normal	
			Subgroup B. Debydration from Intestinal Obstruction, Vomiting						
7	64	♂	Intestinal obstruction; lymphosarcoma	114/ 60	53	.....	210	Normal	
8	55	♀	Strangulated hernia	120/ 80	59 205	1.021 1.010	450	Normal	Sugical operation
9	86	♀	Ileus from impacted gallstone	Very low	181	.....	315	Normal	Low blood pressure
10	82	♂	Paralytic ileus	120/ 70	69	1.032	195	Normal	Severe oliguria
11	61	♂	Carcinoma of stomach	... ...	129	1.018	372	Normal	
12	63	♂	Appendicitis; ileus	....	198	.....	390	Normal	
			Subgroup C. Dehydration from Diarrhea						
13	2 mo.	♀	Mongolism	....	81	.....	30	Normal	CO_2 combining power 12 vol. %
14	59	♀	Carcinoma of stomach	....	61	.....	320	Hydropic, 3	
15	50	♂	Chronic ulcer; colitis	....	78	.....	265	Normal	

TABLE 2.—*Azotemia from Low Blood Pressure*

Case	Age	Sex	Disease	Blood Pressure, Mm. Hg	Blood Urea Nitrogen, Mg./100 Cc.	Specific Gravity of Urine	Weight of Kidneys, Gm.	Renal Tubules
16	53	♂	Lobar pneumonia	90/50	102	.....	355	Normal
17	30	♂	Hemorrhage, rupture of liver	60/ ?	96	.....	330	Hydropic, 1
18	63	♀	Coronary sclerosis	80/55	80	1.022	310	Hydropic, 1
19	43	♀	Acute hemorrhagic pancreatitis	70/40	50	.....	280	Normal
20	62	♂	Perforated duodenal ulcer	68/52	55	.....	330	Normal
21	64	♂	Coronary sclerosis	75/60	89	1.028	415	Normal
22	79	♂	Carcinoma of colon	84/50	110	.....	536	Normal
23	84	♂	Carcinoma of cecum	Very low	57	1.020	205	Normal
24	60	♂	Aortic stenosis	80/62	96	1.024	340	Hydropic, 1
25	81	♂	Pneumonia	70/40	60	.....	226	Normal
26	59	♂	Lobar pneumonia	90/61	71	.....	230	Normal
27	70	♀	Coronary thrombosis	90/70	61	.....	290	Normal
28	66	♂	Carcinoma of colon	60/ ?	51	.....	390	Normal
29	47	♂	Cerebral thrombosis	78/58	92	.....	590	Normal
30	86	♀	Intestinal obstruction	68/40	56	.....	180	Normal
31	55	♂	Multiple fractures	84/ ?	64	.....	360	Hydropic, 1
32	29	♂	Multiple fractures	70/ ?	68	.....	280	Hydropic, 1
33	49	♂	Fractures of pelvis and femur	70/50	88	1.022	510	Normal
34	40	♂	Fracture; peritonitis	70/30	72	.....	347	Hydropic, 1
35	84	♀	Fracture of femur; pneumonia	.....	69	.....	194	Normal

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[2] (*a*) Kerpel-Fronius, E.: Ztschr. f. d. ges. exper. Med. **97**: 733, 1936. (*b*) Mach, R. S.; Mach, E., and Scicionnoff, F.: Schweiz. med. Wchnschr. **64**: 54, 1934.

to cause dehydration of the tissues. In case 9 the low blood pressure of the patient was probably contributory to the oliguria and azotemia. In case 8 the kidneys were swollen, but in no instance in this group were there any structural alterations in the renal tubules.

C. *Excessive Diarrhea.*—In Asiatic cholera the dehydration, oliguria and azotemia are due to loss of fluid through the intestine. In table 1 3 cases are shown in which the azotemia was attributed to excessive loss of fluid from diarrhea. In cases 13 and 15 the renal tubules are normal, but in case 14 there is a severe hydropic degeneration of the tubules (fig. 1). In this instance it appears that the tubular injury is as important as the loss of fluid in causing the azotemia.

Unfortunately there are only a few observations on the specific gravity of the urine in the dehydration group, but they are perhaps sufficient to show that the urine is not always as concentrated as one might expect. It has been noted in several instances of azotemia due to dehydration that the administration of large quantities of fluid parenterally may increase the diuresis without increasing the specific gravity of the urine or lowering the level of the blood urea. These observations suggest that the renal tubules are injured in dehydration azotemia, but they showed structural changes in only 1 of 15 cases.

Table 3.—*Postoperative Azotemia*

Case	Age	Sex	Disease	Blood Pressure, Mm. Hg	Blood Urea Nitrogen, Mg./100 Cc.	Specific Gravity of Urine	Weight of Kidneys, Gm.	Renal Tubules	Comment
36	64	♂	Carcinoma of pancreas	....	94	.....	465	Hydropic, 2	Severe oliguria
37	58	♀	Carcinoma of rectum	108/65 80/ ?	130	.....	360	Hydropic, 2	Severe oliguria
38	61	♂	Hypertrophy of prostate	104/70 40/ ?	110	.....	240	Necrosis	Severe oliguria; pneumonia
39	49	♀	Umbilical hernia	....	82	.....	685	Normal	Pneumonia
40	82	♂	Hypertrophy of prostate	88/50 60/38	103	.....	250	Normal	Anuria
41	45	♂	Carcinoma of rectum	....	262	1.012	555	Hydropic, 2	Severe oliguria
42	50	♀	Myomas of uterus	....	53	.....	330	Normal	Paralytic ileus; vomiting
43	58	♀	Carcinoma of stomach	85/68	61	.....	290	Hydropic, 3	Some necrosis of the liver
44	52	♂	Gangrene of small intestine	High	132	.....	300	Hydropic, 1	Severe oliguria
45	25	♂	Retrograde pyelograms	....	...	.....	440	Normal	Reflex anuria; edema of lungs

Table 4.—*Miscellaneous Cases of Extrarenal Azotemia*

Case	Age	Sex	Disease	Blood Pressure, Mm. Hg	Blood Urea Nitrogen, Mg./100 Cc.	Specific Gravity of Urine	Weight of Kidneys, Gm.	Renal Tubules	Comment
46	74	♂	Hypertension, myocardial failure	165/115	67	1.018	220	Normal	Diarrhea
47	37	♂	Myocardial failure	....	75	.....	373	Normal	
48	74	♂	Coronary sclerosis	108/ 94	53	1.006 1,025	260	Normal	
49	57	♂	Hypertension, coronary sclerosis	132/ 64	125	1.022	355	Normal	
50	79	♀	Hypertension, myocardial failure	220/110	52	.....	335	Normal	
51	60	♂	Coronary sclerosis	....	173	1.021	350	Normal	Diabetes
52	50	♂	Old valve defect	118/ 70	85	.....	298	Normal	Severe oliguria
53	40	♂	Bacterial endocarditis	126/ 70	155	1.016	435	Normal	
54	27	♂	Rheumatic endocarditis	....	135	1.020	275	Normal	
55	36	♀	Empyema	100/ 80	92	.....	440	Normal	
56	60	♂	Pneumonia	180/ 90	58	1.020	335	Normal	
57	82	♂	Pneumonia	....	102	.....	285	Hydropic, 1	
58	88	♂	Pneumonia	104/ 64	104	.....	225	Normal	
59	54	♀	Pneumonia	....	102	.....	175	Normal	
60	75	♀	Empyema	100/ 80	78	.....	260	Hydropic, 2	
61	87	♀	Pneumonia	....	66	.....	230	Hydropic, 1	
62	65	♂	Pneumonia	100/ 60	67	.....	252	Normal	
63	68	♂	Pneumonia	108/ 60	104	1.018	250	Hydropic, 2	Severe oliguria, sulfadiazine
64	50	♂	Typhoid fever	144/ 90	70	.....	385	Hydropic, 1	Sulfadiazine
65	51	♀	Streptococcic septicemia	112/ 80	75	.....	350	Normal	
66	74	♀	Acute cholecystitis	....	55	.....	198	Normal	
67	46	♀	Pelvic suppuration	130/ 75	56	.....	240	Normal	
68	67	♀	Encephalomalacia	....	60	.....	202	Normal	
69	68	♀	Encephalomalacia	180/110	82	.....	225	Normal	
70	73	♀	Encephalomalacia	130/ 90	93	1.030	255	Normal	
71	45	♂	Delirium tremens	125/ 76	89	.....	294	Normal	
72	55	♀	Lymphosarcoma, jaundice	145/ 85	54	.....	250	Hydropic, 1	
73	67	♂	Carcinoma of lung	126/ 90	54	1.013	305	Normal	
74	58	♀	Carcinoma of gallbladder	130/ 90	66	.....	210	Hydropic, 1	
75	77	♀	Carcinoma of stomach	....	73	1.021	170	Normal	
76	42	♂	Carcinoma of liver	140/ 60	100	.....	500	Bile casts	
77	53	♀	Cirrhosis of liver; jaundice	96/ 56	60	.....	345	Normal	
78	42	♂	Cirrhosis of liver	116/ 70	50	.....	370	Normal	
79	64	♂	Addison's disease	90/ 65	57	.....	290	Normal	
80	70	♂	Burns (25 days)	....	52	1.023	310	Hydropic, 1	
81	61	♀	Diabetic coma	....	123	1.024	265	Normal	
82	33	♀	Diabetic coma	90/ 85	59	1.019	380	Normal	
83	62	♂	Diabetic coma	110/ 60	68	.....	265	Normal	
84	67	♂	Necrosis of liver	152/ 78	175	.....	440	Normal	Lobar pneumonia

II. AZOTEMIA FROM LOW BLOOD PRESSURE

In the second group (table 2) there are listed 20 cases in which the azotemia was probably due in large measure to low blood pressure.[3] In each instance the blood pressure was extremely low during the last day or two of life. When the systolic pressure falls to 80 mm. of mercury or lower glomerular filtration is reduced and *the glomerular filtrate is almost entirely* reabsorbed in the tubules. There is also the factor of anoxia associated with the decreased flow of blood to the renal tissue This is the condition which prevails in shock and all these patients were in a state of shock terminally. In case 17 the shock was due to a massive intraperitoneal hemorrhage. It will be noted that in 5 cases, 31 to 35, the shock was due to fractures.

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[3] Evans, T. S.: Azotemia with Normal Kidneys Found Post Mortem, Arch. Int. Med. 48: 1231 (Dec.) 1931.

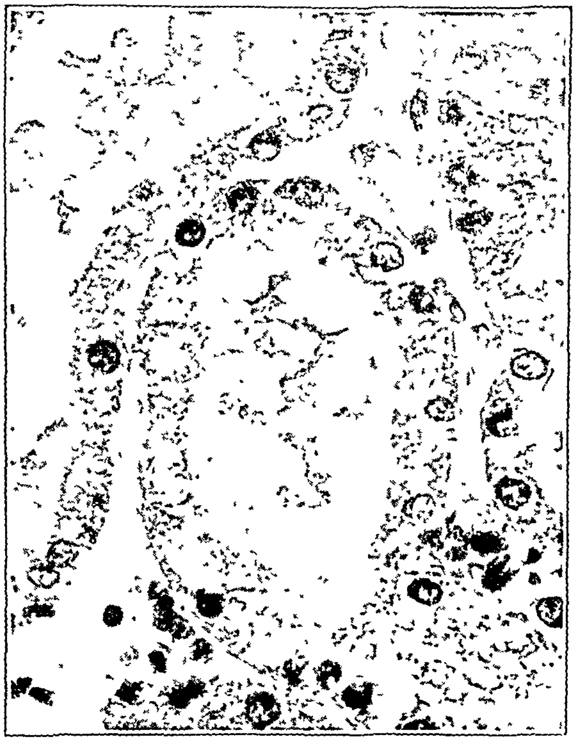

Fig 1 (case 14, table 1) Severe hydropic degeneration of the renal tubules

In 14 cases the renal tubules appeared normal histologically, but in 6 instances there was a mild hydropic degeneration, which suggests that tubular injury may have been a contributory cause of the oliguria and consequent azotemia.

III. POSTOPERATIVE AZOTEMIA

The third group, postoperative azotemia[4] (table 3), is not a well-defined group from the point of view of causation, since more than one influence may be concerned. One factor which is often operative is postoperative shock with a fall of blood pressure. There may also develop some complication such as pneumonia or ileus. It is important to note that 5 of the 10 cases listed in table 3 showed hydropic degeneration of the renal tubules indicative of tubular injury (fig. 2). In case 43 the hydropic degeneration was severe, and there were small areas of necrosis in the liver.

Reflex oliguria: Occasionally after surgical operations, especially on the ureter, kidney, bladder, lower colon and gallbladder, severe oliguria and azotemia develop. The renal function prior to operative intervention is normal, there is no postoperative fall of blood pressure, and the kidneys are not traumatized. The blood urea may rise to uremic levels. The diuresis is usually reestablished after a few days of anuria, and operative intervention is not indicated. It has been suggested that the suppression of urine is due to *overactivity of the* sympathetic nervous system, such as occurs in paralytic ileus.

In case 45 anuria developed in the patient following bilateral retrograde pyelograms. In order to start a diuresis large quantities of fluid were given intravenously. The patient died on the third day from edema of the lungs.

IV. MISCELLANEOUS CASES OF EXTRARENAL AZOTEMIA

The fourth group constitutes miscellaneous cases of extrarenal azotemia, which occurs in the terminal stages of a large variety of diseases. These have been grouped to some extent in table 4. In the cases of heart disease[5] (cases 46 to 54) low blood pressure was apparently not a factor, and the fluid intake was satisfactory. The urine was not highly concentrated, but the renal tubules were normal on histologic examination. No cause of the azotemia is apparent.

In the cases of pneumonia and empyema (cases 55 to 63) hydropic degeneration of the tubules was found in 4 instances, but in 1 of these (case 63) sulfadiazine may have been responsible. There is, however, a suggestion that suppuration may produce tubular injury.

In this miscellaneous group the cause of the azotemia is not clear. In patients with a satisfactory fluid-intake and a normal blood pressure azotemia may develop during the last few days of life. This terminal azotemia occurs frequently. It appears that 25 per cent of persons dying of such diseases as lobar pneumonia and cancer show blood urea at uremic levels on the last day of life. It has been suggested that increased destruction of tissue proteins is partly responsible for this terminal uremia. It is important to remember that

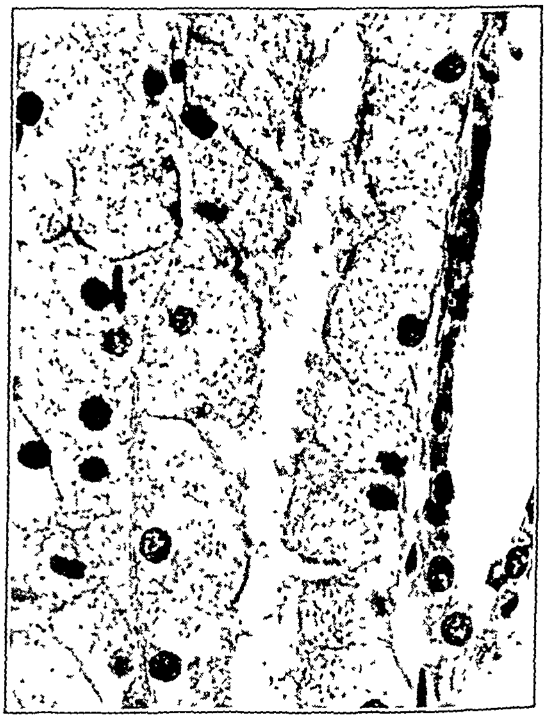

Fig 2 (case 37, table 3).—Hydropic degeneration of the renal tubules indicative of tubular injury.

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[4] Bannick, E G, and Keith, N M: M. Clin North America **11:** 1571, 1928.

[5] Kartagener, M Klin Wchnschr **1:** 1028, 1933

a terminal rise of blood urea does not indicate a primary renal disease.

Azotemia is a frequent complication of diabetic coma[6] (cases 81 to 83). About twenty-four to forty-eight hours after the onset of coma oliguria or anuria develops. Under treatment the patient may recover from the coma and the hyperglycemia and acidosis may be corrected, yet the anuria may persist. At autopsy the kidneys are frequently swollen, but the microscopic changes are hardly sufficient to explain the anuria. It has been suggested that the tubules are injured from the acidosis or the low blood pressure, and that the disturbance is of a functional nature.

OTHER FORMS OF EXTRARENAL AZOTEMIA

There are other forms of extrarenal azotemia which are not represented in the 84 cases here reported.

Azotemia from Hemorrhage into the Gastrointestinal Tract.—Massive hemorrhage into the gastrointestinal tract,[7] usually from bleeding ulcers, causes an increase of blood urea sometimes to uremic levels. There is oliguria and sometimes anuria. The urine may show a good concentration of urea, but the specific gravity is not high (around 1.022) and may be as low as 1.012. The several factors to which this form of azotemia has been attributed are: absorption of blood from the gastrointestinal tract, low blood pressure and decreased blood volume.

Borst attributed azotemia to the rapid absorption of urea formed from the blood in the intestinal tract, and this interpretation has been adopted by others. However, Johnson gave 1,200 to 1,500 cc. of blood to 4 different patients by stomach tube during a period of six to eight hours. The blood urea rose only moderately and transiently, except in 1 patient whose urea clearance was only 50 per cent of normal, in which instance it reached 54 mg. per hundred cubic centimeters. The absorption of blood would help to explain the azotemia but not the oliguria.

It appears more probable that the azotemia is due to the combined effect of low blood pressure, which is often present, and the dehydrating effect of the hemorrhage. After a hemorrhage, fluid is withdrawn from the tissue spaces to restore the blood volume and none is available for the formation of urine.

The Crush Syndrome.[8]—Bywaters, Beall and others have reported over 20 cases of oliguria and azotemia following crushing injuries of an extremity sustained during air raids. On admission the patient is usually in good condition except for the swelling of the crushed extremity. The extremity usually does not become gangrenous, but some of the muscle is necrotic. The hemoglobin is increased and the patient is thirsty, indicating a loss of fluid into the swollen extremity, as in a severe burn. Shock may develop, but this does not always occur. Diuresis becomes progressively less, hypertension and azotemia develop and the patient may die of uremia, or recovery may follow the onset of diuresis. Some of the patients pass a dark-colored urine which gives a positive benzidine reaction and shows the bands of myohemoglobin on spectroscopic examination. At autopsy the kidneys are swollen and edematous. The investigators attribute the azotemia chiefly to tubular injury, especially injury of the distal convoluted tubules. The structural changes in the tubules seem hardly sufficient to explain the anuria, yet the clinical evidence indicates that their function is seriously impaired.

Paxson and associates described 3 cases of urinary suppression: 1 from a retroplacental hematoma, 1 from rupture of the uterus and 1 from infarction of a cystic ovary. They regard these as similar to the crush syndrome.

Azotemia from Subarachnoid Hemorrhage.—In occasional instances of subarachnoid hemorrhage[9] blood urea is increased to uremic levels. This is a transitory phenomenon and no satisfactory explanation is available (Romcke and Skouge).

COMMENT

Extrarenal azotemia may be brought about by several different mechanisms, and the pure extrarenal types cannot be separated sharply from urinary suppression due to tubular injury. Anuria and oliguria are symptoms of severe tubular injury, and there can be no doubt that tubular injury is responsible for urinary suppression in such diseases as mercuric chloride poisoning and some cases of anuria following sulfonamide therapy and blood transfusions, in which striking degenerative changes in the tubules are visible. In 20 of the 84 cases on which this study is based there was mild to severe hydropic degeneration of the proximal convoluted tubules, indicating that tubular injury may have been in part or entirely responsible for the uremia. In 2 of these 20 cases sulfadiazine was probably the cause of the injury to the tubules. In the other 64 cases there were no demonstrable changes in the tubules. When the tubules appear normal histologically one may believe that their function is also normal, or it may be maintained that functional failure may occur without alterations of structure that we are able to recognize.

It seems clearly established that low blood pressure and dehydration of any type may produce azotemia, and since neither of these mechanisms involves failure of the tubules one does not expect to find tubular degeneration. Likewise in reflex anuria the tubules are not primarily concerned.

The terminal azotemia which occurs so frequently in a large variety of diseases cannot be explained entirely as due to dehydration and low blood pressure. An increased tissue catabolism during the last days of life may be partly responsible for the increased level of urea in the blood. Toxic substances derived from necrotic and inflammatory tissues may injure the renal tubules sufficiently to cause oliguria without producing structural alterations that can be recognized.

The specific gravity of the urine has not been studied sufficiently, and our observations are inadequate. The few determinations that were made indicate that the urine is seldom concentrated even in the presence of severe oliguria, which indicates that the process is not one of simple dehydration. When the diuresis is low and the glomerular filtrate moves slowly through the tubules it is possible that more of the crystalloids are reabsorbed or that more urea diffuses back into the blood. Much could be learned from chemical study of the urine.

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[6] Baker, T. W.: Clinical Survey of One Hundred and Eight Consecutive Cases of Diabetic Coma, Arch. Int. Med. **58:** 373 (Sept.) 1936. Christensen, O., and Holst, J. E.: Ztschr. f. klin. Med. **111:** 88, 1929. Dinkin, L.: Klin. Wchnschr. **6:** 1330, 1927. Fullerton, H. W., and others: Lancet **1:** 558, 1932.

[7] Alsted, G.: Am. J. M. Sc. **192:** 199, 1936. Bookless, A. S.: Guy's Hosp. Rep. **88:** 22, 1938. Campbell, D. C., and Stickney, J. M.: Proc. Staff Meet., Mayo Clin. **17:** 145, 1942. Christiansen, T.: Acta med. Scandinav. (supp.) **78:** 894, 1936. Gregory, R.; Ewing, P. L., and Levine, H.: Azotemia Associated with Gastrointestinal Hemorrhage, Arch. Int. Med. **75:** 381 (June) 1945. Johnson, J. B.: J. Clin. Investigation **20:** 161, 1941. Jung, G.: Ztschr. f. klin. Med. **118:** 546, 1931. Meyler, L.: Acta med. Scandinav. **87:** 313, 1935.

[8] Beall, D.; Bywaters, E. G. L.; Belsey, R. H. R., and Miles, J. A. R.: Brit. M. J. **1:** 432, 1941. Bywaters, E. G. L.: Ischemic Muscle Necrosis, J. A. M. A. **124:** 1103 (April 15) 1944. Bywaters, E. G. L., and Beall, D.: Brit. M. J. **1:** 427, 1941. Bywaters, E. G. L., and Dible, J. H.: J. Path. & Bact. **54:** 111, 1942. Helwig, F. C., and Orr, T. G.: Traumatic Necrosis of Liver with Extensive Retention of Creatine and High Grade Nephrosis, Arch. Surg. **24:** 136 (Jan.) 1932. Mayon-White, R., and Solandt, D. M.: Brit. M. J. **1:** 434, 1941. Paxson, N. F.; Golub, L. J., and Hunter, R. M.: Crush Syndrome in Obstetrics and Gynecology, J. A. M. A. **131:** 500 (June 8) 1946.

[9] Morawitz, P., and Schloss, J.: Klin. Wchnschr. **11:** 1628, 1932. Romcke, O., and Skouge, E.: Acta med. Scandinav. **77:** 211, 1931.

The creatinine increases in the blood corresponding with the increase of urea. Extrarenal uremia cannot be distinguished from uremia of renal origin by the creatinine level.

The few observations available indicate that the carbon dioxide combining power of the plasma decreases as the blood urea level rises, as in renal uremia.

SUMMARY

Eighty-four cases of terminal azotemia are reported in which the blood urea nitrogen ranged from 50 to 205 mg. per hundred cubic centimeters. In 20 cases there was mild to severe hydropic degeneration of the proximal convoluted tubules indicating that tubular injury may have been partly responsible for the azotemia.

A terminal rise of blood urea nitrogen to uremic levels occurs in a high percentage of persons and in a number of different diseases.

A high blood urea nitrogen level on the last day of life does not mean that the patient has a primary renal disease.

In these 84 cases the azotemia is attributed to dehydration in 15, to low blood pressure in 20 and to postoperative complications in 10 cases. Three cases were associated with diabetic acidosis and 1 with necrosis of the liver. In the remaining 35 cases the cause of the azotemia could not be established.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. MOON, DRS. MARTINEAU AND HARTMAN, DRS. CORCORAN AND PAGE AND DRS. BELL AND KNUTSON

Dr. E. T. Bell, Minneapolis: Our knowledge of extrarenal uremia is incomplete. We know that dehydration and low blood pressure account for many cases, but for the majority we have no adequate explanation. Dr. Corcoran has shown that some cases are due to vasoconstriction. Apart from these three forms, we still have a large group of cases, especially those that come on during the last few days of life, about which we have practically no ideas. The blood pressure is normal, and the patient is well hydrated, and yet uremia develops. The kidneys appear normal. Work on this problem has really just begun. We must try to find out why the uremia develops. Is it entirely the fault of some mechanism outside the kidneys, or do the kidneys really play a role? Better methods are needed for study of the histology of the tubules. Unless the tissue is fresh and the fixation good even normal tubules appear to be damaged, and many pathologists have been misled by artefacts. We also need to know what functional changes take place in the kidneys in extrarenal azotemia. Why cannot the kidneys concentrate the urine in the presence of oliguria? These are some of the points on which we would like to have more information.

Dr. A. C. Corcoran, Cleveland: This symposium has established the occurrence in a wide variety of diseases of a common clinical and functional pattern of renal damage characterized by tubular necrosis and degeneration in association with variable numbers of pigmented casts. In some cases the casts are few and apparently noncontributory, and in others they are many and a major factor in the renal damage. The lesions which occur in the absence of any large number of pigmented casts we would view as due primarily to renal vasoconstriction of humoral origin and consequent anoxia. The deposition of pigment may be added to this. Our experience indicates that even minor degrees of vasoconstrictive renal ischemia greatly facilitate the intratubular deposition of pigment. In treatment, urinary alkalinization by the intravenous injection of sodium citrate is often recommended. However, such an injection is often lethal in rats with crushed limbs, apparently by addition of tetany to preexisting shock. If alkalinization is to be attempted, and there is much to suggest its value, it should be accomplished cautiously and by injection of sodium lactate rather than sodium citrate.

Dr. Virgil H. Moon, Philadelphia: I wish only to reemphasize one or two items. Vasoconstriction is certainly a factor in many instances; in all forms of secondary shock, vasoconstriction is one of the compensatory mechanisms which the body has called into play to sustain the circulation at an adequate level, and that vasoconstriction in itself may produce anoxic changes in the kidney. These may be so severe as to cause degenerative changes in the tubules. Some of the cases which it was my privilege to study were those in which aviators at high altitudes, supplied with oxygen masks, succumbed to anoxia by some accident happening to the oxygen apparatus. Perhaps moisture froze within the mask; perhaps the lines were cut by flak or otherwise. Those who died of acute anoxia—death probably occurred within fifteen minutes from the time when lack of oxygen became pronounced—showed parenchymatous degeneration of the kidneys. This was of the same type but not of the same degree as that seen in the cases of longer duration. In regard to terminology: it is not the physician's function to attach names to things, but it would be advantageous if this item which has been rediscovered recently by physiologists, pathologists and internists should receive a designation. It would be historically appropriate if this were called acute parenchymatous nephritis, although it is not truly an inflammatory condition as would be implied by "itis." Other appropriate terms would be acute nephrosis or acute tubular disease. The cases described could accurately be termed acute tubular disease.

DERMATITIS DUE TO QUINACRINE HYDROCHLORIDE ("ATABRINE")

THOMAS W. NISBET, M.D.
Pasadena, Calif.

The purpose of this presentation is to recapitulate the cutaneous manifestations which occur following the administration of quinacrine hydrochloride ("atabrine *di*-hydrochloride" N. N. R.). In the past eight months numerous articles have been presented or published, chiefly dealing with the lichenoid type of cutaneous reaction. This type has been variously described as atypical hypertrophic lichen planus, New Guinea disease or tropical lichen planus. Since practically all the published observations on this type of reaction are in accord, it will be considered only briefly; although exceedingly interesting to dermatologists, it comprises only a small percentage (about 12 per cent) of the dermatoses produced by this drug.

Soon after the beginning of the New Guinea campaign it became apparent that cutaneous disorders were a prolific source of trouble in the Southwest Pacific area. Many conflicting ideas were expressed. The average soldier soon came to call every cutaneous eruption "jungle rot." The medical officer tended to ascribe the conditions to fungi, especially when the hands, feet and groin were involved. Contact dermatitis became a favorite diagnosis as more and more troops came into intimate contact with the profuse vegetation of the jungle. Sensitivity to sunlight or a pellagroid reaction was considered in those cases in which the eruption first appeared on the exposed areas of the body. Impetigo, pyoderma and erysipeloid eruption became favorite diagnoses in one group of these cases. The otologist

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Read before the Section on Dermatology and Syphilology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

encountered many cases of otitis externa, which he generally considered as tropical mycosis. If a little dandruff was present a diagnosis of seborrheic dermatitis was entertained. Cases of generalized exfoliative dermatitis, severe and not infrequently fatal, began to appear in persons who had not received arsenical drugs. All of these factors, combined with the injudicious topical use of the sulfonamide compounds, ammoniated mercury and ointment of benzoic and salicylic acid, carbolfuchsin paint and other similar remedies, together with the effects of a tropical climate, produced a picture that was indeed confusing. As more cases were seen and various factors considered, it became apparent that there was only one in common, namely quinacrine hydrochloride. In the course of time it became possible to classify these cutaneous reactions in three groups: the eczematoid, the hypertrophic lichenoid and the generalized exfoliative.

First is the eczematoid group, which comprises about 80 per cent of the cases and which was overlooked by all except those who had seen service in the tropical areas of the South Pacific.[1] This reaction is characterized by a chronic, dry or exudative, symmetric, localized or generalized eczematous eruption. It is extremely recalcitrant to treatment, and its course generally is marked by periods of remission and exacerbation, though it may be steadily progressive. The sites of predilection are the ears, eyelids, periorbital region, the dorsa of the hands and feet and those areas most often affected in seborrheic dermatitis. On involution peculiarly pigmented flat or hypertrophic lichenoid lesions may develop at the sites of healing lesions. In some cases the eruption appears primarily as a pyogenic infection in the bearded region, the scalp and eyebrows or in the pubic area. On involution these lesions often produce a patchy alopecia. An alopecia totalis may occur.

The second group constitute the lichenoid reactions. This is the type which was most familiar to dermatologists in this country and Australia and about which a great deal has been written. Actually this group of reactions comprises only about 12 per cent of the total incidence of this cutaneous complex. While the eruption in these cases may closely resemble, both morphologically and histologically, that of a hypertrophic lichen planus, it has a more widespread and different distribution, often involving face and trunk or the palms and soles. Involvement of the nails is common, often producing changes similar to those of psoriasis or mycotic infections. In other cases there is a slate-blue pigmentation of the nail bed. Extensive lesions resembling leukoplakia or those seen in lichen planus are common on the mucous membranes of the mouth. Pigmented lesions without apparent changes in the texture of the mucous membranes are frequently seen in the same location. The eruption elsewhere varies from flat pigmented macules, in which the texture of the skin is normal, to thick, confluent, nodular, hyperkeratotic or verrucous lesions, the color of which ranges from pink to a deep violaceous hue.

The third group is the exfoliative reaction, which presents a severe exfoliative dermatitis resembling that due to the arsenobenzols. Secondary infection is common, and some fatalities occurred before penicillin became available. This type is occasionally primary but frequently secondary to the lichenoid or eczematoid forms.

INCIDENCE

Since all information concerning the untoward effects of quinacrine hydrochloride was suppressed during the war, no accurate statistics as to the actual incidence of dermatitis due to this drug are available. However, it was unquestionably high, as is shown by the following facts: In 1943, when there were comparatively few troops stationed in the Southwest Pacific, this theater of action alone accounted for 66 per cent of the total number of patients evacuated from all theaters of war on account of diseases of the skin. Practically all these cases originated in New Guinea, where "atabrine" discipline was rigidly enforced. In 1944 20 per cent of hospital admissions in New Guinea and a slightly lower percentage of evacuations of noneffective persons to the United States were on account of dermatologic conditions. At the same time it was commonly found that as high as 50 per cent of the men reporting for sick call in unit dispensaries did so on account of diseases of the skin. It is my opinion and that of other observers that from 80 to 90 per cent of these cases, though classified under various diagnoses, were in reality cases of dermatitis due to quinacrine hydrochloride.

CONTROLS

Due to the fact that exacerbation did not occur immediately on readministration of quinacrine hydrochloride, there are those who have doubted the role of this drug in the disorder. However, there are a large number of controls present, if one wishes to look for them. These are as follows:

1. American prisoners of war in the Philippines. It is a singular fact that in all the several thousand Americans who were prisoners of the Japanese after Bataan and Corregidor there has not been 1 instance of the cutaneous disorder described in this paper. These prisoners were on starvation diets which produced the wet and dry forms of beriberi. They suffered from pellagra, dysentery and malaria. Further, they lived, perspired and worked in a tropical climate. It is exceedingly strange that these "x" factors of some of the authors were unable to produce the entity previously described in the absence of the ingestion of quinacrine hydrochloride.

2. Military personnel. In troops and Navy personnel serving under identical conditions in the malaria-free areas of the tropical South Pacific where no quinacrine hydrochloride was administered, instances of this entity were not encountered.

3. Japanese prisoners of war. Until the proper authorities publish their reports on the number, physical condition and incidence of skin diseases of the Japanese taken prisoner by the American forces, no reliable data can be given. It is my impression that the Japanese soldier under identical conditions of tropical warfare but without benefit of quinacrine hydrochloride did not present this cutaneous symptom complex.

4. Mediterranean theater of operations. It has been stated that this symptom complex did not occur in the Mediterranean area even though certain units were in malaria-infected districts and the troops were taking quinacrine hydrochloride. However, this is not the case, and several examples of the lichenoid types of eruption occurring in British soldiers have been presented before the Section on Dermatology of the Royal Society of Medicine, although the causative factor of

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[1] Novy, F. G., Jr.. Personal communication to the author.

quinacrine hydrochloride was not recognized.[2] It has also been reported from every other theater of war where this drug was used as a suppressive for malaria.

CONTACT DERMATITIS

One case of contact dermatitis of the eyelids in a nurse handling quinacrine hydrochloride has been reported.[3] The cases of contact dermatitis, rhinitis, bronchitis and asthma in pharmaceutic workers, as reported by Watrous,[4] are of interest in this regard. He stated that in a large laboratory in over 70 per cent of the men who handled the dry drug these conditions developed within a period of eight months. He further stated that "the potency of quinacrine as a local irritant is such that even with elaborate dust control equipment . . . a wide variety of symptoms were observed in the workmen."

OTHER UNTOWARD EFFECTS OF QUINACRINE HYDROCHLORIDE

Any drug producing such severe cutaneous reactions as does quinacrine hydrochloride must of necessity also cause damage elsewhere in the body. Thus it is known that hepatic damage occurs, which may end in death.[5] It is not without significance that most cases of severe hypoplastic anemia in troops in the Southwest Pacific area have been associated with so-called atypical lichen planus.[6] Acute quinacrine intoxication has been reported.[7] Disturbance of vision with advanced impairment of eyesight has been attributed to this drug.[8] The entire question of psychosis occurring in troops under suppressive therapy with this agent needs further study and reexamination in the light of recent work.[9] It is of interest, though uninformative, to note that there has been only one communication dealing with the untoward effects of the drug in pharmaceutical and manufacturing plants.[4]

MECHANISM OF PRODUCTION OF REACTIONS

Those immediate reactions to quinacrine hydrochloride, such as generalized pruritus, urticaria or exfoliative dermatitis, which occur in a small percentage of persons shortly after beginning treatment with the drug, can be considered allergic in character. Also, the scarlatiniform and morbilliform eruptions occurring in the first few days of treatment can be explained on a biotrophic basis and considered as examples of Milian's ninth day erythema. However, in the vast majority of cases in which the appearance of the eruption is delayed for many weeks or months after beginning the routine administration of quinacrine hydrochloride it can hardly be attributed to either an allergic or biotrophic reaction. The known cumulative effect of the substance with its long retention in the body; the hepatic damage, hypoplastic anemias, inanition, gastrointestinal symptoms, mental disturbances and transient paralysis which frequently accompany the cutaneous manifestations, all strongly suggest a toxic reaction. This would also account for the negative results obtained in intradermal and patch tests and for the frequent delay in the exacerbation of the eruption after the readministration of the drug.

Incidentally, the newer synthetic antimalarial (chloroquine SN 7618[10]), which is apparently a better drug than either quinine or quinacrine, is known to produce lichenoid lesions.

In view of the great difficulty in explaining the causation of quinacrine dermatitis by any of the present theories of drug-induced eruptions, it would seem that the entire problem of their etiology might well be subjected to critical reexamination.

TREATMENT

Preventive.—Owing to its cumulative effect, in a large percentage of normal persons toxic manifestations will eventually develop from even small doses of quinacrine hydrochloride if it is given over a long period. For this reason, the successful use of this drug as either a suppressive or therapeutic agent in malaria is entirely dependent on the early recognition of these toxic symptoms and the immediate discontinuance of the drug. In patients receiving this agent, the appearance of any lichenoid or eczematoid eruption, a pruritus or an urticaria, however slight, should be considered as a warning signal and as potentially dangerous. In these cases the drug should be discontinued immediately, quinine being substituted if necessary. All other actively toxic drugs such as arsenic, mercury, gold or sulfonamide compounds are contraindicated. Extension of the eruption or exfoliative dermatitis may follow the use of the sulfonamide drugs either locally or internally. Two cases of the relatively benign lesions of the lichenoid type were seen in which a fatal aplastic anemia followed the intramuscular injections of a bismuth or mercury compound.

Eczematoid Type.—The treatment in the eczematoid types of dermatitis is that of any other irritable dermatosis. Only the blandest local medicaments should be used. If moist dressings are required, weak solutions of potassium permanganate, aluminum acetate or isotonic solution of sodium chloride are indicated. Soothing lotions, such as Mook's or calamine, are useful in the moist eczematous forms, and simple ointments in the dry scaly types. The secondary infection, which may be a serious problem in these cases, should be controlled by the use of penicillin, given either locally or by intramuscular injection. It is of great value, especially in the severe generalized exfoliative or eczematoid types. It should be continued in small maintenance doses of from 80,000 to 90,000 units until the infection disappears. Untoward reactions to penicillin used in this manner were extremely infrequent in a large series of cases, and none were of a serious type. The results of penicillin therapy are particularly spectacular in the severe exfoliative forms, greatly reducing the nursing care required by rendering unnecessary the prolonged tub baths and continuous moist dressings formerly used.

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[2] Hellier, F. F., in discussion on Dowling, G. B.: Erythematous Lichen Planus, Proc. Roy. Soc. Med. **37**: 410 (June) 1944; Brit. J. Dermat. **56**: 241 (Nov.-Dec.) 1944; Two Cases of Lichen Planus, Proc. Roy. Soc. Med. **37**: 413 (June) 1944; Brit. J. Dermat. **56**: 245 (Nov.-Dec.) 1944.

[3] Whitehill, R.: Skin Sensitivity Due to Atabrine, Bull. U. S. Army M. Dept. **4**: 724 (Dec.) 1945.

[4] Watrous, R. M.: Quinacrine Dihydrochloride: Occupational Disorders and Their Control, Indust. Med. **13**: 887 (Oct.) 1944.

[5] Drake and Moon: Read at the meeting of the Section of Dermatology and Syphilology of the California Medical Association, May 1946.

[6] Most, H., and Hayman, J. M., Jr.: Recovery from Severe Hypoplastic Anemia Associated with Atypical Lichen Planus, Bull. U. S. Army M. Dept. **5**: 339 (March) 1946.

[7] Burnham, R. C.: *Acute Atabrine* Intoxication, U. S. Nav. M. Bull. **46**: 434 (March) 1946.

[8] Chamberlain, W. P., Jr., and Boles, D. J.: Corneal Edema: Quinacrine (Atabrine), Bull. U. S. Army M. Dept. **5**: 6 (Jan.) 1946. Abbey, E. A., and Lawrence, E. A.: *Effect of* Atabrine Suppressive Treatment on Eyesight of Pilots, ibid. **5**: 130 (Feb.) 1946.

[9] Gaskill, H. S., and Fitz-Hugh, T., Jr.: Toxic Psychosis Following Atabrine, Bull. U. S. Army M. Dept., March 1945, no. 86, p. 63. Lerro, S. J.: Report of Two Cases of *Toxicity to Atabrine*, Mil. Surgeon **89**: 668 (Oct.) 1941. Mergener, J. C.: Psychosis Following the Administration of Quinacrine Hydrochloride for Malaria, War Med. **8**: 250 (Oct.) 1945. Crawford, R. P.: Atabrine Psychosis, Air Surgeon's Bull. **2**: 21 (Jan.) 1945.

[10] Loeb, R. F., and others: Activity of a New Antimalarial Agent, Chloroquine (SN 7618), J. A. M. A. **130**: 1069 (April 20) 1946.

Lichenoid Type.—The lichenoid type of reaction requires little treatment other than the cessation of the drug and the usually supportive measures, such as a high caloric and high vitamin diet. If pruritus is present the use of mild antipruritic ointments is indicated. In recalcitrant cases superficial roentgen therapy is of value.

CONCLUSIONS

1. Quinacrine hydrochloride ("atabrine *di*-hydrochloride" N. N. R.) is the etiologic agent in a large group of cutaneous conditions occurring in troops serving in the tropics.

2. The eczematoid type of reaction to this drug is the commonest and has been overlooked to a large extent.

3. The lichenoid type of reaction presents a bizarre picture of peculiarly pigmented, slate-blue to purplish hypertrophic lichenoid lesions.

4. The exfoliative type of reaction may occur primarily or as a progression of the eczematoid or lichenoid types.

5. In the mechanism of the production of this cutaneous syndrome, none of the generally accepted theories of drug-evoked eruptions appear adequate to explain the observed facts.

ABSTRACT OF DISCUSSION

Dr. James R. Drake, San Francisco: I should like to compliment Dr. Nisbet not only on his paper but on his early recognition of an important group of cases in the early phases of military activities in the southwest Pacific. It has been somewhat difficult to prove the role of quinacrine hydrochloride in this regard from a strictly scientific point of view. Many clinical workers in both the Army and Navy have attempted to produce exacerbations with readministration of the drug, with varying results. In my group, the eczematoid type flared fairly promptly and with a fair degree of regularity, while the lichenoid did not. Ingestion of the drug over a longer period of time was apparently necessary. Similarly, the antimalarial was taken for a longer period of time prior to the onset of the lichenoid type. The average time of taking the drug prior to the onset in my group of lichenoid cases, some 75 consecutive cases, was about five and a half months. Other workers have reported anywhere from two to six months as their average. It should be kept in mind also that cutaneous reactions to this drug antedated World War II and occurred in civilians. Holton and Winchester in 1938 reported a severe case of exfoliative dermatitis, presumably due to quinacrine hydrochloride. I believe this was the first case reported in the United States. That a contact dermatitis may occur was demonstrated by Dr. George Andrews before the New York Dermatological Society in 1943 with a case of a chemist exposed to quinacrine dust. Since that time contact sensitivity has, as Dr. Nisbet stated, been repeatedly demonstrated, both in the production of the drug and by patch testing a number of workers in both branches of the armed services. In a group of cases observed by Dr. Moon of Letterman General Hospital, during an eighteen month period, 9 patients with lichenoid dermatitis died. In 7 of these the cause of death was aplastic anemia. During the same eighteen months, only a total of 9 cases of aplastic anemia were seen at Letterman General Hospital. On the other hand, in this group of cases it was impossible to demonstrate any definite connection with hepatic damage during the same period of time.

Dr. Frederick G. Novy Jr., Oakland, Calif.: Dr. Nisbet has given us an excellent discussion of the various forms of eruptions produced by the ingestion of quinacrine hydrochloride. The hypertrophic form is so spectacular that diagnosis clinically is not hard to make. The eczematoid type, in my opinion, is nearly impossible to diagnose clinically. While I was in the Navy, a number of cases of eczematoid dermatitis occurred in the tropics among the personnel who had been aboard ship or who were in some nonmalarious area, where they were not getting this drug. Clinically it was impossible to differentiate these cases. I think they can only be diagnosed when one has a positive history and in addition exacerbate the eruption by giving the drug. During the middle part of the war, this disease was called the New Guinea disease. The reason it was seen in New Guinea in such high incidence was because there was a large concentration of troops that had been there for a long time and the "atabrine" discipline was very strict. The result was the appearance of many cases of this eruption in that area. Since then other cases have been reported from various surrounding islands. There have been cases, as Dr. Nisbet mentioned, from the Mediterranean theater, India and elsewhere. As the war progressed, we began to see patients who had gone directly to the Philippines in whom the eruption developed while there. Toward the end of the war, the patients were seen who had gone directly from the United States to Okinawa, which is 26 degrees north and out of the tropics. So I feel that the climate and environment of New Guinea itself did not play a role in the production of this spectacular and unusual disease. My experience has been the same as that of Drs. Drake and Nisbet in regard to exacerbations of the lesions in patients. These eruptions do not exacerbate with just the administration of one or two tablets of quinacrine hydrochloride. The eczematoid type usually takes six or seven days or a little longer to develop, and a hypertrophic type usually takes considerably longer than does the eczematoid.

Commander E. E. Barksdale, Bethesda, Md.: When investigation of this problem was first ordered at Bethesda it was called New Guinea lichen planus. It was possible to reproduce the condition in Washington, D. C. It is admitted that the climate in Washington is probably worse than it is in New Guinea. But this is a definite quinacrine-caused dermatitis. When 200 cases for investigation were requested after the Surgeon General had ordered the investigation, in only 38 of the 200 cases was it possible to prove true dermatitis caused by this drug, and that was from the entire Navy and Marine Corps in the Pacific. My impression is that it is a rare disease. Seventeen patients were selected to be put back on a regimen of quinacrine hydrochloride; in 16 of the 17 it was possible to reproduce the disease. In the other patient, administration of the drug was discontinued because of nausea and vomiting. I think it is a fixed type of drug eruption due to quinacrine hydrochloride.

Dr. Marvin Knoll, Los Angeles: I have seen this form of dermatitis from Milne Bay in New Guinea up through the Philippines and on the island of Honshu at Kure, Osaka and Kobe. All the patients gave a history of previous medication with quinacrine hydrochloride. Dr. T. Tanimura, professor of dermatology at the Imperial University in Osaka, told me he had not encountered a like condition among the Japanese troops. In Papua, New Guinea, from January 1944 until July 1945, a similar dermatitis was not seen in hospitalized or well natives. Among American service men and women the variety of cases ranged from small split-pea-sized individual lesions to the severe universal exfoliative dermatitis complicated by blood dyscrasias. Atabrine contains the acridine nucleus, a photosensitizing radical, and I believe many of these cases had their early beginning as a result of the sensitization of the skin to sunlight.

Dr. Alfred Hollander, Springfield, Mass.: Several months ago I saw a case which differs somewhat from the cases reported by the physicians who were in New Guinea. This patient while in the Pacific had taken quinacrine hydrochloride for thirty months up to November 1945 without any ill effects. He returned to this country in December 1945; he was first in the south, and he came back to Massachusetts in March 1946, when he had his first attack of malaria. He was again given quinacrine hydrochloride for about ten days. About three days after the discontinuance of the drug he had a yellow discoloration of the entire skin surface. I saw him about a week later, at which time he still showed the yellow discoloration and, furthermore, two slightly papular lesions the size of a nickel in the region of the right elbow. I told him to report back if he should see any further outbreak. He did not return until four weeks later, when he exhibited a lichen-planus-like eruption on various parts of his body, which I could not differentiate from any outbreak of typical lichen planus. In regard to Dr. Knoll's remarks, in Massachusetts there were cases of dermatitis due to this drug at Fort Devens in 1944. I think these cases with pigmentary changes should be compared with the cases Riehl of Vienna described at the end of World War I and which are called Riehl's melanosis. At that time it was a nutritional factor which brought out the disease. I believe that in dermatitis due to quinacrine hydrochloride a nutritional factor together with the climate and the sensitivity to the drug produces the pigmentary changes.

RHEUMATIC BRAIN DISEASE

Late Sequel of Rheumatic Fever

WALTER L. BRUETSCH, M.D.
Indianapolis

In recent years attention has been directed to the occurrence of rheumatic obliterating arteritis in the brain of persons with rheumatic heart disease.[1] This late cerebral sequel of rheumatic fever involves mainly the small meningeal and cortical vessels, producing gross or microscopic softenings in the cortex. Less frequently, larger vessels are affected. The involvement of the brain may occur from several months to many years after the acute stage of rheumatic fever, at a time when the person is otherwise enjoying good physical health. To this hitherto unrecognized cerebral process the term rheumatic brain disease was given. Similar cases have since been described in this country[2] and abroad.[3]

Although the frequency with which widespread and clinically manifest arteritis takes place in the brain of persons with rheumatic cardiovalvular disease is not yet known, its occurrence is by no means rare. It has been estimated from necropsy experience that approximately 5 per cent of the patients of the average mental hospital are afflicted with a combined rheumatic brain disease and rheumatic heart disease.

In 85 per cent of these patients the sedimentation rate was found to be accelerated. Correlative histologic studies disclosed rheumatic activity on the valves of the heart and in the cerebral and other vessels, indicating the presence of subclinical rheumatic fever in the absence of other symptoms which are generally regarded as manifesting activity.[1]

REPORT OF CASE

History and Course.—A woman patient aged 49 had four slight strokes, which were followed by a change in personality. After the last cerebral vascular accident, which affected her speech, she became destructive and uncontrollable.

The past history mentioned a leakage of the heart, which was discovered at the age of 20. There was no definite history of rheumatic fever in childhood. When the patient was 35 years of age, she had been in bed for several months with sciatic rheumatism.

Physical examination revealed a diastolic murmur at the apex. The pulse was irregular both in time and force. Its volume was small. The rate was 80 per minute. The blood pressure was 115 systolic and 90 diastolic. The roentgenogram and the electrocardiogram were indicative of mitral stenosis. An impediment of speech and hyperactive patellar reflexes were the only neurologic abnormalities. Mentally, the patient exhibited a considerable degree of deterioration. Pneumoencephalography showed dilatation of the right lateral ventricle. There was an increased amount of cortical air over both hemispheres. The widening of the subarachnoid spaces was particularly well defined in the region of the right sylvian point.

The Wassermann reaction of the blood and spinal fluid was negative. The cell count, total protein determination and colloidal gold curve of the spinal fluid were normal. Urinalysis revealed a trace of albumin and granular casts. There was an increased rate of sedimentation on several occasions, oscillating between 18 and 22 per hour (Cutler vein method). The temperature was normal. The blood count was as follows: hemoglobin 72 per cent; red cells 3,800,000; leukocytes 8,950. The differential count indicated a shift to the left.

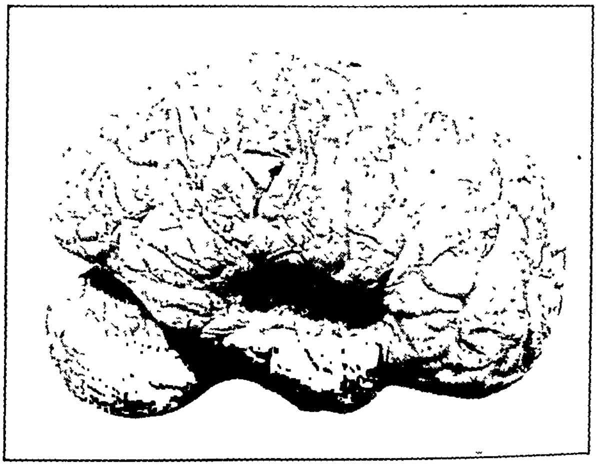

Fig. 1.—Rheumatic brain disease. Cortical infarction in right temporal lobe due to rheumatic obliterating arteritis.

The following diagnoses were made: psychosis with rheumatic brain disease; mitral stenosis, and subclinical rheumatic fever. The patient remained in the institution for four years. At no time was there any sign of congestive heart failure. She died suddenly from a pulmonary infarct.

Postmortem Observations.—Necropsy revealed rheumatic mitral stenosis. The mitral valve was thickened in its entire circumference. The chordae tendineae were shortened. Aschoff bodies were not found in the cardiac muscle, but isolated Aschoff cells were scattered throughout the myocardial interstitium. It has been said that Aschoff nodules are present only in about 11 per cent of rheumatic patients who die in the later decades of life.[4]

The lungs revealed recent rheumatic vascular disease accompanied by red infarcts. Numerous Masson bodies, which are considered the equivalent of Aschoff bodies in the heart, were observed in the pneumonic tissue.[5] In both kidneys were old

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Read before the Section on Nervous and Mental Diseases at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Bruetsch, W. L.: Psychosen bei chronischer Endokarditis, Psychiat.-neurol Wchnschr. 38:551 (Oct. 31); 563 (Nov. 7) 1936; The Histopathology of the Psychoses with Subacute Bacterial and Chronic Verrucose Rheumatic Endocarditis, Am. J. Psychiat. 95:335 (Sept.) 1938; Chronische rhe [illegible] als Ursache von Geisteskrankheiten: Eine [illegible] Ztschr. f. d. ges. Neurol. u. Psychiat. 166 [illegible] and Bahr, M. A.: Chronic Rheumatic Br[illegible] the Causation of Mental Illness, J. Indiana M [illegible] Bruetsch, W. L.: Chronic Rheumatic Brain Disease as a Possible Factor in the Causation of Some Cases of Dementia Praecox, Am. J. Psychiat. 97:276 (Sept.) 1940; Rheumatic Epilepsy: Sequel of Rheumatic Fever, ibid. 98:727 (March) 1942; Rheumatic Endarteritis of Cerebral Vessels: Sequel of Rheumatic Fever, Tr. Am. Neurol. A. 68:17, 1942; Late Cerebral Sequelae of Rheumatic Fever, Arch. Int. Med. 73:472 (June) 1944; Sedimentation Rate and White Blood Count in Mental Patients with Rheumatic Brain Disease, paper read at the annual meeting of the American Psychiatric Association, Chicago, May 28, 1946; Am. J. Psychiat., to be published.

[2] Kernohan, J. W.; Woltman, H. W., and Barnes, A. R.: Involvement of the Nervous System Associat[illegible] Neurol. & Psychiat. 42:789 (Nov.) 1939. [illegible] Lesions of the Brain Associated with Chronic [illegible] Accompanied by Psychosis, Dis. Nerv. Syste[illegible]

[3] Castex, M. R.: Rheumatismo cerebral crónico, Prensa méd. argent. 30:1401 (Aug. 4) 1943.

[4] Console, A. D.: Relation of Cardiac Lesions to the Clinical Course of Rheumatic Fever, Arch. Int. Med. 69:551 (April) 1942.

[5] Neubuerger, K. T.; Geever, E. F., and Rutledge, E. K.: Rheumatic Pneumonia, Arch. Path. 37:1 (Jan.) 1944.

infarctions, which could be traced to rheumatic obliterating endarteritis of renal vessels.[6]

In the right temporal lobe (fig 1) of the brain was a large area of cortical softening, which extended into the anterior limb of the internal capsule. Smaller infarctions were present in the central and parietal cortex of both sides Extensive histologic search detected occluded meningeal vessels, which were responsible for the cortical softenings The rheumatic vascular obliterations extended over short segments only and for this reason could easily have been missed unless serial sections were made In addition to the gross infarcts there were present in the gray matter of all lobes microscopic areas of incomplete softening (acellular areas) In the vessels of the brain not a single yellow plaque was noted, excluding arteriosclerosis as the cause of the cerebral changes

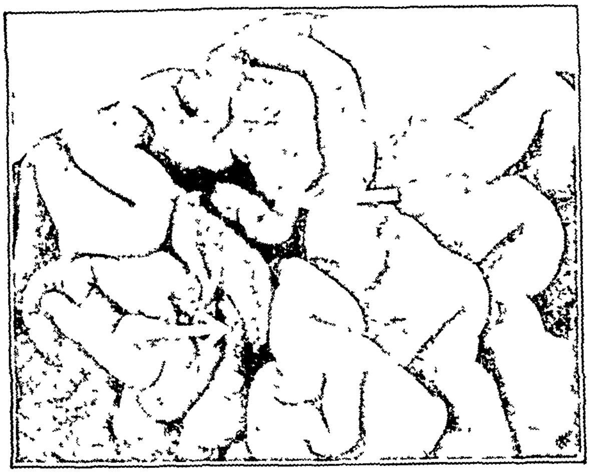

Fig 2—Softening and granular atrophy of convolutions in rheumatic brain disease

In the spinal cord were minor rheumatic alterations, consisting of incomplete vascular occlusions without softenings There were also a few vessels which were surrounded by lymphocytes These lesions, however, were not sufficient to produce such clinical symptoms of myelitis as were observed by Mørch Christensen in the wake of rheumatic fever[7]

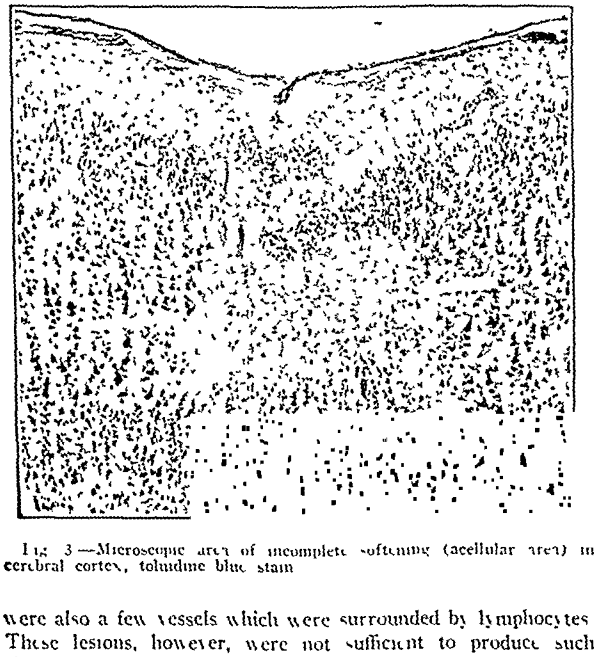

Fig 3—Microscopic area of incomplete softening (acellular area) in cerebral cortex, toluidine blue stain

COMMENT

This patient with rheumatic mitral stenosis, while in other respects in good health, experienced at the age of 49 a rheumatic involvement of the brain in the form of a diffuse obliterating process of the cerebral vessels. Similar vascular changes were observed in the kidneys. Furthermore, rheumatic fever was still or was again active in the lungs of this patient, as evidenced by Masson bodies and an increased rate of sedimentation, although the initial infection must have taken place several decades earlier. The disease history in this case exemplifies the validity of the newer concept which looks on rheumatic fever as a generalized process, involving various organs by way of the vascular system and being a continuous infection which lasts throughout life in some persons.

SYMPTOMATOLOGY OF RHEUMATIC BRAIN DISEASE

Rheumatic disease of isolated larger vessels of the central nervous system may produce various obscure neurologic conditions, which have puzzled the older neurologists. Leyden[8] in 1877 reported the sudden development of bulbar palsy in a woman aged 52, who at the age of 22 had had an acute form of rheumatic fever. There was mitral stenosis and a small area of fresh softening in the medulla oblongata Vascular occlusions in patients with rheumatic endocarditis have in the past been interpreted as always being caused by the detachment of emboli from the cardiac valves In the vast majority of patients, however, such occlusions, in the absence of auricular fibrillation, are the result of local proliferation of the intima.

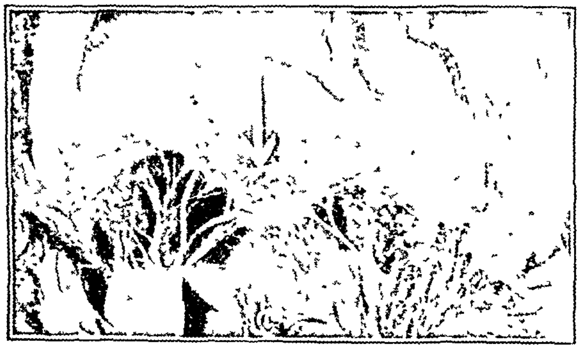

Fig. 4—Mitral valve with recurrent rheumatic endocarditis There is a large verruca on the closing border To the right is a continuous but barely visible layer of verrucous tissue

In general, rheumatic endarteritis has a predilection for the smaller vessels and in the brain involves frequently only the small meningeal and cortical branches, resulting in microscopic areas of softening in the gray matter. The ensuing mental disturbance is determined by the personality and by the age at which the cerebral involvement occurs. If the rheumatic infection causes cerebral damage in childhood, aberrations ranging from mild behavior disorders to slight mental deficiency states may result. In the young adult psychopathologic pictures suggesting dementia precox have been observed. Although the active rheumatic state is generally regarded as a disease of childhood, the late vascular lesions of rheumatic fever are not infrequently seen in middle life and even in the aged, being responsible for psychoses characteristic of that period. This is in accordance with the more recently emphasized observation that in many adult cases of rheumatic heart disease an active infection persists, usually in a manner so mild as to be scarcely detectable.[9]

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[6] Hutton, R L, and Brown, C R The Renal Lesion in Rheumatic Fever, Ann Int Med 20:85 (Jan) 1944

[7] Mørch Christensen, A Myelitis Developing as Sequel of Rheumatic Fever, Hospitalstid 81:327 (April 5) 19[illegible]

[8] Leyden E Zwei Fälle von acuter Bulbärparalyse, Arch f. Psychiat 7:44, 1877

RHEUMATIC BRAIN DISEASE AS A FACTOR IN THE CAUSATION OF SOME CASES OF DEMENTIA PRECOX

The studies on rheumatic brain disease have unearthed the fact that at necropsy 9 per cent of patients with dementia precox showed signs of rheumatic infection involving the brain as well as the cardiac valves.[1]

Modern psychiatry has viewed dementia precox and mental disease in general as a mere maladjustment of the person to social, environmental and emotional situations. The mass experiments which tested the so-called dynamic theories of psychiatry were the experiences of the two world wars. In environmental or emotional stresses were the cause of disabling mental illness, there would have been a decided increase of dementia precox and of other psychoses during the two wars. This was not the case.[10]

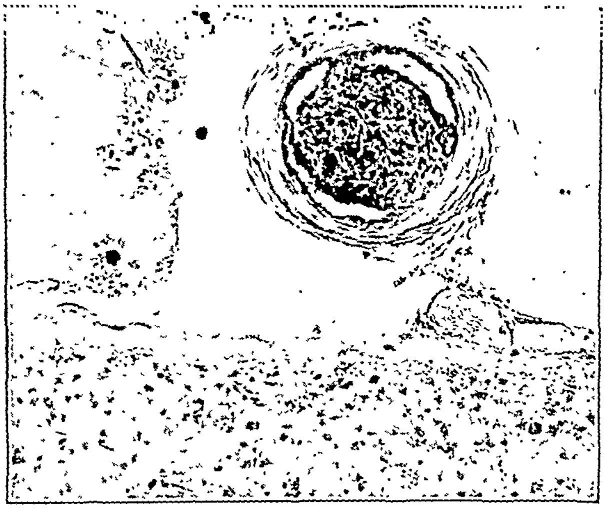

Fig. 5.—Rheumatic obliterating endarteritis of small meningeal artery. Proliferated intimal cells fill the lumen of the vessel. In the underlying cortex the ganglion cells have disappeared or show signs of degeneration; toluidine blue stain.

At various times the view has been expressed by Wagner-Jauregg,[11] Bleuler,[12] Singer[13] and others[14] that dementia precox does not represent an etiologic entity but is a clinical syndrome capable of subdivisions.

It seems as if the description of rheumatic brain disease, which occurs in 9 per cent of schizophrenic patients, is the first successful attempt to break down the dementia precox group into subgroups with definite etiologies.[1]

A few cases in which this cerebral sequel of rheumatic fever produced the symptomatology of dementia precox will be described.

A woman at the age of 35 began to hear voices which threatened her life. Later she had periods during which she became combative and violent. Except for a history of antecedent rheumatic fever, little was known about her life. She died after eleven years of institutional confinement in a state of advanced dementia. In the brain were gross (fig. 2) and microscopic (fig. 3) infarctions, which were due to rheumatic endarteritis of meningeal and cortical vessels. There were many old vascular occlusions, pointing out that one was not dealing with a terminal process. The clue to the exact nature of the cerebral involvement was furnished by the mitral valve, which disclosed chronic rheumatic endocarditis (fig. 4).

The history of another patient is revealing.

The woman patient, aged 37, was admitted to the Central State Hospital in 1890, coming from another institution where she had been an inmate since the age of 25. The diagnosis on admission was, according to the classification then in use, chronic mania. In 1915 the diagnosis was changed to dementia precox, and in 1925 the more modern term of schizophrenia was attached to the patient. When she died, examination of the brain and organs brought to light the true reason why this *patient had spent the greater part of her life in a mental institution.* In the brain was widespread rheumatic endarteritis (fig. 5) of many years' standing, associated with numerous microscopic areas of incomplete softening. In the kidneys were the residue of old rheumatic infarcts. The mitral valve divulged rheumatic alterations.

It may be interjected here that the rheumatic cerebral damage in these patients was not the anatomic substratum of the psychosis but was only an incidental and unrelated observation. The same inference could be made in regard to psychoses with vascular neurosyphilis. However, few clinicians doubt that the syphilitic obliterations of the blood vessels with their resulting cortical necroses constitute the basis of the mental disorder and are not merely terminal lesions.

Furthermore, the rare opportunity had presented itself to examine the brain of a schizophrenic patient with rheumatic endocarditis, who five months after the onset of the psychosis committed suicide. Here the same changes characteristic of rheumatic brain disease were present.

DIFFERENTIAL DIAGNOSIS BETWEEN RHEUMATIC BRAIN DISEASE AND CEREBRAL LESIONS IN THROMBOANGIITIS OBLITERANS (BUERGER'S DISEASE)

An increasing number of cases with cerebral involvement in thromboangiitis obliterans (Buerger's disease) is being reported.[15] In some of these patients,[16] however, endocarditic changes on the cardiac valves have been present, implying that the vascular alterations represented rheumatic arteritis and not thromboangiitis obliterans. It is obvious, then, that a diagnosis of Buerger's disease in the presence of rheumatic cardiovalvular disease should be made with caution. Even the histologic differentiation between thromboangiitis obliterans and rheumatic vascular disease is at times most difficult.[17] A general criterion is that Buerger's disease involves particularly the larger arteries, while rheumatic fever has a preference for the smaller vessels.

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[9] Juster, I. R.: The Significance of Rheumatic Activity in Chronic Rheumatic Heart Disease, Am. Heart J. **15:** 1 (Jan.) 1938.

[10] Stokes, A. B.: War Strains and Mental Health, J. Nerv. & Ment. Dis. **101:** 215 (March) 1945.

[11] Wagner-Jauregg, J.: Was leistet die hormonale Behandlung bei einer im Klimakterium aufgetretenen Schizophrenie? Med. Welt **9:** 1605 (Nov. 2) 1935.

[12] Bleuler, E. P.: The Physiogenic and Psychogenic in Schizophrenia, Am. J. Psychiat. **87:** 203 (Sept.) 1930.

[13] Singer, H. D.: Psychosis and the Central Autonomic Nervous System, J. A. M. A. **110:** 2048 (June 18) 1938.

[14] Sherman, I. C., and Broder, S. B.: Dr. H. Douglas Singer's Concept of the Psychoses, Arch. Neurol. & Psychiat. **49:** 732 (May) 1943. Bumke, O.: Die Auflösung der Dementia Praecox, Klin. Wchnschr. **3:** 437 (March 11) 1924. Bouman, K. H.: De schizophrenie als organische hersenziekte, Nederl. tijdschr. v. geneesk. **75:** 2564 (May 16) 1931. Dunlap, C. B.: Dementia Praecox: Some Preliminary Observations on Brains from Carefully Selected Cases, and a Consideration of Certain Sources of Error, Am. J. Psychiat. **80:** 403 (Jan.) 1924.

[15] Foerster, O., and Guttmann, L.: Cerebrale Komplikationen bei Thrombangiitis obliterans, Arch. f. Psychiat. **100:** 506, 1933. Hausner, E., and Allen, E. V.: Cerebrovascular Complications in Thrombo-Angiitis Obliterans, Ann. Int. Med. **12:** 845 (Dec.) 1938. Lindenberg, R., and Spatz, H.: Ueber die T[illegible] der Hirngefässe (cerebrale Form der v. [illegible] nkheit), Virchows Arch. f. path. Anat. **305** [illegible] Perret, G.: Cerebral Thromboangiitis Obliterans: Report of Three Verified Cases, Tr. Am. Neurol. A. **68:** 12, 1942. Scheinker, I. M.: Cerebral Thromboangiitis Obliterans: Histogenesis of Early Lesions, Arch. Neurol. & Psychiat. **52:** 27 (July) 1944.

[16] Spatz, H.: Ueber [illegible] Winiwarter-Buergerschen Krar[illegible] che Ztschr. f. Nervenh. **136** [illegible] and Scheinker, I.: Ueber die [illegible] che Krankheit) unter besond[illegible] ren, Ztschr. f. d. ges. Neurol. u. Psychiat. **160:** 155, 1937. Krayenbühl, H.: Zur Diagnostik und chirurgischen Therapie der zerebralen Erscheinungen bei der Endangiitis obliterans v. Winiwarter-Buerger, Schweiz. med. Wchnschr. **75:** 1025 (Nov. 24) 1945.

CONCLUSIONS

About 5 per cent of the patients in mental hospitals have a combined rheumatic brain disease and rheumatic heart disease. The ratio between rheumatic men and women is 1:3.

The sedimentation rate was accelerated in 85 per cent of these patients, suggesting the presence of subclinical rheumatic fever.

The cerebral involvement consisted of a rheumatic obliterating endarteritis with subsequent areas of softening. To this process the term rheumatic brain disease was given.

ABSTRACT OF DISCUSSION

DR. FREDERICK P. MOERSCH, Rochester, Minn.: Dr. Bruetsch has added another chapter to his many studies on the involvement of the nervous system associated with rheumatic heart disease. That cases of fatal rheumatic heart disease reveal definite pathologic findings in the brain has also been substantiated by other investigators. As a result of all these studies there is no longer any good reason to doubt the close relation between rheumatic heart disease and the many neurologic disorders that accompany it. That cerebral lesions of rheumatic origin may produce mental symptoms seems a reasonable deduction. Here the correlation between the pathologic observations and the clinical symptoms is not as clear as it is in the cases of a neurologic nature. Unfortunately it is not known how numerous or how extensive lesions in the brain must be for the production of mental symptoms. It is known that senile plaques may be found in the brain without any apparent associated mental symptoms; however, if the number of plaques is extensive there are the mental symptoms of Alzheimer's disease or senile dementia. In 1939 Dr. Kernohan and his associates (*Arch. Neurol. & Psychiat.* **42**:789-809 [Nov.] 1939), in a study of the "Involvement of the Nervous System Associated with Endocarditis," found neuropathologic changes similar to those noted by Dr. Bruetsch. In 23 of their 42 cases there was rheumatic endocarditis with fatal outcome. In 21 of these 23 there were neuropsychiatric disorders, and in 5 there was evidence of psychosis. In spite of these observations it remains a fact that from a clinical point of view mental symptoms are seldom observed in patients with rheumatic heart disease. Many patients are seen who have rheumatic heart disease; they are seen repeatedly and in various stages of their illness, but it is rare indeed to find any unusual mental symptoms which one might attribute to rheumatic brain damage. To my knowledge, no extensive psychiatric study has been carried out in patients suffering from rheumatic heart disease. Certainly such a clinical study seems indicated, as undoubtedly more careful psychiatric surveys would probably indicate a much greater incidence of psychiatric symptoms than is now appreciated.

DR. NATHAN MALAMUD, San Francisco: Dr. Bruetsch has for a number of years drawn attention to his observations of rheumatic brain disease in a variety of neurologic and psychiatric disorders. There is one aspect of this problem which I would like to discuss, namely, the value of such studies in conditions which are usually dismissed as being functional, particularly in schizophrenia. In this disorder organic cerebral changes are denied, but, as Dr. Bruetsch has emphasized, investigation in routine state hospital autopsies might disclose subgroups in which an organic process is undeniable. The vascular disease reported by Dr. Bruetsch probably forms one of these subgroups. There is another in which a similar mechanism, though of different etiology, might play a role. This concerns some patients with catatonic schizophrenia in whom, at the height of an acute attack, signs of vasomotor instability, convulsions and other organic symptoms develop, with fatal termination. In such cases the observations at necropsy are invariably negative. However, careful microscopic investigation of the brain shows signs of impaired cerebral circulation but without evidence of any vascular disease or occlusion. Two cases will serve as illustrations. A catatonic form of schizophrenia of about one and a half years' duration in a woman aged 20 ended abruptly in an episode of stupor, convulsions and hyperthermia which lasted three days, pathologically showing extensive infarction of the cerebral cortex in the presence of normal blood vessels. In the cortex of this patient there were numerous acellular areas and small infarcts at an early stage, but the meningeal and cortical vessels themselves were normal and not occluded. In the second case recurrent catatonic attacks over a number of years in a man aged 24 terminated in an episode of stupor associated with hyperthermia, bradycardia and apnea and pathologically showed widespread changes of the cortex without any vascular lesions. In this second case there was distinct paling of the cortex in some areas, particularly the troughs of the convolutions by contrast with the crests. On higher magnification there was widespread ischemic degeneration of the ganglion cells. It may be significant that the same mechanism of disturbed cerebral circulation is suggested in these so-called functional disorders as in the cases of rheumatic brain disease. I should like to ask Dr. Bruetsch whether he has any explanation for the occurrence of schizophrenic, epileptic or other types of disorder in the different cases he reported, in spite of apparently similar pathologic conditions in the brain.

DR. N. W. WINKELMAN, Philadelphia: The late Dr. John Eckel of Buffalo and I reported in 1932 a group of 5 cases from a great number of similar cases from the Philadelphia General Hospital, in which the brain of the patient was involved in acute rheumatic fever. To this condition we gave the name of nonsuppurative encephalitis rheumatica. From our study we concluded that acute rheumatic fever does not produce a specific change in the brain that can be recognized either grossly or microscopically. Second, the changes that are present in the brain of patients who have shown neurologic and psychiatric symptoms during the course of acute rheumatic fever are similar in every way to the changes that occur in any other acute infections and toxemias. We considered that edema of the brain played a part in the production of the acute manifestations. We found an endarteritis of the small vessels similar to that described in syphilis by Nissl and Alzheimer, which we felt might be the result either of a mechanical process, the edema, or of a toxic reaction through the blood stream. At that time we found the same acellular areas in the acute cases that Dr. Bruetsch observed in his chronic cases, but I must add also that we found the same areas absolutely indistinguishable from those of rheumatic fever patients with other infections and toxemias. We felt that the occurrence of endarteritis completely changed the picture in the brain. We found so-called brain purpura, hemorrhagic encephalitis, in a great many of our cases of endarteritis. I would like to ask Dr. Bruetsch first, if he has found similar pathologic changes in patients with histories of other infectious processes and second, whether he believes the endarteritis itself is responsible for the changes that he has described in the brain.

DR. J. M. NIELSEN, Los Angeles: Does Dr. Bruetsch think that the actual picture of dementia precox or schizophrenia is ever produced by these rheumatic lesions, inasmuch as dementia precox begins with a loss of interest and attention, seclusiveness and so on, followed only much later by symptoms referable to the cortex? I do not see how any type of pathologic anatomy in the cortex or subcortex can ever explain the entire syndrome of dementia precox. There are many symptoms in dementia precox that are referable to the diencephalon, the thick subcutaneous tissue, the oiliness of the skin, the general unhealthy appearance of the patient in general and a certain peculiar pathologic plantar response which is not a Babinski. Things of that sort characterize dementia precox, and it seems to me that they are not simulated exactly by any other condition of the brain.

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[17] Jäger, E.: Zur pathologischen Anatomie der Thrombangiitis obliterans bei juveniler Extremitätengangran, Virchows Arch. f. path. Anat. **284**:526 and 584, 1932. Fahr, T.: Die rheumatische Granulomatose (rheumatisches Fieber, Rheumatismus infectiosus specificus, Rheumatismus verus) vom Standpunkt des Morphologen, Ergebn. d. inn. Med. u. Kinderh. **54**:357, 1938.

Dr. Leopold Hofstatter, St. Louis: Dr. Bruetsch's paper is an important contribution toward a better understanding of schizophrenic reactions in relation to physical illness. In a number of brains from schizophrenic patients he could show cortical changes that he identified as late sequels of rheumatic fever. The significance of the pathologic conditions described for the etiology of schizophrenic reactions will have to be evaluated in the light of similar observations in mentally healthy persons. The fact that personality features often are a determining factor in the final outcome of physical illness may have some bearing on the matter. From Dunbar's pertinent studies it is known that rheumatic fever in the repressed, passive and submissive person usually results in a well-established, irreparable pathologic process (rheumatic heart disease) whereas the more spontaneous and aggressive patient recovers without permanent (cardiac) damage. The occurrence of organic changes of the brain as sequels of rheumatic fever in schizophrenics may therefore be explained on psychosomatic grounds.

Dr. Walter L. Bruetsch, Indianapolis: I want to answer first the question of Dr. Moersch, who mentioned that there are many patients with rheumatic heart disease who do not manifest mental symptoms. In this connection there is an analogy with syphilis. There are many instances of syphilis, but in only a few patients does there develop vascular neurosyphilis (syphilitic endarteritis) associated with mental symptoms. Dr. Malamud portrayed the cerebral changes of patients whose disease was diagnosed during life as dementia precox, emphasizing the point, which also was the theme of my paper, that in some cases of dementia precox there are demonstrable organic lesions. Dr. Winkelman brought up the question whether the vascular alterations are specific for rheumatic fever. I am inclined to the statement that the etiology of obliterating endarteritis at times cannot be diagnosed from the morphologic appearance of the lesion alone. Various conditions lead to endarteritis, among them syphilis, thromboangiitis obliterans and rheumatic fever. In the study with which this paper is concerned only cases which also involved rheumatic endocarditis were considered. This established with certainty the rheumatic etiology of the vascular process. For some time internal medicine has recognized endarteritis due to rheumatic fever. It has been shown to occur in almost every organ of the body. Finally, the cerebral vessels have been added. Dr. Winkelman in 1929 published a number of instances with proliferative endarteritis of varied causation, and in 1 of these cases the vascular occlusions were obviously due to rheumatic fever. As to the question whether the symptoms of dementia precox could be caused by the cerebral changes which were observed in these patients, no single localization or type of cerebral process is recognized which will produce the symptomatology of dementia precox. This possibly answers to some extent Dr. Nielsen's question. In general one may say, however, that a diffuse involvement of the cerebral cortex is one of the various possibilities which can initiate schizophrenic symptoms. The description of rheumatic brain disease directs attention to a hitherto unrecognized phase of rheumatic fever. This has led to concern among persons with a history of rheumatic fever and among parents whose children have this disease. There is, however, a note of optimism. Even if the brain should become involved in later years, rheumatic encephalopathy has a fairly high rate of spontaneous recovery. The recovery may occur even though gross or microscopic cerebral lesions have occurred. This may be explained by the fact that after the acute vascular process in the cerebral vessels has subsided, there remains enough normal brain tissue for the patient to continue mental processes. In some instances recovery has been speeded by intensive salicylate therapy.

Clinical Notes, Suggestions and New Instruments

GRANULOCYTOPENIA DUE PROBABLY TO "PYRIBENZAMINE"

WYNDHAM B. BLANTON, M.D.
and
M. E. B. OWENS Jr., M.D.
Richmond, Va.

Granulocytopenia is believed not to have been described hitherto among the untoward side effects of tripelennamine hydrochloride, "pyribenzamine" (N. N. R.) (N′pyridyl-N′ benzyl-N-dimethylethylenediamine hydrochloride), therapy.

REPORT OF CASE

A widow aged 73, whose general health had always been excellent, was first seen in 1942 for a vulvovaginitis. She was again seen on Sept. 23, 1946 for an urticaria of seven weeks' duration. Put on a dosage of 200 mg. of "pyribenzamine" daily, she showed an immediate improvement of symptoms. She was hospitalized on Oct. 10, 1946 for environmental and dietary trials. The etiology of the urticaria was not determined by the initial or subsequent investigations. The patient was discharged on Oct. 29, 1946 with the urticarial outbreaks improved but continuing. At this time examination of her blood revealed a count of 5,700 leukocytes, with a differential of polymorphonuclear neutrophils 74 per cent; lymphocytes 22 per cent, and monocytes 4 per cent. The dose of "pyribenzamine" was reduced to 150 mg. daily, and its administration was continued. Chloral hydrate 0.6 Gm. was given nightly. Senna leaf infusion, self-prepared, completed the list of drugs she was taking at this time, except for nicotinic acid, 100 mg. daily from November 18 to 20. (Subsequently, when the blood count had returned to normal, nicotinic acid was again given without effect on the leukocyte picture.)

Hematologic Data

Date	White Blood Cells Total	Neutrophils, %	Lymphocytes, %	Monocytes, %	Eosinophils, %	Basophils, %
4/ 6/42	8,600	55	37	7	1	..
9/23/46	8,000	58	37	..	5	..
10/10/46	5,700	74	22	4	..	..
11/23/46 (11 a.m.)	1,600	12	86	2	..	..
11/23/46 (4 p.m.)	1,300	3	92	5	..	..
11/23/46 (11 p.m.)	1,550	7	83	10	..	..
11/25/46	2,800	48	50	2	..	..
11/27/46	2,600	33	59	8	..	..
11/29/46	2,400	22	71	7	..	..
12/ 1/46	4,400	47	48	4	1	..
12/ 3/46	4,500	52	44	4	..	..
12/ 5/46	6,100	64	30	6	..	..
12/ 9/46	9,200	68	24	8	..	..
12/13/46	8,800	62	30	7	..	1

Hemoglobin 75% (12.8 Gm.); red blood cells 4,400,000; platelets 246,000; reticulocytes 0.6%.

The patient was again hospitalized on Nov. 23, 1946. She had not felt well for a week. An elevation of the temperature to 102 F. had occurred three days before admission. Two days before, a slight, nonproductive cough had developed. On the morning of admission the temperature was 103 F., and bouts of chilliness were experienced. Slight nausea and a dull headache were complained of, but there was no soreness of the throat. Apart from the fever, the physical examination was noncontributory. The chest was clear. No ulceration or inflammation of the mouth or throat was present. A superficial ulcer on the left labium majus, recurrent for years, was healing. Blood culture and routine urinalysis were negative. The blood count was: leukocytes 1,300; polymorphonuclear neutrophils 3 per cent; lymphocytes 92 per cent; monocytes 5 per cent; erythrocytes 4,400,000; hemoglobin 75 per cent (12.8 Gm.); platelets

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From the Allergy Service, Medical College of Virginia.

246,000; reticulocytes 0.6 per cent. "Pyribenzamine" therapy was discontinued immediately. Treatment with penicillin, 50,000 units intramuscularly every three hours, was instituted on admission. This was reduced next day to a dosage of 25,000 units every three hours until November 29, at which time it was discontinued. The temperature returned to normal the day after admission and remained so. The attendant symptoms also responded immediately. Chloral hydrate was continued in doses of 0.6 Gm. four times a day until November 29. Senna leaf infusion was given nightly throughout the hospital stay. Twelve cubic centimeters of a concentrated liver extract intramuscularly, with 40 mg. of folic acid by mouth, were given daily from November 30 to December 9. Slight, occasional outbreaks of urticaria were treated by the injection of a solution of epinephrine subcutaneously.

Scratch tests to "pyribenzamine" in solution were negative. Following the method of Leftwich,[1] direct intradermal tests with serum from another patient being given the drug were negative. Attempts were made to demonstrate leukocyte sensitivity to "pyribenzamine" by in vitro lysis of leukocytes by the method of Squier and Lee.[2] A 0.01 per cent solution of the drug in isotonic solution of sodium chloride was added in equal parts to the heparinized blood of the patient and to controls. Serial white counts at intervals during two hours were suggestive, but not conclusive, of the destructive action of "pyribenzamine" on the patient's leukocytes in vitro. It was considered inadvisable to test the patient directly by the readministration of the drug.

SUMMARY

Fever and a marked depression of granulocytes in the peripheral blood, developed in a woman aged 73 after eight weeks of tripelennamine hydrochloride, "pyribenzamine" (N. N. R.), therapy in moderate doses for chronic urticaria. After withdrawal of the drug and the intramuscular use of penicillin, the temperature dropped to normal in twelve hours. The total leukocyte count and the differential percentage returned to normal in twelve days. The neutropenia is thought to have been the result of the drug.

Council on Foods and Nutrition

PLAN FOR ACCEPTANCE OF JUICES

In order to encourage the production of fruit juices containing high natural levels of vitamin C, the Council accepts orange juice in which at least 40 mg. of ascorbic acid per hundred cubic centimeters of juice is conserved.

The following product meets the standards and rules established by the Council for fruit juices.

Attention is called to the fact that this product, while packed in a hermetically sealed container, is not heat treated and should be consumed promptly after defrosting. If it is not to be used immediately after defrosting, it may be kept under refrigeration of approximately 35 degrees F. in the unopened container for three or four days. James R. Wilson, M.D., *Secretary.*

FRUIT JUICE—ORANGE JUICE

Birtcher Brothers and Dorr, Inc., Glendora, Calif.

Glen-Dora Quick Frozen California Orange Juice.

Analysis (submitted by manufacturer).—Total solids 14.43%, moisture 85.57%, ash 0.40%, fat (ether extract) 0.06%, protein (N × 6.25) 0.56%, crude fiber 0.01%, carbohydrates other than crude fiber (by difference) 13.40%.

Calories.—0.55 per gram; 15.62 per ounce.

Vitamin Content.—	Mg. per 100 Cc.
Ascorbic acid	
In juice	43.2
In fruit (before processing)	43.8

Council on Physical Medicine

REPORT OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following report.

The Council wishes to express its appreciation for the valuable cooperation of the Consultants on Electrocardiographs in reviewing this report. The consultants are Drs. A. R. Barnes, George Fahr, Harold E. B. Pardee, William D. Stroud, Carl J. Wiggers and Frank N. Wilson. Howard A. Carter, *Secretary.*

MINIMUM REQUIREMENTS FOR ACCEPTABLE ELECTROCARDIOGRAPHS

1. The electrocardiographs shall be equipped with a suitable recording mechanism.

2. The recorded response of the instrument to externally applied square wave voltages shall be adjustable to a sensitivity of 1 cm. per millivolt when this voltage is applied to the leads of the instrument through a series resistance of 2,000 ohms. This sensitivity shall be maintained without further adjustment within ± 5 per cent for a period of thirty minutes under operating conditions. Operating conditions for the purpose of this requirement are defined as (1) for alternating current operated instruments as line voltages varying from 105 to 130 volts at frequencies within ± 2 per cent of the specified value for the instrument, (2) for battery operation as one or more of the batteries operating at 80 per cent of the rated life or voltage whichever condition occurs first. Under these conditions the response of the instrument to its incorporated standardizing signal of 1 millivolt shall be within ± 5 per cent of the response to the externally applied test signal. The instrument shall incorporate means of superimposing its intrinsic test signal into the cardiographic tracing as recorded from any lead position. It should be possible to maintain this test signal voltage for a period of two or more seconds.

3. The amplitude response of the instrument to 1 millivolt peak sinusoidal voltage variation up to 15 cycles per second shall not fall below 90 per cent, and up to 40 cycles shall not fall below 50 per cent of the square wave response to equivalent voltage variations. The amplitude response of the instrument to 1 millivolt peak sinusoidal voltage variation up to 300 cycles per second shall not exceed 100 per cent of the square response to equivalent voltage variations.

4. The response of the instrument at 0.2 second after the application of a direct current of 1.0 millivolt shall not deviate more than ± 10 per cent from the response at 0.04 second. The test voltage of 1 millivolt should be applied to the leads of the instrument through a series resistance of 2,000 ohms.

5. When the instrument is adjusted to the sensitivity specified in requirement 2 the recorded response shall be directly proportional to the applied voltage (direct current) within ± 5 per cent over a range of 2 cm. on either side of zero.

6. With the two input terminals connected together, a potential difference applied between them and ground should not produce a deflection of more than 1 per cent of that produced by the same potential difference applied between the two input terminals.

7. The instrument shall incorporate a means of continuously recording time intervals on the record. These intervals shall be of one second duration or less and shall be accurate within ± 2 per cent. A means of superimposing this time signal on the electrocardiographic tracing at the operator's will will be accepted as fulfilling this requirement. It should be possible to record the time signal for a period of at least two seconds. Recording paper preruled so as to indicate time intervals, assuming a constant paper speed, shall not be construed as fulfilling this requirement.

8. The construction of the instrument shall be such as to meet the shock hazard requirements of the Underwriters' Laboratories, Inc.

9. Instruments shall be submitted and considered according to the Official Rules of the Council on Physical Medicine.

10. The standards of merchandising and the acceptability of advertising shall meet the Rules of the Council on Physical Medicine.

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[1] Leftwich, W. B.: Intradermal Test for Recognition of Hypersensitivity to Sulfonamide Drugs, Bull. Johns Hopkins Hosp. 74: 26-48, 1944.

[2] Squier, T. L., and Lee, H. J.: Lysis in Vitro of Sensitized Leucocytes by Ragweed Antigen, read at the meeting of the American Academy of Allergy, New York, Nov. 26, 1946.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 31, 1947

CENTENNIAL SESSION

As The Journal goes to press with this Centennial Number, arrangements have been completed for the largest and most comprehensive session of the American Medical Association ever held. Over 10,000 physicians have already indicated their intention to be present. Rooms have been assigned to all of those who have applied. The Local Committee on Arrangements in Atlantic City, headed by Dr. David B. Allman, announces that additional rooms are available in excellent hotels in the suburbs of Atlantic City. Regular bus service will be provided without charge from these hotels to the Boardwalk. Any one who wishes to attend the annual session should not hesitate to come because of lack of suitable accommodations. The hotel committee, under Dr. Robert A. Bradley, 16 Central Pier, Atlantic City, N. J., will do everything possible to secure satisfactory accommodations for any Fellow of the American Medical Association who wishes to participate in this notable event.

Elsewhere in this issue of The Journal are examples of telegrams, letters, resolutions and editorials that have been published in various periodicals and sent directly to the headquarters of the Association, some in connection with the actual birth date of the Association, May 5. Information is available that many periodicals with large national circulation will also have special issues to commemorate the occasion.

National broadcasts are scheduled for practically every day of the week beginning Sunday, June 8, at which time the speakers at the religious service, Monsignor Fulton J. Sheen, Dr. Joshua Loth Liebman and Dr. Ralph Cooper Hutchison, will be presented at 11 a. m., Eastern daylight saving time.

The Journal has noted previously the issuing by the Post Office Department of a stamp commemorative of the Centennial. The third assistant postmaster general, Mr. Joseph Lawler, is coming to Atlantic City in person to present a sheet of the stamps to the House of Delegates. The J. B. Lippincott Company has arranged to issue a special envelop with a cachet or device commemorative of the occasion and carrying one of the new stamps, so that every physician in attendance may have some to mail to his home.

"The History of the American Medical Association" is in the bindery, and the W. B. Saunders Company, which is the publisher, announces that the book will be available in Atlantic City.

The exhibits, including both the Scientific and the Technical, are most comprehensive, and practically all exhibitors have entered into the spirit of the occasion. Many of these exhibits will be devoted to the history of the advancement of medical science. Others will include mementos of the Centennial for the physicians who visit the exhibits.

The distinguished foreign guests constitute an amazing list representative of medicine throughout the world. Other notables in attendance will include the surgeons general of the various services, Secretary of War Robert P. Patterson, Assistant Secretary of the Navy for Air John Nicholas Brown and possibly also the Secretary of the Interior, Julius A. Krug.

Attention should be called again to the fact that the opening general meeting will be held in the large auditorium on Tuesday evening, June 10. The Philadelphia Festival Orchestra under Alexander Hilsberg will give a concert, which will begin at 7:45. The meeting itself will begin at 9 o'clock. Seated on the stage will be the officers and the Past Presidents of the American Medical Association, the distinguished representatives of the Medical Society of New Jersey and of Atlantic County, and the foreign guests who will be presented on this occasion. This meeting is open both to the medical profession and to the public. Arrangements can be made for seating more than 5,000 people. However, Fellows of the Association who wish to attend should arrive not later than 7:30 so that all may be properly seated before the concert begins.

Two excellent orchestras, those of Tommy Tucker and Eddie Lane, have been secured to supply the music for the President's Reception on Thursday night, June 12. Because of the number of distinguished persons in attendance, there will be three receiving lines. The reception will begin promptly at 9 o'clock. This will also be held in the large hall of the Atlantic City auditorium.

The scientific program for this session of the Association has been especially designed to commemorate one hundred years of medical progress. Each of the sections has a special contribution by a leader in the specialty concerned, and there is to be a special session on the history of medicine.

The celebration of the Centennial has been carefully planned and has required attention to detail beyond any similar occasion in the history of the Association. Every physician who can possibly be present should endeavor to come to the session, if not for the entire week, at least for one day, in order that he may look back in the years to come with pride of personal participation in this celebration.

DIETARY TREATMENT OF HYPERTENSIVE DISEASE

Shortly after the beginning of the twentieth century Achard and Loeper [1] and Widal and Lemierre [2] demonstrated that a diet of low salt content was helpful in hypertensive disease. Allen in 1920 also proposed a salt free diet for hypertension, but his studies and conclusions did not receive general acceptance by the medical profession.

The possibilities of treating hypertensive disease and its complications by dietary methods has become the subject of renewed study. Among such investigations are those of Grollman and his colleagues,[3] Selye,[4] Wheeler and his co-workers [5] and Kempner.[6] Grollman and his co-workers found that the blood pressure of rats with experimental renal hypertension could be lowered by administering diets in which the sodium content had been decreased by dialysis. Only 6 cases were reported, the reduction of pressure being to normal levels in 2, moderate reduction in 3 and no decline at all in 1. The radical reduction of sodium in the food employed by these investigators cannot be readily duplicated.

Selye, working with experimental animals, found that low sodium and low protein diets would prevent the nephrosclerosis and hypertension which could be produced in these animals by corticotrophen, desoxycorticosterone and other salt active corticoid hormones. In a small number of human beings with rapidly progressive hypertensive disease similar dietary measures were considered effective. Selye believes that the low content of protein and sodium in some of the diets which have been empirically proposed for the treatment of hypertensive disease is the basis of the resultant favorable reports, such as the so-called rice diet for hypertension studied by Kempner.

The volume of experimental and clinical studies and the scientific standards of many of them would seem to confirm the view that a diet low in sodium is helpful for a high percentage of patients with hypertensive disease. Indeed, Wheeler and his co-workers believe that the use of a diet low in sodium in the presence of congestive failure of the heart is also based on sound experimental and clinical grounds. Not all patients of this type will respond. These investigators found that patients with congestive failure due to coronary or hypertensive heart disease responded much better than those in whom rheumatic heart disease was the cause of the failure.

Further work on this therapeutic approach is needed. *In spite of the overwhelming evidence of value of a* special dietary regimen, agreement on specific constituents of the diet and the indications and contraindications has not been obtained. Careful clinical observations under controlled conditions are necessary before the dietary regimen can be considered worthy of general adoption in clinical practice.

DIAGNOSTIC MEDICAL CARE AND COMMERCIAL LABORATORIES

Accurate diagnosis is the cornerstone of modern medical care. Following adequate review of the patient's history and complete physical examination supplemental clinical laboratory and x-ray examinations may be necessary in many cases. The physician determines, following these additional diagnostic studies, whether or not still further tests, such as functional and neuropsychiatric tests, bronchoscopy and gastroscopy, are required in a much smaller number of cases. Diagnostic medical examinations which involve pathologic and radiologic investigations and clinical laboratory studies may be done in doctors' offices and in hospitals. Fundamental to any examination is the availability of trained personnel that it may be conducted properly and interpreted adequately. In the larger centers, radiologists and pathologists (qualified physicians) usually conduct these examinations. In smaller communities, circumstances often require that they be performed by general practitioners who have had some supplemental training in radiology or pathology.

The profound importance of competent pathologic examination is evidenced in the early diagnosis of malignant disease. Consider the woman with a lump in her breast or the youth with a painful lesion involving bone. In either case carcinoma may be present. If it is, the swiftest method of cure is removal of the breast or leg. On the decision of the pathologist in most instances this grave step must be taken. If there is a well trained pathologist accessible to the hospital or physician's office the patient is likely to receive a correct diagnosis so that a life saving measure is then justifiably undertaken. If, however, reliance is placed on a poorly trained or unqualified person needless and mutilating operations may be performed for benign tumors. If a diagnostic procedure such as a simple blood count or a roentgenographic study of the chest is performed by competent personnel under the supervision of and responsible to a specialist in one of those fields, the end result is likely to be earlier diagnosis and better medicine. An incompetent, untrustworthy test is often worse than none!

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[1] Achard, C, and Loeper, M.: Sur la retention des chlorures dans les tissus au cours de certains états morbides, Compt rend. Soc. de biol **53**: 346, 1901.

[2] Widal and Lemierre. Pathogenie de certains oedemes brightiques. Action du chlorure de sodium ingere, Bull et mem Soc med d. hôp. de Paris **20**: 785, 1903

[3] Grollman, Arthur, and others Sodium Restriction in the Diet for Hypertension, J. A. M A **129**: 533 (Oct 20) 1945

[4] Selye, Hans The General Adaptation Syndrome and the Diseases of Adaptation, J Clin. Endocrinol **6**: 117 (Feb) 1946

[5] Wheeler, Edwin O., and others Diet Low in Salt (Sodium) in Congestive Heart Failure, J. A M. A **133**: 16 (Jan 4) 1947.

[6] Kempner, Walter Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet, North Carolina M J **5**: 125 (April) 1944, Treatment of Kidney Disease and Hypertensive Vascular Disease with Rice Diet. II, ibid **5**: 273 (July) 1944

In the early days of clinical laboratory and roentgenologic medicine technicians (notably after World War I) sometimes offered their services as practitioners in these fields. Many were moderately experienced. Owing to the shortage of trained medical specialists, these technicians were frequently accepted and supported by the medical profession. In the meantime, departments of radiology and clinical pathology were becoming established in medical schools, and young physicians were being encouraged by the faculties to enter these fields. Today the continued development of such competent specialists may well depend on the extent to which commercial laboratories, supervised, owned or controlled by nonmedical personnel, are eliminated from the field.

In some parts of the country the commercial laboratory has become synonymous with convenient diagnoses and even rebates. To the credit of the medical profession such practices are exceptional. Nevertheless the signs are clear. Physicians must support medical laboratories which meet the standards of the Council on Medical Education and Hospitals, owned and conducted by medical men trained in their fields. There should be no place in medicine for commercial nonmedical interests that exploit both patient and physician and undertake without recognized responsibility decisions that can rest safely only on those licensed to practice medicine and specially qualified in their fields.

Current Comment

LATE RESIDUALS OF INFECTIOUS HEPATITIS

An estimated 90 to 95 per cent of patients with acute infectious hepatitis appear to recover entirely within a period of two to three months. Klatskin and Rappaport[1] have attempted to determine the incidence of residuals in a large group of patients presumably recovered from this disease. The studied group consisted of 217 persons presumably cured of infectious hepatitis, of whom 47 had symptoms, 59 had an enlarged liver and 41 had evidence of impaired liver function—a total of 108, eliminating duplications, or about 50 per cent of the cases. The significant symptoms were right upper quadrant pain and fat intolerance. Structural changes were not established, though the evidence suggests that the residuals mentioned indicate a disturbance of the liver. Good health and full activity over long periods—the time varying from two months to twenty-seven years—were compatible with these changes. The severity of the jaundice at the time of the disease was the only symptom which appeared to play a significant part in the incidence of residual changes. Evidence could not be deduced from the patients studied that the residuals described predispose the liver to further injury. Likewise the presence of late residuals of infectious hepatitis did not appear to reflect any tendency to develop cirrhosis, though coarse nodular cirrhosis occasionally occurs during the first six months of chronic progressive or recurrent infectious hepatitis.

TENNESSEE AND THE NATUROPATHS

In 1943 and 1945 the general assembly of Tennessee passed a law legalizing the licensing of naturopaths. A naturopathic board was established to deal with such licensure. Now by an act of the last general assembly in Tennessee the naturopathic board has become extinct. Within a week after the law was first passed a member of the naturopathic board sent a letter to naturopathic healers through the nation telling them that Tennessee had now become the happy hunting ground for their profession. The publication of the Tennessee Department of Public Health states that a horde of naturopathic healers met at the Maxwell House in Nashville four months later and hundreds of licenses were issued like tickets to a banquet. A reporter for the *Commercial Appeal* estimated that about 1,500 Tennessee licenses to practice naturopathy were doled out to those able to purchase them; evidence was developed indicating the establishment of a political organization for the maintenance of this unfortunate system of practice. Among other naturopaths who migrated to Tennessee was William E. Estep, who has a long list of bogus performances and fake licenses to his credit. The Memphis newspaper gives an amazing account of a visit by one of its reporters, Harry Woodbury, to Estep's clinic. When the reporter entered he was greeted by a man sitting behind a plain desk who said to him "You look like you are in quite a bit of pain. What seems to be troubling you, sir?" The reporter submitted to an examination by Estep during which the naturopath said to him "You are eaten up with sinus!" He was also told by Estep that he had stomach ulcers and that his blood pressure was dangerously high. A previous examination had shown that the reporter was not actually subject to any of these maladies. The naturopath gave Mr. Woodbury an electrical treatment and three prescriptions, one of which called for 4 ounces of sulfocyanate. Estep was indicted for practicing medicine without a license and sentenced to a fine of $500 and imprisonment in the county workhouse for eleven months and twenty-nine days. The Tennessee incident is reminiscent of the diploma and license scandals of a previous generation. It calls to mind the shipping of carloads of physicians with well nigh worthless diplomas from schools in St. Louis and Kansas City to Connecticut and Arkansas, where conveniently eclectic boards licensed them. That was the scandal that gave the United States such notorious charlatans as Brinkley and Schireson. Who knows how long Tennessee and the rest of the United States will be paying for the folly of the general assemblies of 1943 and 1945?

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[1] Klatskin, Gerald, and Rappaport, Emanual M.: Late Residuals in Presumably Cured Acute Infectious Hepatitis, Ann. Int Med. **26:** 13 (Jan.) 1947.

ORGANIZATION SECTION

CONGRATULATIONS AND GREETINGS

Note.—Here are examples of congratulatory messages, editorials and letters received in the headquarters office in association with the Centennial of the Association.—Ed.

A. M. A. FOUNDERS

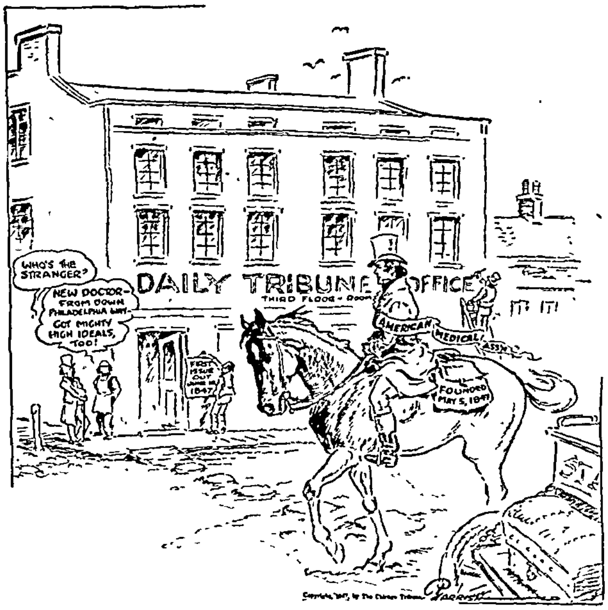
(The Evening Star, Washington, D. C., May 13, 1947)

Emerson's doctrine that a great institution is "the lengthened shadow of one man" is subject to amendment in certain cases. The American Medical Association, now celebrating the centennial of its establishment, was the result of a matching of the minds of a number of men of distinction. It grew from two conventions, held at New York and at Philadelphia in May 1846 and May 1847. The constitution in its current form declares: "The object of this Association shall be to promote the science and art of medicine. Contributing to this end, the association shall endeavor to unite into one compact organization the medical profession of the United States for the purpose of fostering the growth and diffusion of medical knowledge, of promoting friendly intercourse among American physicians, of safeguarding the material interests of the medical profession, of elevating the standard of medical education, of securing the enactment and enforcement of just medical laws, of enlightening and directing public opinion in regard to the broad problems of hygiene and of representing to the world the practical accomplishment of scientific medicine."

Foremost among the primary sponsors of the ideals thus set forth was Dr. Nathan Smith Davis, who as early as 1843 proposed such a movement. His major interest was in the better training of medical practitioners—a concern which was shared by the celebrated psychiatrist Dr. Pliny Earle and by the chairman of both of the preliminary conventions, Dr. Jonathan Knight. All three of these founders were possessed of a genius for persuading people of different views to work together.

Another generation than that of the original organizers produced Dr. Nathaniel McCormack of Kentucky, who, with the assistance of several colleagues, revised the constitution of the Association and drafted the prevailing plan for the management and conduct of its affairs. He too deserves to be remembered in connection with the centenary celebration.

ANOTHER FELLOW WHO STARTED OUT A HUNDRED YEARS AGO


WHO'S THE STRANGER?
NEW DOCTOR—FROM DOWN PHILADELPHIA WAY—GOT MIGHTY HIGH IDEALS, TOO!
DAILY TRIBUNE OFFICE
THIRD FLOOR
FIRST ISSUE OUT JUNE 10 1847
AMERICAN MEDICAL ASS'N
FOUNDED MAY 5, 1847
Copyright, 1947, by The Chicago Tribune
PARRISH

Published in the Chicago Daily *Tribune*, May 7, 1947. The *Tribune* also is celebrating its centennial in June.

* * * *

MEDICAL CENTENARY

(New York Times, May 7, 1947)

On May 5, 1847 some 250 delegates representing more than forty medical societies and twenty-eight colleges met at Philadelphia to form what has ever since been the American Medical Association. A century later the Association has 131,590 members and 72,243 Fellows. No other body wields greater professional influence. During the long decades when the government was indifferent to the quality of food and drugs and the "patent" medicine man was in his heyday, the Association was a bulwark of protection. Quacks were pursued, educational standards were raised, drugs were appraised, hospitals and schools were approved or disapproved, a dozen first class medical publications, of which THE JOURNAL is the best known, were made indispensable purveyors of knowledge, nostrums were exposed as the frauds that they were, fads were riddled.

For all these blessings the public has reason to be grateful. With some of the economic and social policies of the Association we have disagreed. But certainly in intelligence, in education, in breadth of culture the Association is not surpassed by any other organization, because no other so carefully excludes from its ranks the badly trained, the charlatans and the sectarians. We wish it another century of usefulness.

* * * *

HOSPITALS AND THE A. M. A.

(Hospital Management, May 1947)

In the leading article the writer states that "hospitals may well share the pride of the Association in the completion of its hundred eventful years, for the history of the American Medical Association, and of the medical profession in general, is irrevocably linked with the history of hospitals. The two have worked as a smooth-running team, complementing and supplementing each other's activities with the same broad objective in mind: the betterment of the health of mankind."

* * * *

CENTENARY OF THE ASSOCIATION

(Good Housekeeping, June 1947)

In Atlantic City in June the American Medical Association will observe its Centenary, and so it is appropriate that we extend to the Association our sincerest congratulations and good wishes. It is doubtful whether any other organization has had as much of an influence for good on American life. Organized medicine in this country is powerful, as it deserves to be and must be. But for the highly centralized headquarters in Chicago we would not now be so free of quacks, and of bad medical legislation, and of medical plans and schemes that take advantage of a gullible public. Immeasurable good has come from the American Medical Association. Largely because of it the status of medicine in America is unexcelled; the stature of the profession is the highest ever known. We salute the Association; and, in honoring it, we honor a group of indispensable citizens.

A. M. A. CENTENNIAL

(Drug Trade News, May 19, 1947)

The news that the American Medical Association reached its one hundredth birthday on May 5 is alone sufficient to spotlight its profoundly valuable contributions to the advancement of medicine and the general welfare.

Whatever the field of medical interest, be it education, hospital development, public health administration, research, expansion of medical care, drug control, journalism, a study of its history will show that the A. M. A. has always been the dominant voice demanding ever higher standards and ever greater public benefits.

From the outset, the A. M. A. became dedicated to the task of progressively improving medical education, and so effectively did it achieve that today medical education in the United States is by all odds vastly superior to that in any other section of the world.

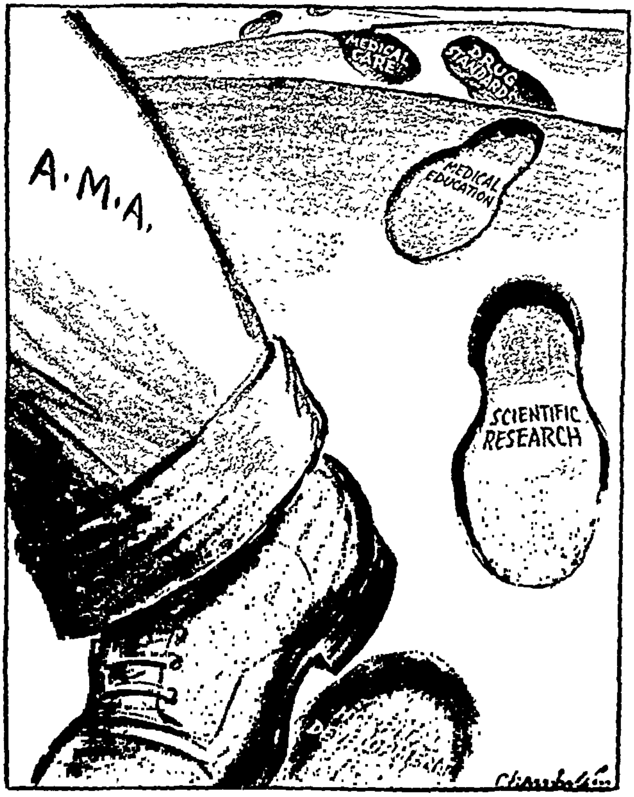
In the field of drug standardization, control and promotion, the A. M. A. has, through its Council on Pharmacy and Chemistry, been a most constructive influence in behalf of greater scientific accuracy and more dependable therapeutic agents. Here its leadership, which necessarily includes the element of discipline, may well be said to have instituted new concepts of pharmaceutical integrity.

The A. M. A. has been the strong, motivating factor underlying medical research. It has fostered the establishment of research departments and laboratories in the medical schools, in various governmental services and in the great pharmaceutical industry plants. The high standards of scientific effort which now obtain in so many areas of medical care are a tribute to the A. M. A. conviction that science and medicine are partners in the cause of human betterment.

Quite properly, we think, the A. M. A. has fought the many half-baked, visionary schemes, plans and plots to socialize the medical profession. While it seems inevitable that, in due course, the government must play a greater hand in the expansion of medical care, the hold-back policy of the A. M. A. has assured a more careful appraisal of the problems and more practical programs for meeting them.

By every test, the A. M. A. has gloriously justified its first hundred years.

GIANT FOOT PRINTS



Published in *Drug Trade News*, May 19, 1947.

* * * *

CENTURY OF PROGRESS

(Boston Post, April 30, 1947)

On May 5 the American Medical Association will be 100 years old. It has had a century of growth that is truly phenomenal. Starting with a bare handful of physicians, today its rolls include 131,590 members and 72,243 Fellows. Its accomplishments in the field of public health too have been notable. Always in the forefront in the prodigious advancement of medical science during that period, it well deserves national recognition at this first major milestone for the fine job it has done.

THE DOCTOR

(The Lion, May 1947)

Next month the American Medical Association will celebrate its Centennial, it being just one hundred years ago that that organization, so great in accomplishment and rich in service to humanity, was founded in Philadelphia. At that time the medical profession was still in an exceedingly primitive state, the practitioners being for the most part men with little knowledge of the human body and much less of the cause and nature of disease, and who in treatment relied largely on blood letting, nostrums and superstition. There were no professional standards and no medical ethics. Yet there were here and there a few enlightened physicians and surgeons who recognized their responsibilities and followed the higher ideals of their calling, and it was a group of these men who in 1847 banded together into an association for the primary purpose of elevating medical education, promoting research and establishing the standards and principles of ethics so sorely needed for public protection.

The contrast between medicine as it was studied and practiced in 1847 with medical education and practice of today is so vast as to represent one of the greatest marvels of modern times. During the forthcoming Centennial it is but fitting that special honors will be paid that vast body of physicians, surgeons and specialists in the various branches of medical science who during these hundred years have developed the remarkable diagnosis, treatment and surgical technics that have conquered many of the diseases that formerly scourged mankind, that have brought miraculous cures to untold millions of sufferers and that have increased the span of life by many years.

But the spotlight will specially fall during this Centennial on that kindly friend and benefactor of humanity, the Family Doctor. Maybe he is unknown to the world at large. Maybe he is spending his life in relative obscurity, ministering to the ailing, the sick and distressed of his own neighborhood, or in a small town or rural community. But in the history of medicine, as in the hearts and minds of his neighbors and townsmen, he is a man of greatness nevertheless. For it is the Family Doctor who is the core of his profession. Not only has all medical knowledge sprung from the experiences of his practice, but he is the medium through whom the century's medical progress is made a reality for us all. And, in thinking of the Family Doctor as the consecrated and faithful servant of humanity, we recall the dramatic characterization of him presented by the famous painting "The Doctor," which is reproduced on the front cover of this issue of the *Lion*. It is the masterpiece of Sir Luke Fildes, which hangs in the Tate Gallery in London and which was exhibited in the Hall of Science at the Century of Progress Exposition in Chicago in 1933-1934. Not only is the painting itself dramatic, but the story behind it is equally so.

Nearly sixty years ago Queen Victoria of England arrived at one of her rural estates to find one of her servant women and her husband grief stricken because their only child lay at the point of death. The Queen immediately telegraphed to London for her personal physician, Sir James Clark. He arrived by special train and remained in constant attendance on the child until the crisis was past and she was well on the way to recovery. The girl was literally snatched from the grip of death, and Queen Victoria was so impressed with this medical miracle that she commanded Sir Luke to place on canvas the scene in the humble cottage as the child's life was feebly flickering, as a tribute to the entire medical profession for its devotion to the cause of humanity.

Lionism prides itself on the many thousands of men of medicine within its ranks, in all of its eighteen countries. Ever since the founding of Lions International three decades ago, medical men have been among the most active Lions Club members. They have been tireless workers not only in their own professions but in every Lions Club activity for the welfare of their city or town and area, and the number of them who have occupied high posts in Lionism is countless.

Lionism also prides itself on the fact that, just as the medical profession has cooperated intensely in the growth and development of our Lions Club and Association, so has it been privileged to cooperate with the medical profession in a great many ways. Lions clubs in all our eighteen countries have sponsored and very often financed the construction of numerous hospitals, clinics and special wards, have equipped them with laboratories, diagnosis and surgical equipment, furnishings and facilities of every kind. They have served communities lacking adequate medical services by locating competent doctors in them, have built blood banks, have assisted in spreading public health education, have promoted modern sanitation—to mention only a few such activities.

Lionism, in a word, could never have been the great constructive force in public service that it is today were it not for this mutual cooperation by and with the men of medicine, and Lions everywhere salute them on this Centennial of their first professional organization.

Melvin Jones.

* * * *

ONE HUNDRED YEARS OF PROGRESS

(Grand Rapids, Mich., Herald, May 10, 1947)

Medical science as it is known today has made its greatest advancements in the last hundred years. It may indeed be said to have been the product of the last century.

And it is more than coincidence that this great period should have been the period of the American Medical Association, founded May 5, 1847 and now celebrating its centennial.

In this country, the A. M. A. has taken the lead in elevating the standards of medical education and practice, in the elimination of "quacks" and "quack" medicines, in promoting research and in improving the public health.

Countless comparisons might be made between the methods and knowledge and standards of today and those of a century ago. They are not necessary. Most of us in our lifetime have seen the results of progress in too many lines of medical practice to need comparisons with the crude ways and sparse facts of a hundred years ago.

One by one, and in large measure due to the organization that now numbers 131,590 of America's 190,000 doctors of medicine in its membership, we have seen the passing of fads and frauds and the introduction of new skills and new drugs.

Nor have the art and science of medicine reached the end of progress. Its practitioners will go on and on, finding new and newer means of alleviating suffering and saving lives and making life more worth living.

* * * *

NOTABLE CENTENNIALS

(Northwest Medicine, May 1947)

It should be known by every physician that the Atlantic City meeting of the American Medical Association in June will celebrate its one hundredth anniversary. Whether such an occasion distinguishes an individual or an organization, it is one of the most notable occasions that can be observed Whatever distinction is thus conveyed to our national medical association, it is merit and honor for the accomplishments of this organization for the benefit of the medical profession of this country and the welfare of its population. Undoubtedly a record attendance will be recorded at this meeting, and the official registration of the first day will be crowded and confused. Fortunately, if one desires to take advantage of this privilege, one can obtain from Dr. Lull, Secretary of the Association, a questionnaire which may be filled in advance and save the time and trouble of registration at the meeting.

Another notable centennial celebration is that of the New York Academy of Medicine which has served the medical profession and citizens of New York City for one hundred years. It has maintained the highest standard of service with constant accomplishments for the public health, providing medical information as well as instruction. Its greatest activity is through its magnificent reference library in one of the city's outstanding edifices on Fifth Avenue and 101st Street. This is one of the largest and most unusual medical libraries of the nation. The New York Academy of Medicine is to be congratulated for its conspicuous and successful career during the past century.

(TELEGRAMS)

From the Medical and Chirurgical Faculty of Maryland:

The Medical and Chirurgical Faculty of Maryland extends hearty congratulations to the American Medical Association on its one hundredth birthday May 5th 1947 and best wishes for a most successful meeting on June ninth to thirteenth when you take recognition of this anniversary.

W. Houston Toulson, M.D., Secretary.

* * * *

From the Tristate Hospital Assembly:

Six thousand members of the Tristate Hospital Assembly opening their seventeenth annual meeting today at the Palmer House send heartiest congratulations to the American Medical Association on its one hundredth anniversary.

Malcolm T. MacEachern, M.D., Chairman.

* * * *

From the Chicago Convention Bureau:

The Chicago Convention Bureau extends its congratulations to the American Medical Association on its one hundredth anniversary. Your accomplishments have shown you to be one of the outstanding organizations of the world and we offer our best wishes for your continued growth and success.

I. S. Anoff,
President, The Chicago Convention Bureau.

* * * *

From the American Protestant Hospital Association:

The American Protestant Hospital Association Extends Congratulations on your Century of Service and Education.

Albert G. Hahn, Executive Secretary.

* * * *

From Belgium:

Bruxelles Medical Association sends best wishes for your centenary.

(LETTERS)

From the Rho Pi Phi Pharmaceutical Fraternity:

Rho Pi Phi Pharmaceutical Fraternity salutes the American Medical Association upon its "century of progress." May the future find the A. M. A. in the front ranks of the march toward the advancement of the Public Health in America.

A Happy and Healthy Birthday.

Very truly yours,
Maurice Goldsmith.

* * * *

From the National Social Welfare Assembly, Inc.:

May I extend the greetings and hearty congratulations of the National Social Welfare Assembly to the American Medical Association and its great membership on the occasion of your Association's one hundredth birthday.

The long and brilliant record of scientific and human care progress in the field of medicine and health that has grown out of the organized interest of the medical profession as expressed in the American Medical Association is one of the gratifying chapters in our American way of doing things. The people of this country owe much to this one hundred years of organized professional achievement.

The voluntary and government organizations affiliated with the National Social Welfare Assembly find many occasions for hearty and close partnership with your members in the furtherance of services of mutual interest. We therefore feel very much a part of your centenary observance. The days ahead will undoubtedly bring even closer associations between the medical profession and organized social welfare, for we are united in the great common purpose of the well being of people.

Sincerely yours,
Robert E. Bondy.

* * * *

From the Editor of the British Medical Journal:

The British Medical Association and the American Medical Association are almost contemporaries, there being only the small gap of fifteen years between the foundation of these two powerful professional organizations.

The American Medical Association is the force it is today because it was built on sound foundations. When the founders met in 1847 in Philadelphia, where the framers of the Constitution had met sixty years before, their first concern was with medical education and medical ethics. The American Medical Association was based on first principles, and during the hundred years that have elapsed everything else has been added to it.

English medicine may be proud that it played a part in your formation and development. Dr. Thomas Percival, F.R.S.—as Dr. Morris Fishbein points out in his "History of the American Medical Association"—formulated his principles of medical ethics, and these served as a model for the American medical profession.

The British Medical Association may boast too that it has shared in what is perhaps your most important development—the establishment of The Journal of the American Medical Association. It is many decades ago now that your Association invited to the United States Dr. Ernest Hart, then Editor of the *British Medical Journal,* to discuss plans for starting a similar journal, similarly linked with a voluntary association of medical men. And we may be proud too that the second Editor of The Journal was an Englishman by birth and an American by adoption—Dr. George H. Simmons, who did such pioneer work both for The Journal and for your Association.

The links between our two associations are close indeed. We look with admiration at the influence exerted by the American Medical Association on all aspects of professional life in the United States. As an editor I should like to pay my humble tribute to the magnificent standard of medical journalism set and maintained by The Journal and by the specialist journals published by the American Medical Association.

In a hundred years the American Medical Association has become what a contemporary medical historian rightly describes as "the largest and most powerful medical organization that the world has yet seen." On this centenary occasion we salute the memory of its founder, Nathan Smith Davis, and wish the Association *bon voyage* for its second hundred years.

Hugh Clegg, M.A., M.B., F.R.C.P.

* * * *

From the Philippine Medical Association:

Whereas, on June 9-13, 1947 the great American Medical Association will celebrate the 100th anniversary of its foundation;

Whereas, this great medical association has, during the century of its existence, been consistently useful and progressive;

Whereas, all the wonderful advances in medical education and in public health and sanitation in the great North American nation have been brought about largely through the patriotic and unselfish labors of this medical association with its important state ramifications; and most, if not all, of the medical legislations in the American continent have been made possible only through the harmonious collaboration between this association and the American government;

Whereas, the Philippines—from the first years of its association with the United States, throughout its existence as a Commonwealth, until now that it is a Republic—has, through the Philippine Islands Medical Association, which was at one time accredited as one of the state branches of the American Medical Association, been the grateful recipient of the many benefits of this association; and

Whereas, the American Medical Association, in its one hundred years of useful life, has consistently and painstakingly upheld and guarded the best physical and medical interests of the American people as well as those of the American medical profession in general; therefore be it

Resolved, That the Philippine Medical Association, conscious of its national debt of gratitude to the American Medical Association, hereby expresses its sincere congratulations to the American Medical Association on this auspicious date and conveys the best wishes of the medical profession of the Philippines for the continuance of the useful and vigorous life of its former mother, the American Medical Association.

Januario Estrada,
President.

* * * *

From an address by Alphonse M. Schwitalla, S. J., Dean, St. Louis University School of Medicine, at annual banquet of the Illinois State Medical Society, May 13, 1947:

We are this year celebrating the hundredth anniversary of the foundation of the American Medical Association. It has been a century of leadership by medicine; leadership through the science of medicine; leadership through the practice of medicine, through the ethics of medicine, through medical education, through the thousand and one applications of medical thought to industry and commerce, to government and finance. It has been a century of challenged leadership because many were those who would not acquiesce in the leadership of medicine and who tried to place their own puny judgments of what is good for mankind in opposition to the combined judgment of medicine as personified in the reputable physicians who stood for competence and medical wisdom. No, I would not exaggerate; the leadership of medicine has not been perfect. There have been moments in a hundred years when lesser councils prevailed, when the bayleaves and olive branches of the first caduceus became the paired serpents and the wizard wand of the second caduceus; when in moments, that were fortunately very rare, the pressure of public opinion at times prevailed over principle; but all in all the triumph is really this, that after one hundred years of effort in medicine man can really look to medicine in America for leadership and find ever so much to attract his loyalty and his allegiance, to elicit his confidence, to inflame his enthusiasm, to command his acquiescent obedience. For medicine in America is a movement besides being a science and an art. It is a philosophy; it is public opinion; it is an enterprise; it is a national activity; it is a dynamic and an essential element in the American pattern; it is a pervasive phase of American psychology and sociology; it is a trend toward the truth, an urge toward morality. All of this man has found in medicine when he looks to medicine.

* * * *

RESOLUTION PASSED BY THE SENATE OF PENNSYLVANIA

On May 5, the American Medical Association will celebrate its one-hundredth anniversary, having been founded in Philadelphia on May 5, 1847.

It was founded as an association of physicians "to promote the science and art of medicine; to elevate the standard of medical education and practice; to bring about the enactment of uniform legislation for the public welfare and to protect the public health."

In connection with its purpose to protect the public health, it has over the years helped initiate many legal actions and has helped to bring innumerable criminal prosecutions against quacks and quackery. The Association has also found itself involved as a defendant in many libel suits because where it has seen medical charlatans and others involved in introducing pseudo medical skullduggery into the field of medicine it has not hesitated to inform the public accordingly and to take those steps which it regarded as the quickest way to stop such practices.

The American Medical Association has during its many years been a constructive influence because of the caliber of the men who have been its officers and members; therefore be it

Resolved, That the Senate of the Commonwealth of Pennsylvania hereby wishes to join in commemorating the centennial celebration of the American Medical Association and to congratulate its officers and members and to extend to them its best wishes in carrying out its many plans for advancing the study and practice of medicine and for protecting our citizens from ill considered medical experiments and questionable drugs.

The Senate also expresses the hope that the American Medical Association at its centennial convention, to be held June 9th to 13th, will give great consideration to the problem of improving the general health of the average American citizen, mindful of the low standard of health which was discovered by our military authorities during the last war; and be it further

Resolved, That the Secretary of the Senate transmit a copy of this resolution to the President of the American Medical Association.

G. Harold Watkins, Secretary
Senate of Pennsylvania.

CENTENNIAL BROADCASTS FROM ATLANTIC CITY

The Bureau of Health Education announces the following broadcasts connected with the Centennial Celebration of the American Medical Association at Atlantic City:

Saturday, June 7. "Doctors—Then and Now," Nevada and Northern California, speaker Lawrence Parsons, M.D., representing Nevada and California Medical Associations; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

Saturday, June 7. "Generations of Doctors" (tentative title), a fantasy story of the doctor of 1847 in contrast with his descendant, a doctor of 1947, dramatized with music; Columbia Broadcasting System and affiliated stations, 10:30 to 11 p. m., Eastern Daylight Time.

Sunday, June 8. Speakers from the Centennial religious observance, Msgr. Fulton J. Sheen, Rabbi Joshua Loth Liebman and Dr. Ralph C. Hutchison, President of Lafayette College; N. B. C. and affiliated stations, 11 to 11:30 a. m., Eastern Daylight Time.

Monday, June 9. Official opening of the Scientific Exhibit, Dr. Morris Fishbein, Editor of The Journal, and Dr. Harrison H. Shoulders, President of the American Medical Association; American Broadcasting System and affiliated stations, 4:15 to 4:30 p. m., Eastern Daylight Time.

Monday, June 9. "Stephen Graham, Family Doctor": this Mutual network broadcast, usually originating from New York, will be originated from the American Room at the Hotel Traymore as the entertainment feature for the annual dinner tendered the House of Delegates and officers of the American Medical Association by the local medical profession. The entire production will be moved from New York as a demonstration to the delegates and as a special event commemorating the Centennial of the American Medical Association. The topic will be "Medical Service in Rural Areas." The special script will be written by Willys Cooper and produced by Wynn Wright. The program is under the general supervision of Dr. W. W. Bauer and Harriet Hester.

Wednesday, June 11. Address by Dr. Edward L. Bortz: Columbia Broadcasting System, 6:15 to 6:30 p. m., Eastern Daylight Time. Topic: "Looking Forward from A. M. A. Centennial."

Friday, June 13.—Interview: Dr. Edward L. Bortz, President of the American Medical Association; interviewed by Harriet Hester, Mutual Broadcasting System and affiliated stations, 10:30 to 10:45 a. m., Eastern Daylight Time. Topic: "One Hundred Years of American Medicine."

Saturday, June 14. "Doctors—Then and Now"; closing program of the series entitled "American Medical Cavalcade," summarized by Dr. W. W. Bauer; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

In addition to the Monday night Mutual broadcast of the "Stephen Graham, Family Doctor" show, the speeches by Dr. Fishbein and Shoulders on the American Broadcasting System, and the speeches of Dr. Bortz on the Columbia Broadcasting System and the Mutual Broadcasting System will originate from Atlantic City; "Doctors—Then and Now" on N. B. C. will originate both Saturdays from Chicago; "Generations of Doctors" on C. B. S. will originate from New York.

DISTINGUISHED GUESTS AND VISITORS

Dr. Hugh A. Clegg

Dr. Sven Forssman

Dr. John A. Pridham

Dr. Jose Valls

The accompanying pictures of guests from other countries to the Centennial Session are in addition to those published in The Journal, May 3

Dr. Hugh Anthony Clegg, editor of the *British Medical Journal;* general supervisor of the World Abstracting Service, which the British Medical Association started in January 1947; formerly house physician at St. Bartholomew's Hospital, London; assistant medical officer, London County Council; medical registrar, Charing Cross Hospital; author of "What Is Osteopathy?" (jointly), Wartime Health and Democracy; Medicine in Britain (British Council); revised Black's Medical Dictionary Dr. Clegg will attend the Centennial Session as a representative of the British Medical Association

Dr. Sven Forssman, professor and head of the department of industrial hygiene, National Institute of Public Health, Stockholm, Sweden; secretary of the Swedish Medical Society; editor of the *Scandinavian Journal of Hygiene;* vice chairman of the Swedish Association of Industrial Physicians; will address the Section on Preventive and Industrial Medicine and Public Health at the Centennial Session.

Dr. John A. Pridham, London, England, chairman, International Relations Committee of the British Medical Association; member of the Council and Insurance Acts Committee; member of the Royal College of Surgeons and of the Organization Committee of the World Medical Association; justice of the peace for Weymouth; author of "Problem of the Care of the Neurotic Patient."

Dr. Jose Valls, Buenos Aires, Argentina, professor of orthopedic surgery, University of Buenos Aires Medical School; president of the Argentina Medical Association and formerly president of the Argentina Society of Orthopedic Surgery; vice president, Section on Orthopedic Surgery, fourth congress of the Pan American Medical Association in 1933 and secretary of the eighth congress, in 1940; chief of orthopedic and traumatic surgery at the Durand Hospital; author of "Low Back Pain and Sciatica"; will address the Section on Orthopedic Surgery at the Centennial Session on "Aspiration Biopsy in the Diagnosis of the Lesions of the Vertebral Bodies."

Dr. Charles Hill, formerly deputy secretary and now secretary of the British Medical Association; formerly clinical assistant, Children's Department, London Hospital; London University Extension lecturer in biology, and formerly chairman, Central Council for Health Education; author of "What Is Osteopathy?" (jointly) and "Wise Eating in Wartime," will attend the Centennial Session as a representative of the British Medical Association.

Dr. Frank S. Patch, Montreal, Canada, for many years professor of urology and chairman of the departments of urology and surgery at McGill University; formerly president of the Canadian Medical Association and managing editor of its journal; formerly president of the Royal College of Physicians and Surgeons of Canada; president of the Montreal-Medical Chirurgical Society; colonel in the Canadian Army Medical Corps in World War I; author of numerous articles in the field of urology; will address the Section on Urology at the Centennial Session.

Dr. Andrew R. Hunter of the Manchester Royal Infirmary, Manchester, England; visiting anesthetist to the Thoracic Unit, Baguley Emergency Hospital; consultant anesthetist to Stepping Hill Hospital, Stockport; special anesthetist in the recent war in the Emergency Medical Service in Scotland; will address the Section on Anesthesiology at the Centennial Session

Dr. Harry Guy Dain, London, England, chairman of the council of the British Medical Association and of the negotiating committee of the medical profession concerned with national health service legislation; formerly the chairman of the Insurance Acts Committee and of the Representative Body of the B. M. A., will attend the Centennial Session as a representative of the British Medical Association.

Dr. Charles Hill

Dr. Frank S Patch

Dr. Andrew R. Hunter

Dr. Harry Guy Dain

NEW STAMP TO HONOR AMERICAN MEDICAL ASSOCIATION

(Published in The Columbus [Ohio] Citizen, April 13, 1947)

The United States Post Office Department will issue another commemorative stamp, honoring the doctors of America, it was announced this week by Postmaster General Robert E. Hannegan

The special stamp will be of the 3 cent denomination and will be placed on sale June 9, on the occasion of the one hundredth anniversary of the founding of the American Medical Association.

"In so honoring the American doctor," Mr. Hannegan said, "we are paying tribute to the men and women of medicine who devote their lives to the cause of humanity.

"The alleviation of pain and suffering and the betterment of mankind are their creed. The contribution which they have made to our national life is one of which all Americans can be proud and grateful."

Details as to the place of sale and a description of the stamp will be announced later, the department said

J. Charles Baxter.

Bureau of Information

LOCATION OF PHYSICIANS

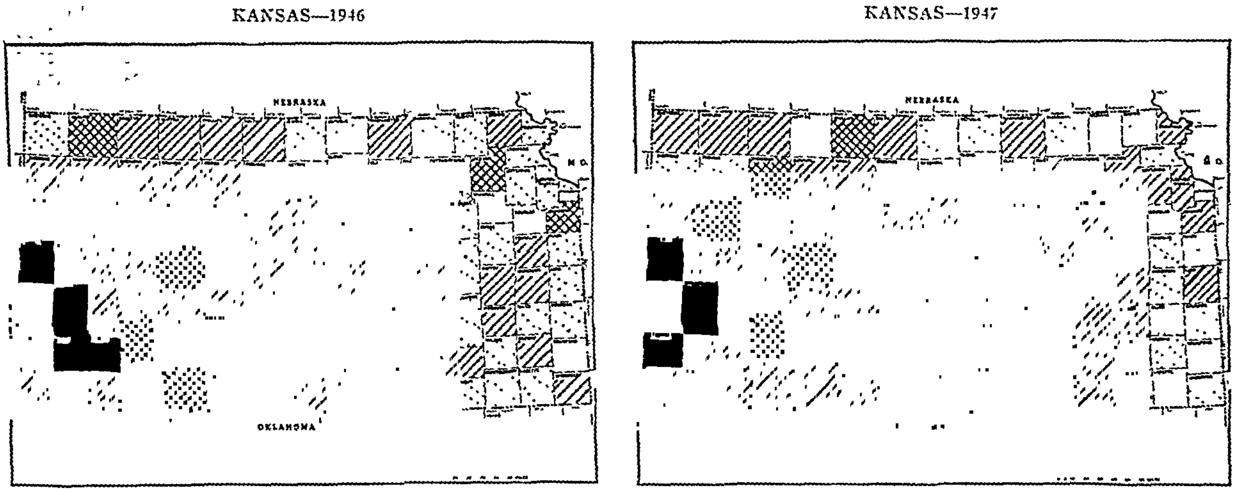
Virginia Shuler
Chicago

This is the second of a series of charts showing the trend in locations of physicians from April 1946 to January 1947; the first series appeared May 17, page 301.

"Upon the return of medical officers from the armed forces, the distribution of physicians in Kansas was greatly improved. Generally speaking, the larger communities in the state are adequately supplied with physicians at present. Requests are still being received from less populated areas, but these also are being filled.

"At present there are thirty or forty communities in Kansas that have requested a resident physician. In almost all instances those communities are near larger cities where medical care is available. Frequently these communities have less than 200 population and could not in themselves adequately support a doctor. There are, however, some areas where the physician-patient ratio is still below normal. There is one community in Kansas with a population of more than 1,000 that does not have a resident physician. Many of the smaller Kansas towns are contemplating the construction of hospitals. If these projects are completed, it appears that those communities will become more attractive to doctors and at that time the needs that exist today will gradually be filled."

MR. O. E. EBEL, Executive Secretary.
Kansas Medical Society,
512 New England Building,
Topeka, Kan.



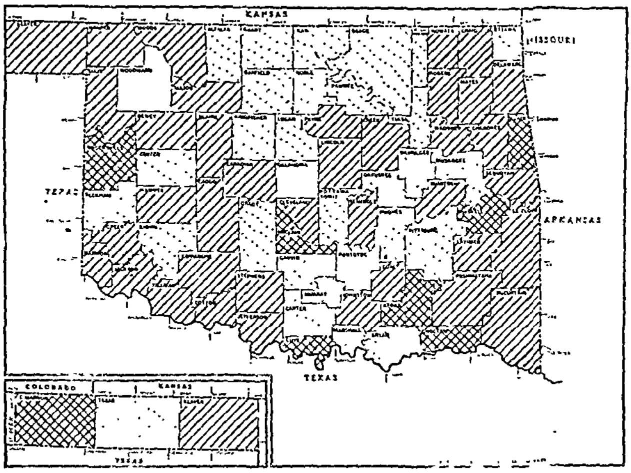
Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician population ratio by county. plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

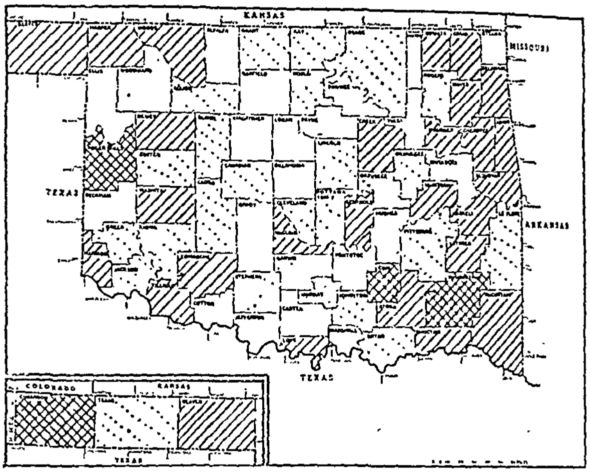
Areas in Kansas Requesting General Practitioners

County	Town	Population
Allen	Elsmore	180
Anderson	Greeley	387
	Kincaid	319
Atchison		22,222
Butler	Whitewater	515
Chautauqua	Elgin	336
Cherokee		29,817
	Scannon	737
Cloud	Glasco	741
	Jamestown	490
Dickinson	Enterprise	706
Elk		8,160
	Longton	470
Gove	Quinter	455
Graham		6,071
Grant		1,946
	Ulysses	824
Greenwood	Severy	393
Hamilton		2,645
Jefferson		12,718
	Nortonville	700
Kearny		2,525
Kingman	Norwich	411
Kiowa	Haviland	443
Labette	Edna	500
	Oswego	1,953
Lincoln	Vesper	150
Logan	Oakley	1,136
Marion	Burns	400
	Florence	1,329
Marshall	Irving	350
	Vermillion	300
Meade	Fowler	514
Morris	Council Grove	2,723
Nemaha	Centralia	607
	Goff	339
	Wetmore	425
Neosho	Thayer	469
Osage	[illegible]	415
	[illegible]	575
	[illegible]	564
Osborne		9,835
	Natoma	651
Phillips	Kirwin	395
Rawlins	Herndon	400
Reno	Pretty Prairie	404
Republic	Agenda	178
Rice	Little River	537
Riley	Riley	392
Stanton		1,443
	Johnson	524
Sumner	Belle Plaine	878
Wabaunsee		9,219
Wallace	Sharon Springs	760
Washington	Clifton	670
Wichita		2,185
	Leoti	816

OKLAHOMA—1946



OKLAHOMA—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

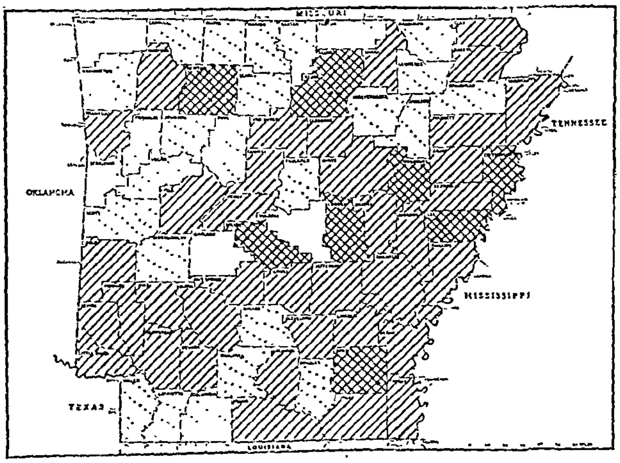
Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Oklahoma Requesting General Practitioners

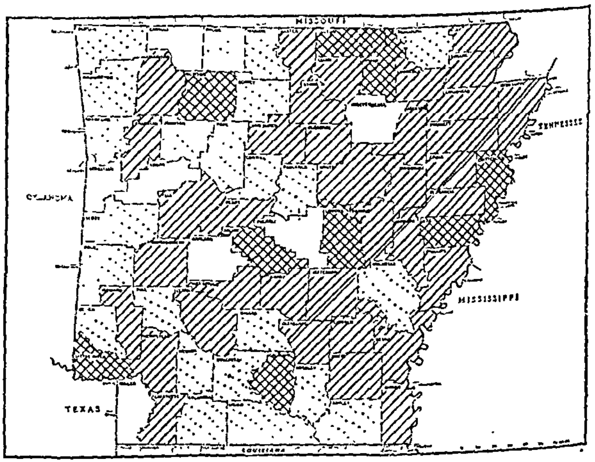
County	Town	Population	County	Town	Population
Alfalfa	Aline	405	Logan		25,245
Atoka	Atoka	2,518	McClain	Wayne	401
Blaine		18,543	Murray	Davis	1,608
Bryan	Durant	10,027		Sulphur	4,970
Choctaw	Hugo	5,909	Osage	Fairfax	2,327
Cleveland	Norman	11,429	Ottawa	Afton	1,261
Custer	Butler	429		Miami	8,345
Grady	Chickasha	14,111	Payne	Ripley	415
Jefferson	Ryan	1,115		Yale	1,407
Kiowa	Mountain View	1,075	Pontotoc	Ada	15,143
LeFlore		45,866	Washington		30,559
Lincoln		29,520	Woods	Waynoka	1,584
	Chandler	2,738	Woodward	Mooreland	811

Mr. Dick Graham, Secretary,
Oklahoma State Medical Association,
210 Plaza Court,
Oklahoma City 3.

ARKANSAS—1946



ARKANSAS—1947



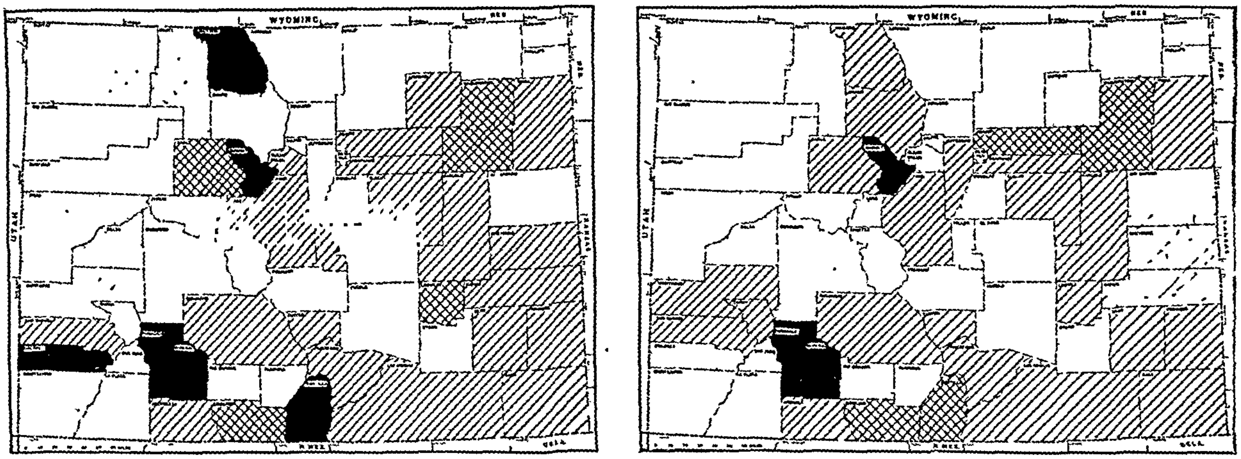
Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Arkansas Requesting General Practitioners

County	Town	Population
Arkansas		24,437
Ashley	Montrose	343
Benton		36,148
	Decatur	3,502
Clark		24,402
Cleveland		12,570
Craighead	Nettleton	909
Crawford		23,920
Grant		10,477
Hot Spring	Bismarck	75
Independence	Newark	802
Izard	Calico Rock	738
	Melborne	567
Lawrence		24,437
	Alicia	333
	Imboden	525
	Strawberry	110
Lee		26,810
Lincoln	Star City	1,090
Mississippi		80,217
Monroe		21,133
	Brinkley	3,409
Montgomery		8,876
Pope		25,682
	London	418
Phillips		45,970
St. Francis	Widener	225
Scott		13,300
Sevier	DeQueen	3,055
Sharp		11,497
	Evening Shade	347
Stone		8,603
	Mountain View	745
Van Buren		12,518
Washington	Elkins	243
	Lincoln	720
	Winslow	248
Woodruff	Cotton Plant	1,778
Yell		20,970
	Havana	449

DR. W. R. BROOKSHER, Secretary,
Arkansas Medical Society,
602 Garrison Avenue,
Fort Smith, Ark.



COLORADO—1946

COLORADO—1947

Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key Physician population ratio by county plain area 1 999, dotted area 1,000 1,499, striped area 1,500 2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Colorado Requesting General Practitioners

County	Town	Population
Adams	Brighton	4,029
Baca	Walsh	406
Dolores		1,958
Douglas		3,496
Eagle		5,361
	Minturn	596
Elbert		5,460
Garfield		10,560
Gilpin		1,625
Jackson		1,798
Lake		6,853
Lincoln		5,882
	Limon	1,053
Montezuma		10,463
Montrose	Montrose	4,761
Saguache	Saguache	1,219
San Miguel	Norwood	412
Summit	Breckenridge	381
Washington	Akron	1,417
Weld	Ault	761
	Keenesburg	[illegible]

"The distribution of physicians in Colorado is still too heavily concentrated in the large and medium size cities if the state is taken as a whole So long as the current general prosperity lasts I believe that cities such as Denver, Colorado Springs, Pueblo, Greeley, Fort Collins, Boulder and Grand Junction can adequately support the large number of physicians now practicing in these locations, but if a recession or a genuine depression sets in, as many economists predict, I feel that some or all of the cities named will find themselves overstaffed with physicians There still are fifteen or twenty excellent locations for general practitioners in the very small communities and rural areas of Colorado and probably another fifteen or twenty locations of this type which might be called good rather than excellent Three or four such communities might be considered in critical need Within the last six months many previously critical locations in Colorado have been filled, indicating somehow that a better appreciation of the worth of rural practice has developed among some physicians Financial consideration seems to have little or no bearing on failure of physicians to fill the remaining critical locations in Colorado; rather, failure of physicians to accept these locations is due to lack of hospital facilities and lack of good general living conditions With the increased interest of local communities in developing hospital facilities, with or without the aid of Public Law 725 (Hill-Burton Hospital Survey and Construction Act), I consider the Colorado situation hopeful for filling remaining critical areas within the next year"

MR HARVEY T. SETHMAN, Executive Secretary,
Colorado State Medical Society,
537 Republic Building,
Denver 2.

Washington Letter

(From a Special Correspondent)

May 29, 1947.

General Bradley Opposes Giving Free Automobiles to Amputee Veterans

Gen. Omar Bradley, Veterans Administrator, has registered a protest with Chairman Edith Nourse Rogers of the House Veterans Committee opposing legislation to give free automobiles to veterans who lost their sight or suffered arm amputations during the war. He warned that, "by logical progression, such a move might ultimately demand that all seriously disabled veterans be supplied with automobiles, in addition to compensation and other benefits." He estimated the cost of giving cars to all amputees and blind veterans at $21,930,000. Congress has already appropriated $30,000,000 for a program under which leg amputees now get cars at government expense provided they cost no more than $1,600. War amputees demonstrated new artificial limbs for President Truman, Secretary of War Patterson and General Bradley.

International Council of Nurses Holds Precongress Meeting

Delegates to the ninth congress of the International Council of Nurses in Atlantic City, May 11 to 16, met first in Washington, where they attended a tea at the White House as guests of Mrs. Truman and conducted business sessions. More than 5,000 nurses from thirty-two countries, 500 of them from overseas, will be at the congress. Speakers declared that the nursing profession is "only at the threshold of its potential value to the good health of the world tomorrow." Delegates also observed the one hundred and twenty-seventh anniversary of the birth of Florence Nightingale (May 12, 1820), founder of modern nursing.

Interracial Medical Forum Held in National Capital

Described as the first interracial medical program of its kind ever held in Washington, a postgraduate medical assembly was conducted under sponsorship of the District of Columbia Physicians Forum to discuss "Problems of the Aging Patient." Dr. Ernst Boas, assistant clinical professor of medicine at Columbia University, was chairman. Speakers included Drs. W. Montague Cobb and Charles Drew of Howard University Medical School, Benjamin I. Weininger, president of the Washington-Baltimore Psychoanalytic Society, Charles Geschikter, professor of pathology at Georgetown University Medical School, and Frederick Zeman, director of the Home for Aged and Infirm Hebrews, New York.

Dr. John Minor Heads District Medical Society

Dr. John Minor, specialist in internal medicine, was elected president of the District of Columbia Medical Society, succeeding Dr. Raymond T. Holden. Other officers elected were William P. Herbst Jr. to the executive board, Iva A. Pelzman first vice president, Carolyn Pincok second vice president, W. Ross Morris and William W. Chase to the board of censors, Coursen B. Conklin delegate to the American Medical Association and Worth B. Daniels and J. Lawn Thompson Jr. alternate delegates to the American Medical Association.

Navy Consents to Use of Observatory Land for Medical Center

The Navy Department revealed that it is willing to move the Naval Observatory, between Wisconsin and Massachusetts avenues, to a new site to make way for the proposed new $20,000,000, 1,500 bed medical center planned for the nation's capital. The new center would incorporate three local hospitals, Garfield, Emergency and Episcopal. The last Congress authorized an appropriation of $35,000,000 for the overall project.

Modern Medicine in the Treatment of Alcoholism

Dr. Howard W. Haggard, Yale physiologist, informed the Washington Committee for Education on Alcoholism that modern medical methods are already successful in the treatment of alcoholic addicts. He said that 80 per cent of those who continue through the full period of treatment at the Yale clinic recover. Dr. Haggard spoke on "Alcoholism as a Medical Problem."

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Aero Medical Association of the United States, Atlantic City, Ritz-Carlt Hotel, June 4-6. Dr. David S. Brachman, 1016 Dime Bldg., Detroit 2 Secretary.

American Association for the Surgery of Trauma, Atlantic City, Hot Claridge, June 5-7. Dr. Gordon M. Morrison, 520 Commonweal Ave., Boston 15, Secretary.

American Association of Genito-Urinary Surgeons, Absecon, N. J., Ju 4-6. Dr. Charles C. Higgins, 2020 E. 93d St., Cleveland 6, Secreta

American College of Allergists, Atlantic City, Hotel Senator, June 6 Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Se retary.

American College of Chest Physicians, Atlantic City, Ambassador Hot June 5-8. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 1 Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7 Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secreta

American Dermatological Association, Murray Bay, Quebec, Can., June 1-5. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Wis., Secretary.

American Diabetes Association, Atlantic City, Chalfonte-Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Geriatrics Society, Atlantic City, Hotel Brighton, June 5-7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Heart Association, Atlantic City, Hotel President, June 6-7. Dr. Howard B. Sprague, 50 W. 50th St., New York, Secretary.

American Medical Women's Association, Atlantic City, Hotel Claridge, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N. J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Marlborough-Blenheim Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E. Bacon, 2031 Locust St., Philadelphia 3, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Rheumatism Association, Atlantic City, Ritz-Carlton Hotel, June 7. Dr. Richard H. Freyberg, 321 E. 42d St., New York 17, Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7-8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough-Blenheim Hotel, June 13-14. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Therapeutic Society, Atlantic City, Chalfonte Hotel, June 6-7. Dr. Oscar B. Hunter, 1835 I St., N. W., Washington 6, D. C., Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 6-7. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Gastroenterological Association, Atlantic City, Hotel Chelsea, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

Medical Legislation

STATE LEGISLATION

Alabama

Bills Introduced.—H. 136 proposes to authorize counties to **levy a tax** for the purpose of acquiring, constructing operating, equipping or maintaining county or other public hospitals and public health facilities. H. 141 and S. 90 propose the enactment of a **hospital planning and construction act** to provide funds to the state board of health for the planning and construction of state owned and other public and nonprofit hospitals in the state. H 151 and S. 97, to amend the **law relating to marriages**, propose that each applicant for a marriage license shall file a certificate signed by a legally licensed physician in Alabama, or in the state where the applicant resides, certifying that the applicant is not infected with syphilis in a communicable stage The present law requires such an examination for males only S 36 proposes an additional appropriation to the **University of Alabama Medical College** in the sum of $56,750 each for two years S 102 proposes the establishment of an **advisory council** to consult with the state board of health in planning for, acquiring, constructing, equipping, maintaining and supervising hospitals, health centers and related facilities for the treatment of disease.

California

Bill Introduced.—S. 763 proposes the enactment of a law regulating **health care expense contractors.**

Bills Passed.—A. C. A 23, which passed the house May 13, proposes an **amendment to the constitution** to the effect that no provision in the constitution shall be construed as a limitation on the power of the legislature by general law to give or lend state money or other assistance for the construction of hospitals, health centers and related facilities to counties, cities and counties, cities, local hospital districts, other public districts authorized to construct hospitals, etc. A 2428, which passed the house May 14, to amend the business and professions code, proposes under certain circumstances to authorize licentiates of other states to act as **resident or assistant resident physicians** and surgeons in state hospitals for a period of not exceeding one year

Bill Enacted.—S 250, which has become chapter 234 of the Laws of 1947, repeals the existing law relating to the examination and licensure of **trained hospital attendants.**

Connecticut

Bill Passed.—S 170, which passed the house May 19, proposes to broaden the scope of activities of the **bacteriologic laboratory** so as to conform with those of a modern public health laboratory.

Florida

Bills Introduced.—H. 257 has previously been reported as proposing a law for the licensing, inspecting and regulating of hospitals and the creation of an **advisory hospital council.** Two amendments were added to this bill by the house committee on May 13 The first would exempt from its provisions the establishment or operation of any hospital for the practice of the religious tenets of any church in the ministration to the sick and suffering by mental or spiritual means without the use of any drug or remedy, provided the statutes or regulations on sanitation are complied with. The second would prohibit the rule making authority from making any rule which would have the effect of denying a license to a hospital or other institution solely by reason of the school or system of practice employed or permitted to be employed by physicians therein, provided that such school or system of practice is recognized by the laws of the state. H. 815 proposes to authorize the **appointment of medical examiners** and assistant medical examiners in each county to perform functions similar to those of a coroner. S. 614 proposes to require the state board of health to develop and maintain a **state blood program** for the purpose of coordinating and integrating the services of autonomous, nonprofit blood banks, to organize additional blood banks and to establish subsidiary blood banks and distribution centers in order that these therapeutic products shall be made available at hospitals and to all physicians licensed to practice in Florida and to insure that the supply of blood and blood products shall be adequate to meet reasonable requirements.

Bills Passed.—H. 253, which passed the senate May 14, proposes to authorize persons to donate and give their eyes for **eyesight restoration** purposes by last will and testament and authorizes any state, county, district or other public hospital to purchase and provide the necessary facilities and equipment to establish and maintain an eye bank for restoration of sight purposes H. 440, which passed the house May 15, proposes to make it unlawful for tax collectors in the several counties to issue **state and county occupational licenses** to any person applying for license to practice medicine in any of its branches unless and until proof of current qualification and competency, as established by certificate or license issued by the state boards duly constituted and legally authorized to determine qualification and competency, be exhibited at the time of making such application S. 151, which passed the house May 9, to amend the law relating to the **practice of massage,** proposes to redefine the meaning of the practice so as to include the use of electrical apparatus.

Maine

Bills Enacted.—S 164, which has become chapter 191 of the Laws of 1947, creates a commission to investigate and study the feasibility and desirability of establishing a **medical school in the state of Maine.** S 419, which has become chapter 391 of the Laws of 1947, authorizes the governor to appoint an **advisory hospital council** to advise and consult with the department of health and welfare in carrying out the administration of the existing hospital survey act.

Michigan

Bill Passed.—H. 451, which passed the house May 16, proposes the enactment of a law requiring the licensing, regulation and **inspection of hospitals** and related institutions and the appointment of an advisory institutional council.

Missouri

Bill Passed.—S. 157, which passed the senate May 14, to amend the sales tax act, proposes that purchases of **tangible personal property** made by duly licensed physicians, dentists and veterinarians and used in the practice of their professions shall be deemed to be purchases for use or consumption and not for resale

New Hampshire

Bill Introduced.—H. 456 proposes the creation of a **mental hygiene commission** to manage and conduct mental hygiene clinics primarily for the psychiatric and psychologic study and treatment of such children as may be committed to its care.

Oklahoma

Bills Enacted.—S 76, which was approved May 16, requires every prospective **teacher in the public schools** to have a medical examination for the purpose of determining physical qualifications in accordance with regulations prescribed by the state board of health. S. 100, which was approved May 16, creates within the state health department a division to be known as the **Division of Preventive Dentistry** to administer a program of dental care, consultation, research and health education designed to improve the dental health of the people of the state.

Pennsylvania

Bills Passed.—H. 1043, which passed the house May 13, proposes, among other things, to prohibit the **sale of benzedrine,** and other, inhalers at retail. S. 335, which passed the house May 14, to amend the law relating to **consumer credit,** proposes that the act shall not apply to nonprofit corporations organized under the laws of the state having memberships consisting exclusively of duly licensed physicians, surgeons and dentists operated exclusively for and by their members and engaged in, among other activities, the financing of personal obligations arising from the rendering of professional services by the members of such nonprofit corporations which are limited strictly to medical surgical, dental, operative, diagnostic and treatment services or nursing and hospital care

South Carolina

Bills Enacted.—S. 254, which has become chapter 399 of the Laws of 1947, provides that **osteopathic physicians** duly licensed to practice their profession under the laws of the state are authorized and shall certify birth and death certificates in the same manner as is now prescribed by law for other physicians S. 721, which has become chapter 511 of the Laws of 1947, creates a combination state **hospital construction act** and hospital licensing law.

Texas

Bill Introduced.—H. 833 proposes to authorize the **state board of health** to receive gifts, donations and contributions from various sources for the purpose of building, constructing, maintaining and operating a medical research laboratory.

Bills Passed.—H. 138, which passed the house May 5, proposes the creation of a state board of **examiners in the basic sciences.** A house floor amendment of May 1 proposes to exempt from the basic science law any chiropractor who is a graduate of a reputable chiropractic college in the United States and who has practiced chiropractic for three years immediately preceding the effective date of this act and who has resided in Texas for two years immediately preceding the effective date of this act and who has never had a license to practice any branch of the healing art canceled by any American or Canadian state, province or territory. H. 503, which passed the house May 6, proposes the enactment of a state hospital survey and construction act requiring a **statewide survey of hospital facilities** and the preparation of a program for the construction of additional needed facilities The proposal also requires the appointment of an advisory hospital council and the establishment of regulations for the purpose of obtaining federal funds to assist in survey and construction programs The administration of this proposal would be under a division of hospital survey and construction in the department of health S. 120, which passed the senate April 28, to amend the penal code, proposes to make it unlawful for any physician or other practitioner of the art of healing **to advertise special skills,** definite prices or the use of superior qualities of medicine, material, devices, etc. in the performance of professional service.

Wisconsin

Bills Passed.—S. 104, which passed the senate May 14, proposes regulations for the licensing, inspecting and **regulating of hospitals** within the state. S. 105, which passed the house May 19, proposes the enactment of a **state hospital survey and construction act** requiring a survey of hospitals and health facilities in the state and the preparation of a program for the construction of additional needed facilities The proposal would require the appointment of an advisory hospital council and would authorize the state board of health to apply for and receive federal funds to assist in such survey or construction program. S. 156, which passed the house May 19, to amend the law relating to the **licensing of osteopaths,** proposes to require applicants for a license to practice osteopathy to have completed at least twelve months' internship in a reputable osteopathic hospital or its equivalent.

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

NEW DIVISION OF TROPICAL DISEASES

The Surgeon General, Dr. Thomas Parran, announces that the Public Health Service has established a new division of tropical diseases in the National Institute of Health, Bethesda, Md. Heading the new unit will be Willard H. Wright, formerly chief of the zoology laboratory and, during the war, field director of the Commission on Schistosomiasis in the Southwest Pacific and Japan. Dr. Wright received his D.V.M. degree from George Washington University in 1917 and a Ph.D. in 1935. He is a member of the American Academy of Tropical Medicine, the American Society of Parasitologists, the Helminthological Society of Washington and the New York Academy of Sciences.

NEW CHIEF OF THE OFFICE OF DERMATOLOGY

Paul C. Campbell Jr., Surgeon, has been appointed chief of the Office of Dermatology, Industrial Hygiene Division, U. S. Public Health Service, succeeding Dr. Louis Schwartz, who will retire July 4 after forty-one years of service. Dr. Campbell, who has been on duty in the office of dermatology since 1944, has been investigating dermatitis hazards in various industries. Before entering the Public Health Service in 1941 he was for several years a resident in dermatology and syphilology at the Edward J. Meyer Memorial Hospital in Buffalo.

PERSONAL

Medical Director (R) Russell S. Ferguson, Washington, D. C., has been ordered to active duty and to report to the U. S. Marine Hospital, San Francisco.

CALLED TO ACTIVE DUTY

The U. S. Public Health Service reports that the following officers have been called to active duty in either the reserve corps or the regular corps and have been directed to report to the stations opposite their names:

Azulay, Abraham, assistant surgeon (R), U. S. P. H. S., Medical Center, Hot Springs National Park, Ark.

Cohart, Edward M., surgeon (R), U. S. P. H. S., District 1, 15 Pine St., New York.

Davenport, Dennis D., assistant surgeon (R), District Coast Guard Office, Seattle.

Green, James R., assistant surgeon (R), U. S. Marine Hospital, Memphis, Tenn.

Mahe, George A., Jr., assistant surgeon (R), U. S. Penitentiary, Atlanta, Ga.

Peck, James F., assistant surgeon (R), U. S. P. H. S., Medical Relief Station, Louisville, Ky.

Velat, Clarence A., assistant surgeon (R), U. S. P. H. S., States Relations Division, Washington, D. C., Bethesda Station.

OFFICERS RELEASED FROM SERVICE

U. S. Public Health Service headquarters reports that the following medical officers have been terminated, inactivated or retired and directed to proceed to the city opposite their name:

Abrams, Henry, surgeon (R), Princeton, N. J.
Ausubel, David P., assistant surgeon (R), Bronx, N. Y.
Kintner, Burton E., S. A. surgeon (R), Elkart, Ind.
Rodman, Peter P., S. A. surgeon (R), Aberdeen, Md.
Rothfeld, Edmond, S. A. surgeon (R), Cincinnati.
Warhaftig, Melvin V., assistant surgeon (R), Hillside, N. J.

MISCELLANEOUS

DISTRIBUTION OF "HEAVY WATER"

The United States Atomic Energy Commission has announced plans for the distribution of heavy water and deuterium gas to qualified research institutions in the United States.

Heavy water was produced in connection with the atomic energy operations and now is available in sufficient quantities for domestic research purposes outside the government's atomic energy program. The Stuart Oxygen Company of San Francisco, which will make the distribution under contract with the commission, will convert heavy water to deuterium gas for applicants who need deuterium in the latter form.

Applicants for deuterium oxide (heavy water) and deuterium gas will be charged an amount sufficient to cover handling and distribution charges of the contract distributor. The price schedule for heavy water is 50 cents per gram for the first hundred grams and 30 cents per gram thereafter and for deuterium gas $1 per liter (at normal temperature and pressure) for the first hundred liters and 80 cents per liter thereafter. Prices are based on orders calling for single deliveries to the applicant.

Applications will be handled in the same manner as requests for radioactive isotopes produced in the pile at Oak Ridge and distributed by the Monsanto Chemical Company. Application forms can be obtained from the Atomic Energy Commission, Research Division, Isotopes Branch, Oak Ridge, Tenn. Applications will be screened by the subcommittees of the Advisory Committee on Isotope Distribution in order to insure the most efficient use of the materials. Approved applications will be returned to the applicant for transmittal to the contract distributor. Users, as in the case of radioisotopes, will be required to furnish the commission reports on the results of experiments carried on with heavy water and deuterium. Applicants must agree not to transfer the materials to another user without the consent of the commission.

Heavy water contains the heavy stable isotope of hydrogen referred to as deuterium and is symbolized by D_2O. It is found in ordinary water at a ratio of 1 to every 4,500 parts of ordinary water. The heavy hydrogen isotope has twice the atomic mass of the ordinary hydrogen atom.

Heavy water and deuterium have numerous uses in physics, chemistry and biology. In nuclear physics deuterium is of special value and has a number of uses:

1. High voltage accelerators such as the cyclotron use deuterium as a source of bombarding particles in studying nuclear reactions. Deuterium bombardment of light elements results in a large yield of high energy neutrons.
2. Heavy water is an effective moderator, serving to slow down the fast neutrons. Ordinary water will also slow down fast neutrons but absorbs a large proportion of the neutrons. The relatively small neutron absorption of heavy water makes it useful as a moderator in certain types of chain reacting piles. Amounts made available under this plan of distribution will permit research on the proportion of heavy water as a moderator.
3. Heavy water is used in determining the energy of gamma rays through photo production of neutrons. This is useful in studying the energy of gamma rays.

Deuterium is extensively used as a tracer for hydrogen in biologic and chemical processes. Hydrogen has been used to study the metabolism of normal and malignant cells in attempts to discover the nature and causes of cancer. Heavy water can also be used as a tracer in studying the exchange of water in various systems; for example, between a fish and its environment. It can also be used to study the fluid balance in man.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

CALIFORNIA

Fund to Fight Heart Disease.—A committee representing the Los Angeles County Tuberculosis and Health Association will jointly administer the A. M. Roberts Memorial Fund to fight heart disease. The fund was established through the efforts of the late Dr. Archie M. Roberts, formerly of the University of Southern California School of Medicine, Los Angeles, and until his death, April 1, president of the Los Angeles Heart Association. Contributions will be used for the care of children with rheumatic fever and other heart ailments and for research.

Changes in Health Officers.—Recent additions to the staff of the state department of public health include Dr. James W. Ellis, Washington, D. C., who will be cancer consultant with the bureau of chronic diseases. Dr. Ellis comes to the department following thirty years of service with the navy. He is a graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1915, was certified by the American Board of Surgeons and was medical director in the U. S. Navy with the rank of captain. Dr. Harvey F. Hendrickson, San Francisco, has been appointed to the bureau of hospital inspection as an assistant to Dr. Julius B. Askew. Dr. Hendrickson, a graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1927, was a major in the medical corps of the army. During the past year he has been assistant superintendent of the San Francisco Hospital.

COLORADO

Rocky Mountain Cancer Conference.—This conference will be held in Denver July 9 and 10 at the Shirley-Savoy Hotel with the following program:

Dr. Ashley W. Oughterson, New York, Aims of the American Cancer Society.
Dr. Hugh J. Morgan, Nashville, Tenn., Importance of History and Physical Examination in the Recognition of Cancer.
Dr. Harry C. Solomon, Boston, Psychiatric Implications of Cancer.
Dr. Shields Warren, Newton, The Radiosensitivity of Tumors.
Dr. Edwin C. Ernst, St. Louis, Use of the Roentgen Ray in the Treatment and Diagnosis of Cancer.
Dr. Frank Adair, New York, Diagnosis and Treatment of Breast Tumors.
Dr. Charles B. Huggins, Chicago, Carcinoma of the Prostate.
Dr. Eugene F. Traub, Jackson Heights, N. Y., The So-Called Premalignant Eruptions of the Skin.
Dr. Joe Vincent Meigs, Brookline, Mass., Carcinoma of the Lip and Mouth.

CONNECTICUT

Rural Health Conference.—The Connecticut State Medical Society and the University of Connecticut will sponsor a rural health conference at the university on July 16. Members of the society's rural health committee now preparing plans for the conference include Drs. Norman H. Gardner, East Hampton, chairman; Gert S. Gundernatsch, Sharon; David H. Bates, Putnam, and William H. Upson, Suffield.

Dr. Walker Appointed to Public Health Council.—The governor recently appointed Dr. W. Bradford Walker, Cornwall, to the Connecticut Public Health Council, effective July 1, for a term of six years. Formerly president of the Connecticut Public Health Association and past president of the Litchfield County Medical Association, Dr. Walker will succeed Dr. David R. Lyman, who is retiring from the council following eighteen years of continuous membership. Dr. Lyman is a past president of the Connecticut State Medical Society, the New Haven County Medical Association, the American Sanatorium Association and the National Tuberculosis Association.

ILLINOIS

The Fifty-Year Club.—Fifty years of service by each of five Illinois physicians have been recognized by Illinois county medical societies. Champaign County Medical Society presented certificates of membership in the "Fifty-Year Club" and gold buttons signifying fifty years of medical service to Drs. William E. Schowengerdt, Champaign; Charles H. Spears, Champaign; Emerson M. Brewer, Rantoul, and Joseph Brayshaw, Homer. At Mount Vernon Dr. Moss Maxey, at a dinner given by the Jefferson County Medical Society May 8, was likewise honored. Membership in the club is awarded by the Illinois State Medical Society through county organizations.

New General Hospitals.—Formal opening and public inspection of the new $150,000 Milan General Hospital, Milan, took place April 13 with religious, political and civic leaders in attendance. The hospital has been under construction for more than a year. Dr. Edwin F. Condon is president and director. ——A $1,400,000 building program will begin in August for the expansion of MacNeal Memorial Hospital, Berwyn. The present capacity will be doubled, and quarters for nurses will be provided. The new addition will be four stories in height, except a center portion which will be five stories. A new suite of operating rooms, an enlarged x-ray department, delivery and labor rooms and other laboratories will be added.

Chicago

Hilton Hotels Appointment.—Richard L. Collison, director of sales of the Palmer House, has been appointed director of sales for the entire Hilton Hotel chain. He will continue, however, to make his headquarters in Chicago.

Million Poliomyelitis Leaflets to be Sent to Parents.—The Cook County chapter of the National Foundation for Infantile Paralysis will distribute a million leaflets explaining precautions to be taken during the summer. The leaflets will be delivered to public and parochial schools throughout Chicago and Cook County for children to take home to their parents. Bulk distribution will also be made to large employers. A card included with the pamphlet urges that, if poliomyelitis occurs, a physician be called at once and that the Cook County chapter, National Foundation for Infantile Paralysis, be called if help is needed.

Symposium in Honor of Illinois President.—An inaugural symposium in honor of President George D. Stoddard, University of Illinois, was held May 15 in the lecture hall of the University of Illinois College of Medicine. Speakers were Dr. Roscoe R. Spencer, director of the National Cancer Research Institute, Bethesda, Md.; Dr. Edmund V. Cowdry, professor of anatomy and head of the department, Washington University School of Medicine, St. Louis, "Geriatrics," and Dr. Austin M. Brues, associate professor of medicine, University of Chicago Institute of Radiology and Biophysics, "Medical Implications of Atomic Research." Dr. Anton J. Carlson, professor emeritus of the University of Chicago, was a guest speaker at a luncheon.

KENTUCKY

Three Clinical Professors to Retire.—At the end of the school year three Louisville physicians will retire as clinical professors from the University of Louisville School of Medicine, Louisville: Dr. Irvin Abell, clinical professor of surgery, president of the American College of Surgeons and formerly President of the American Medical Association; Dr. Bernard Asman, clinical professor and head of the department of proctology, and Dr. Charles W. Hibbitt, clinical professor of obstetrics and gynecology. All three graduated in the class of 1897, and all have offices in the same building, where they will continue their private practice. As professors emeritus they will be consultants to the medical school faculty.

LOUISIANA

Ochsner Foundation Hospital.—Dedication exercises were held April 13 for the foundation hospital, recently purchased by the Alton Ochsner Medical Foundation, New Orleans. The former army hospital wards have been converted into individual cubicles for private patients. Seven patient buildings with 161 beds are now in operation. Eventual plans are for a capacity of 300 beds.

Poliomyelitis Preparedness Conference.—The Louisiana State Department of Health, the National Foundation for Infantile Paralysis and the Orleans chapter of the National Foundation jointly will hold a poliomyelitis preparedness conference at the St. Charles Hotel, May 30-31. Among the speakers at the two day session will be Dr. Waldo L. Treuting, New Orleans, Louisiana State Board of Health, "Public Health Regulations and Facilities for Treatment of Infantile Paralysis Cases"; Dr. Oliver P. Daly, director, Charity Hospital of Louisiana, "The Charity Hospital System in Louisiana"; Dr. Kenneth S. Landauer, Geneva, N. Y., director of medical care, National Foundation, "Diagnosis and Treatment of Acute Poliomyelitis." Saturday a symposium on infantile paralysis will be held, subjects being pediatric aspects, modes of spread, orthopedic considerations, nursing advisory service and end results. The American Red Cross will present nursing problems involved in an infantile paralysis epidemic.

MASSACHUSETTS

Retired Navy Officers Appointed Health Officers.—Dr. Robert E. S. Kelley, captain, U. S. Navy (retired), has been appointed to the Massachusetts Department of Public Health as physician in charge of the second mobile unit of the State Blood Donor Program. Dr. Walter J. Pennell, captain, U. S. Navy (retired), has been appointed health officer of the Northeastern District of the Massachusetts Department of Public Health. Dr. Paul Richmond, captain (MC), U. S. Navy (retired), Washington, D. C., has been appointed health officer of the Worcester district of the Massachusetts Department of Public Health.

Dr. Faulkner Appointed Dean at Boston University.—Dr. James M. Faulkner, Boston, will assume his duties as dean of the Boston University School of Medicine, June 1, replacing Dean Donald G. Anderson, Boston, newly appointed secretary of the Council on Medical Education and Hospitals of the American Medical Association. Dr. Faulkner received his medical degree at Harvard Medical School, Boston, in 1924. He was assistant resident physician at the Rockefeller Institute Hospital, New York, in 1926, and the Johns Hopkins Hospital 1926-1927. He was a consultant in medicine at the U. S. Marine Hospital in Boston and director of the first and third medical services at Boston City Hospital, as well as a professor of medicine at Tufts College Medical School, Boston.

NEVADA

State Board Resumes Reciprocity.—At the May 5 meeting of the Nevada State Board of Medical Examiners the board unanimously voted to rescind the rule of suspension of reciprocity and to resume reciprocity. It also voted to meet only twice a year, i. e., in May and November, at which time it will hold both written examinations and oral reciprocity examinations.

NEW JERSEY

Society Organized.—The New Jersey Obstetrical and Gynecological Society was organized by about 125 members of the Medical Society of New Jersey at its annual meeting in Atlantic City April 23. The organization elected the following officers: Drs. Samuel A. Cosgrove, Jersey City, president; Herschel S. Murphy, Roselle, president-elect; George B. German, Camden, vice president; Benjamin Daversa, Spring Lake, secretary, and Osborne F. Christensen, Hackensack, treasurer. The society expects to hold its second meeting in Jersey City in October.

Dr. Donohoe Honored.—The medical staff of Bayonne Hospital and Dispensary will present Dr. Lucius F. Donohoe, medical director, with a portrait in oil in recognition of his services to the hospital, at a testimonial dinner June 5. This year marks his twentieth anniversary as medical director and his thirtieth anniversary as president of the medical staff. Dr. Donohoe served with the A. E. F. in France in World War I as a lieutenant colonel in the Medical Corps. He was commended in a citation for meritorious service by the American Expeditionary Forces. The republic of France conferred on him the Citation and Certificate of the Order of University Palms, grade of Officer of Academy, and later made him a Chevalier of the Legion of Honor.

NEW YORK

Sesquicentennial of Westchester County Society.—The Medical Society of the County of Westchester marked the one hundred and fiftieth consecutive year of its existence May 8. The society's sesquicentennial year will be commemorated by the publication of a volume of the history of the society to date. Dr. Laurence D. Redway, Ossining, will prepare the volume, which will be distributed at the annual meeting in November.

Professor Wiggers Comes to Albany Medical College.—Harold C. Wiggers, Ph.D., Chicago, will take over duties as head of the department of physiology and pharmacology at Albany Medical College July 1. The 38 year old teacher and research worker has been associate professor of physiology at the University of Illinois College of Medicine, Chicago, since 1943. He has done research on the coronary circulation, cardiodynamics, ovulation potentials and bioelectric phenomena. Dr. Wiggers received his bachelor's degree from Wesleyan University in 1932 and his doctor of philosophy from Western Reserve University in 1936. At Harvard Medical School, Boston, he held the W. T. Porter Fellowship. He was an instructor at Columbia University College of Physicians and Surgeons, New York, from 1937 to 1942 and was assistant professor at Western Reserve School of Medicine in 1942-1943.

Dr. Godfrey Retires.—Dr. Edward S. Godfrey Jr., state commissioner of health, retired May 1 after nearly thirty years in the state department of health. After graduation from the University of Virginia Department of Medicine, Charlottesville, he served both Arizona and Illinois before becoming epidemiologist in the New York State Department of Health. In 1920 he was appointed director of the division of communicable diseases and in 1931 director of local health administration. From 1928 to 1935 he served part time as clinical professor of epidemiology at the Columbia University College of Physicians and Surgeons. In 1936 he was appointed state commissioner of health. Dr. Godfrey has contributed many articles to the literature on public health, notably the report of a study of measles in children's institutions in the state outside of New York City. He is a member of numerous public health and medical societies.

New York City

Proposed Study of Rheumatic Heart Disease.—New York University College of Medicine in cooperation with the City Health Department will make a study of rheumatic fever and rheumatic heart disease among school children in the Lower East Side district next fall. The objective will be to develop efficient detection, follow-up and supervision which may be adopted on a citywide basis by the department of health. The study will be directed by Dr. Elvira M. DeLiee. Financial support comes from the New York Heart Association, U. S. Public Health Service, New York Department of Education, Rheumatic Fever Council of the American Heart Association, U. S. Children's Bureau, New York School of Social Work, Metropolitan Life Insurance Company and other departments of the university.

Master Plan for City Hospitals.—The hospital council of greater New York announced its master plan for city hospitals and related facilities last month. Based on the city's estimated 8,000,000 population requirements of 1950, the plan calls for 129,000 hospital beds, 33,600 for general care, 8,000 for convalescent care, 16,000 for long term illnesses, 800 for acute communicable diseases, 6,600 for tuberculosis and 64,000 for psychiatric care. It calls for eight regional hospitals and sixty-four community hospitals. The plan was drawn with the idea that distribution and location of hospital facilities should be determined by the needs of the people, the need for teaching and training programs and the need for medical research. The study has been endorsed by Mr. Edwin A. Salmon, chairman of the City Planning Commission, and Drs. John B. Pastore, executive director of the Hospital Council; George Baehr, president of the New York Academy of Medicine; William B. Rawls, representing the medical societies of the city; Claude W. Munger, director of St. Luke's Hospital; Edward M. Bernecker, city commissioner of hospitals, and Mr. Arthur A. Ballantine, chairman of the United Hospital Fund and the Greater New York Fund.

PENNSYLVANIA

Second Councilor District Meeting.—A meeting of the second councilor district of the Medical Society of the State of Pennsylvania will be held June 4 in the Masonic Temple, Allentown, at 12 noon. On the scientific program Dr. Chauncey L. Palmer, Pittsburgh, will speak on "Legislative Trends in the 1947 Session of the Pennsylvania Legislature"; Dr. Howard K. Petry, Harrisburg, president of the state society, "Indications for and Technic of Electro Shock," and David R. Perry Harrisburg, secretary to the governor, "Medicine Today and Tomorrow." Dr. Petry will present fifty year testimonials to the honor guests: Drs. Andrew Godfrey, Montgomery County; Chester K. Kistler, Berks County; William C. LeCompte, Bucks County; John B. Roxby, Delaware County, and Charles H. Schlesman, Lehigh County.

Seventh District Meeting.—The Seventh Councilor District Meeting of the Medical Society of the State of Pennsylvania was held May 9 at Williamsport with about 135 doctors and members of Woman's Auxiliaries in attendance. Dr. Elmer Hess, Erie, president-elect, presented the society's fifty year testimonial to the honor guest, Dr. John L. Mansuy, Ralston. Among the speakers were Dr. Joseph S. Lawrence, Director, Washington Office, Council on Medical Service, A. M. A., Washington, D. C., who spoke on "Preventive Medicine: Facts and Fancies"; Dr. Howard K. Petry, Harrisburg, president, Medical Society of the State of Pennsylvania, "Role of the State and the Local Community in a Mental Health Program," and Dr. Pascal F. Lucchesi, superintendent, Philadelphia General Hospital, "The Family Doctor's Role in Public Health Preventive Medicine."

Philadelphia

Shmookler Memorial Lecture.—The H. B. Shmookler Memorial Lecture of Mount Sinai Hospital will be delivered by *Dr. Louis N. Katz*, Chicago, on "The Control of the Coronary Circulation," June 5, at 9 p. m. in the nurses' conference room.

Dr. Long to Head Tuberculosis and Health Association.—Dr. Esmond R. Long, director of the Henry Phipps Institute, University of Pennsylvania, has been elected president of the Philadelphia Tuberculosis and Health Association to succeed Dr. Charles J. Hatfield, president of the organization for twenty-four years. The board has made Dr. Hatfield president emeritus in recognition of his long period of service.

RHODE ISLAND

Society News.—The Rhode Island Society of Industrial Physicians and Surgeons, Inc., have elected the following officers for the coming year: Drs. Richard F. McCoart, Providence, president; Thomas A. Egan, Providence, vice president; James P. Deery, Providence, secretary, and Robert T. Henry, Pawtucket, treasurer.

TEXAS

State Medical Election.—At the annual meeting, May 8, of the State Medical Association of Texas the following officers were elected: president, Dr. Tate Miller, Dallas; vice presidents, Drs. Frank A. Selecman, Dallas; Ximie R. Hyde, Fort Worth, and Elmer W. Jones, Wellington; secretary, Dr. Holman Taylor, Fort Worth, and treasurer, Dr. Thomas H. Thomason, Fort Worth. The next annual session will be in Houston.

WEST VIRGINIA

State Medical Election.—The West Virginia State Medical Association elected the following officers at the annual meeting in Charleston May 13: president, Dr. Thomas F. Bess, Keyser; first vice president, Dr. Spencer L. Bivens, Charleston; second vice president, Dr. Harold Van Hoose, Man, and treasurer, Dr. Thomas M. Barber, Charleston. Dr. Ivan Fawcett, Wheeling, was chosen A. M. A. delegate with Dr. James L. Wade, Parkersburg, alternate. Both succeed themselves. Total doctor registration broke all state records, 559 compared with a previous high of 512 at Clarksburg in 1937. The next annual meeting will be held at the Greenbrier Hotel, White Sulphur Springs, July 12-14, 1948.

PUERTO RICO

Health Legislation in Puerto Rico.—The governor of Puerto Rico, Hon. Jesus T. Pinero, has recently approved the following appropriation bills passed by the insular legislature in its regular annual session meeting February to April, to carry out the government's health and sanitation program during the coming fiscal year:

House bill 1374, authorizing a hospital survey of the island to determine the need for additional hospital facilities.

Act 69, appropriating the sum of $150,000 to the department of health to carry on its malaria control program during the fiscal year.

Act 33, appropriating the sum of $51,000 for improvements to the tuberculosis hospital in the city of Ponce.

Act 41, appropriating the sum of $55,000 for improvements to the tuberculosis hospital in the city of Mayaguez.

Act 43, appropriating the sum of $25,000 to continue the enlargement and new constructions to municipal hospitals in the island.

Act 44, appropriating $100,000 for the acquisition, transportation and installation of latrines in the rural areas.

Act 48, appropriating $38,000 for improvement to the tuberculosis hospital in the city of Guayama.

Act 53, appropriating $187,500 to the University of Puerto Rico for scholarships for poor medical students to be sent to colleges and universities in the United States.

Act 392, providing for the construction of a municipal hospital in Piedras.

Act. 413, appropriating $75,000 for improvements and enlargement to the municipal hospitals in the city of San Juan and for purchase of equipment for these hospitals.

Act 112, appropriating $120,000 for repairs, extension and equipment of the Hospital for the Lepers, established in the city of Trujillo Alto.

Act 410, appropriating $6,250,000 to carry on a vigorous slum clearance program in Puerto Rico.

Act 437, authorizing the administrator of the State Insurance Fund to use the services of American and foreign physicians, who shall be contacted by the insular Department of Health.

Act 444, to prohibit contamination of potable water sources in Puerto Rico, to provide penalties for violation of this act and to create a commission to intervene in such cases.

Act. 37[illegible] nent of health to copy in microfilm all the birth [illegible] nses and death certificates that appear in the ol[illegible] Rico in order to preserve such documents, an[illegible] crofilms be made of all such documents issued by [illegible] bureau of the department of health to interested parties.

Act 380, providing that credit as alternates be granted to all physicians who served in hospitals during active military service in the armed forces of the United States, who will serve in government institutions in Puerto Rico.

GENERAL

Pan American Congress of Pediatrics.—The first Pan American Congress of Pediatrics will be held at the Mayflower Hotel, Washington, D. C., July 9 to 12, under the auspices of the American Academy of Pediatrics. Dr. Felix Hurtado Galtes, Havana, will be the presiding officer.

Percy Jones Hospital Reunion.—The Percy Jones Hospital reunion will be held at Longport Inn, 35th and Atlantic avenues, Longport, N. J., Monday, June 9. 7 p. m. Further information can be obtained from Mrs. Kathryn S. Read, 5407 Atlantic Avenue, Ventnor, N. J., phone Atlantic City 2-3509.

Clinical [illegible] Atlantic City Meeting.—The Atlantic [illegible] merican Society of Clinical Pathologists [illegible] ings as June 4-8 has been canceled in [illegible] the United Nations. The society will [illegible] 27-30 instead.

Appoint Director of Commonwealth Fund.—Dr. Donal Sheehan, professor of anatomy and lately acting dean of the New York University College of Medicine, New York, has been appointed general director of the Commonwealth Fund to succeed Barry C. Smith, who will retire September 1. Dr. Sheehan came to this country from England in 1937 to join the faculty of New York University. He recently completed a mission to Czechoslovakia for the Rockefeller Foundation.

Heart Association Appointment.—Dr. Charles A. R. Connor has been appointed associate medical director of the American Heart Association and will work with Dr. David D. Rutstein, medical director, in developing the association's program of research service and public education in diseases of the heart and circulation. Dr. Connor, who received his medical degree in 1931 and his Doctor of Science in Medicine from New York University College of Medicine, New York, in 1940, has been since 1935 instructor in medicine there. In 1946 he was named attending physician in cardiovascular disease, Lenox Hill Hospital, New York.

Dr. Waksman to Receive Passano Foundation Award.—At a presentation dinner scheduled for June 12 during the week of the Centennial Celebration in Atlantic City, Selman A. Waksman, Sc.D., New Brunswick, N. J., will receive the $5,000 Passano Foundation award for original research in the field of antibiotics culminating with his discovery of streptomycin. Dr. Waksman will give an address, "Antibiotics and Tuberculosis—A [illegible] roach," and Sir Howard Florey, Ph.D., [illegible] o was knighted for his development of [illegible] of penicillin, will give a brief address. The Passano Foundation, established in 1943 by the Williams & Wilkins Company, medical publishers, Baltimore, provides the award to encourage medical research.

Assistant Director of American College of Surgeons.—Dr. Charles F. Branch, formerly dean of Boston University School of Medicine and recently director of the Children's Hospital, Boston, has joined the staff of the American College of Surgeons in Chicago as assistant director. He will be particularly concerned with the work of the cancer committee of the college, which includes a survey and approval of cancer clinics inaugurated in 1930 and the establishment of a similar program in relation to cancer detection centers. Dr. Branch, a graduate of the University of Vermont College of Medicine, Burlington, was professor of pathology at Boston University School of Medicine and pathologist to the Massachusetts Memorial Hospitals as well as serving a number of suburban hospitals in Boston from 1926 to 1946. He is a past president of the New England Pathological Society.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery.—This society will meet at the Hotel Mayflower, Atlantic City, June 11, at 8 p. m. The speakers will include Dr. Norman N. Smith, New Haven, Conn., "Preparation of the Patient for Rhinoplasty"; Dr. Frank Turchik, Bridgeport, Conn., "Annoying Postoperative Problems in Nasal and Septal Plastic Surgery"; Dr. Samuel F. Kelley, New York, "Tantalum Implants for Correction of Postoperative Deformity Resulting from Radical Frontal Sinus Surgery"; Drs. Joseph G. Gilbert and Joseph S. Silverberg, Brooklyn, "Evaluation of the Various Types of Implants for Correction of Saddle Nose"; Dr. John F. Pick, associate in surgery, University of Illinois, Chicago, "Plastic Otorhinologic Surgery." General discussion will be opened by Dr. Francis W. White, New York.

Dr. Cori Receives Award.—Dr. Carl F. Cori, Washington University Medical School, St. Louis, was awarded the second intermediate research prize of $5,000 April 28 for distinguished achievements in the field of human metabolism extending over a period of twenty years. The award, made annually by the National Science Fund of the National Academy of Sciences in recognition of the development of original knowledge about sugar, was presented by Dr. William C. Stadie, associate professor of research medicine at the University of Pennsylvania School of Medicine, Philadelphia. The most significant contribution Dr. Cori has made is indicating how insulin influences the burning of sugar, opening the way for improved technics for the control of diabetes. His research has led to the discovery of the enzymes phosphorylase and hexokinase. More recently Dr. Cori and his wife indicated the mechanism for the release of stored blood sugar in the liver.

Norton Medical Award for Book Manuscripts.—W. W. Norton & Company are again offering the Norton Medical Award for book manuscripts written for the lay public by professional workers in the field of medicine. The publishers now set no final closing date for the submission of manuscripts which may be submitted at any time, the award not being limited to any one year. The Norton Award offers $5,000 as a guaranteed advance against royalties. Either complete manuscripts or detailed table of contents together with 100 pages of manuscript may be submitted. A folder giving details of the terms of the award may be secured from the publishers at 101 Fifth Avenue, New York 3. Books that have previously won Norton Medical Awards are "The Doctor's Job," by Dr. Carl A. L. Binger, New York; "Doctors East, Doctors West," by Dr. Edward H. Hume, New York, and "A Surgeon's Domain," by Dr. Bertram M. Bernheim, Baltimore, published this spring.

Research in Tuberculosis.—At a recent meeting the committee on medical research of the National Tuberculosis Association, New York, approved the following grants for research and allocated a total of $91,550 for these purposes for the fiscal year ending March 31, 1948:

1. Analysis of internal chemistry of the tubercle bacillus, and cataloguing of the chemical derivatives.—Dr. Ralph J. Anderson, Yale University, New Haven, Conn.
2. Investigation of pulmonary calcifications.—Dr. Amos Christie, Vanderbilt University, Nashville, Tenn.
3. Synthesis of biologic reaction of different chemical fractions of tubercle bacillus provided by chemical laboratories.—Dr. Charles A. Doan, Ohio State University, Columbus, Ohio. (This study is supported by funds contributed by the Ohio Tuberculosis and Health Association.)
4. Determination of the course of tuberculosis in children exposed to the disease from infancy to adult life.—Dr. Edith M. Lincoln, Bellevue Hospital, New York.
5. Determination of the relation of tubercle bacillus carbohydrates to tuberculosis and to its immunity.—Dr. Sidney Raffel, Stanford University, Calif. (This is a cooperative study partially supported by funds contributed by the California Tuberculosis and Health Association.)
6. The chemistry of tuberculin.—Dr. Florence B. Seibert, Henry Phipps Institute, Philadelphia.
7. Provision of base line data on the serum content of different globulins and polysaccharides in normal animals used for research in tuberculosis.—Dr. J. W. Willliams, University of Wisconsin, Madison, Wis.
8. The role of endocellular proteolytic enzymes during stages of caseation and softening.—Dr. Charles Weiss, Jewish Hospital, Philadelphia.
9. Investigation of some of the enzymatic factors involved in caseation of tuberculosis.—Dr. Donald E. Bowman, University of Indiana, Indianapolis. (This study is supported by funds contributed by the Indiana Tuberculosis Association and will be correlated with the previous study [No. 8].)
10. Study of vitamin metabolism in relation to growth of human and bovine type tubercle bacilli.—Dr. David T. Smith, Duke University, Durham, N. C.
11. Pathologic study of lobes and lungs removed surgically and available for histologic investigation.—Dr. William Meissner, N. E. Deaconess Hospital, Boston.
12. Tabulation of statistical results of: (a) Pregnancy and tuberculosis, (b) tuberculosis in nurses.—Dr. T. L. Badger, Boston City Hospital, Boston.
13. Provision of standard strains of tubercle bacilli whose history, virulence and, as far as possible, chemical structure is known.—Dr. Edward N. Packard, Saranac Lake Laboratory, Saranac Lake, N. Y.
14. Investigation of forces responsible for movement of air into and out of the lungs.—Dr. George W. Wright, Edward L. Trudeau Foundation, Saranac, N. Y.
15. Study of influence of posture on lung size.—Dr. George W. Wright, Edward L. Trudeau Foundation.
16. Determiation of best laboratory procedures for culture mediums.—Mr. William Steenken, Edward L. Trudeau Foundation; Dr. C. Richard Smith, Barlow Sanatorium, Los Angeles; Dr. M. I. Smith, National Institute of Health, U. S. Public Health Service, Bethesda, Md.
17. Study of minimal tuberculosis in nurses.—Dr. Carroll E. Palmer, National Institute of Health, Bethesda, Md.
18. Studies for the determination of the effectiveness of streptomycin in the treatment of tuberculosis.—A series of projects in cooperation with the National Institute of Health, Bethesda, Md.

NOTE: The following tuberculosis associations have contributed funds to the medical research program but have left the decision for their allocation to the National Tuberculosis Association: Pennsylvania Tuberculosis Society, Philadelphia, Philadelphia Tuberculosis and Health Association, Philadelphia, and Reading Tuberculosis Association, Reading, Pa.

Appoint Associate Director of National Health Council.—Dr. John W. Ferree, New York, formerly director, division of educational services, American Social Hygiene Association, has been appointed executive director of the National Health Council. He will be engaged principally in helping existing local, county and state health councils broaden the scope of their usefulness and in stimulating the formation of councils where their establishment would advance the effectiveness of community and state health agencies. Dr. Ferree received his medical degree from the Indiana University School of Medicine, Bloomington, and his Master of Public Health degree from Johns Hopkins University School of Public Health and Hygiene, Baltimore. He was chief of the bureau of local health administration, Indiana State Board of Health, 1936-1938, and from 1940 to 1942 he was state health commissioner for Indiana. After retiring from active duty with the Medical Corps, U. S. Navy, in 1945 with the rank of commander, Dr. Ferree joined the staff of the American Social Hygiene Association.

American Diabetes Association Meeting.—The annual meeting of the American Diabetes Association will be held, June 7-8, at the Chalfonte-Haddon Hall, Atlantic City, under the presidency of Dr. Russell M. Wilder, Rochester, Minn. Speakers on the program at 2 p. m. include Dr. Joseph Berkson, Mayo Clinic, Rochester, "Life Expectancy in Diabetes"; Drs. E. T. Waters, associate professor of physiology, and Charles H. Best, University of Toronto, "Importance of Developing an Accurate Method for Estimation of Insulin in the Blood"; Dr. Hugh L. C. Wilkerson, Boston, "Office of Diabetes, U. S. Public Health Service, Plans and Program"; Drs. Ferdinand R. Schemm, Felix H. Crago and John A. Layne, Great Falls (Montana) Clinic, "Control of Edema in Diabetic Patients with General Vascular Disease," and Dr. Geza de Takats, University of Illinois College of Medicine, Chicago, "Delayed Primary Suture in the Surgical Management of Diabetic Gangrene." At the banquet Sunday night the Banting Lecture will be delivered by Dr. George H. A. Clowes, Indianapolis, on "Development of Large Scale Production of Insulin."

CANADA

Survey of Milk Supplies.—In a recent survey in the eight provinces outside Ontario it was revealed that of the 366 municipalities represented only 13 per cent have compulsory pasteurization by-laws. Ontario was excluded because it is the only province which has a province-wide law in force. Of cities and towns in Saskatchewan 20 per cent reported safe milk by-laws; Quebec was second with 15 per cent; ninety municipalities, or 20 per cent, reported that their supply was unpasteurized; sixteen revealed that while they had no compulsory law their supply was 100 per cent pasteurized. Forty-one municipalities revealed that 90 per cent or more of their milk supply was pasteurized.

The Annual Meeting.—The Canadian Medical Association will hold its annual meeting June 23-27 in the Royal Alexandria Hotel, Winnipeg, under the presidency of Dr. Wallace Wilson, Vancouver. The program will consist of round table conferences to be held the mornings of June 25-27 and sectional meetings to be held the afternoons of those days. A panel discussion on the provision for medical care is being arranged for Thursday evening, June 26, by the committee on medical economics. Among the subjects of the round table conferences will be Management of Hypertension, Cesarean Section—Indications and Contraindications, and Management of Bulbar Poliomyelitis. Among the speakers will be Drs. Edgar J. Huenekens, Robert E. Priest and Abe B. Baker, all of Minneapolis. On Wednesday the Osler Lecture will be presented by Professor John M. McMichael, London, England, on "Osler: The Textbook and Medical Education." Among the speakers at the section meetings will be Dr. Paul A. O'Leary, Rochester, Minn., on "Recent Concepts of the Dermatoscleroses" in the section of dermatology; Dr. Warren H. Cole, Chicago, whose subject will be announced, in the section of surgery; Dr. Leo G. Rigler, Minneapolis, "Emphysema: An Early Sign of Bronchogenic Carcinoma" in the section of radiology, and Dr. E. Bruce Tovee, Chicago, "Present Status of Vagus Section in Ulceration of the Stomach and Duodenum" in the section of surgery.

Marriages

HAROLD H. KERR, Akron, Iowa, to Miss Norma Hayes Trabold of Wrightstown, Pa., in New York February 15.

WALTER K. HOFFMAN, Memphis, Tenn., to Mrs. Phyllis Benson Halladay of Oakland, Calif., January 25.

STEPHEN ABRAM GREENBERG, Florence, S. C., to Miss Ruth Barbara Brody in New York January 26.

BIRT L. BROWNING, Miami Beach, Fla., to Mrs. Bessie Hickman in Brunswick, Ga., Dec. 24, 1946.

JUNE U. GUNTER, Sanford, N. C., to Miss Elizabeth G. Kerr of Philadelphia February 1.

Deaths

Henry Hamilton Moore Lyle ⊕ New York; born in Connor County, Ulster Province, Ireland, Nov. 13, 1875; Columbia University College of Physicians and Surgeons, New York, 1900; professor of clinical surgery at the Cornell University Medical College; member of the American Surgical Association and the Society of Clinical Surgery; fellow of the American College [illegible] rseas during World War I and won the [illegible] Service Medal, the British War Medal, the British Victory Medal and other decorations; consulting surgeon, Stuyvesant Square Hospital and Veterans Administration, district number 2, in New York, Elizabeth A. Horton Memorial Hospital in Middletown, Cornwall Hospital in Cornwall, New York State Reconstruction Home for Children in West Haverstraw, St. Luke's Hospital in Newburgh and St. Luke's Hospital in New York, where he died March 11, aged 71, of coronary heart disease.

Lois Ellene Taylor, Belchertown, Mass.; born in Poultney, Vt., July 8, 1909; University of Vermont College of Medicine, Burlington, 1933; interned at the New England Hospital for Women and Children in Boston; served a residency at the Danvers State Hospital in Danvers and the Brattleboro Retreat in Brattleboro, Vt.; diplomate of the National Board of Medical Examiners; member of the New England Society of Psychiatry and the American Medical Association; lieutenant, senior grade, in the U. S. Naval Reserve during World War II; winner of the Sesquicentennial American Youth Award for 1926 and was presented with a gold medal by President Calvin Coolidge; since 1937 senior physician at the Belchertown State Hospital, where she died March 21, aged 37.

James E. King ⊕ Buffalo; born in Buffalo, Sept. 15, 1874; University of Buffalo School of Medicine, 1896; professor of gynecology emeritus at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology; member and past president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; past president of the Buffalo Academy of Medicine, Medical Society of Erie County and the University of Buffalo Alumni Association; fellow and formerly vice president of the American Gynecological Society; fellow of the International College of Surgeons and the American College of Surgeons; served on the staffs of the Buffalo General and the Edward J. Meyer Memorial hospitals; died March 9, aged 72, of heart disease.

William Sharp Lindsay, Topeka, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1874; member of the American Medical Association and in 1919 and 1920 member of the House of Delegates; served as president of the Kansas State Medical Society and the Shawnee County Medical Society; formerly dean and professor at the Kansas Medical College; at one time associated with the Topeka State Hospital, where he served as superintendent; formerly in charge of the Cottage for Mental and Nervous Diseases, Christ's Hospital; for many years trustee of the Washburn College; died February 20, aged 94, of heart disease.

Frank Edward Artaud ⊕ Major, U. S. Army, retired, Treasure Island, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1884; member of the Medical Association of Georgia; veteran of the Spanish-American War and World War I; entered the regular army medical corps on March 15, 1927 as a first lieutenant; retired March 15, 1927 for disability in line of duty; promoted to major under the special retirement act of Congress for June 21, 1930; died in the Veterans Administration Hospital, Bay Pines, April 9, aged 87 of coronary sclerosis.

Wilbur Arthur Baker ⊕ Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1917; on the courtesy staff of the Menorah Hospital; died in Phoenix, Ariz., February 24, aged 54, of coronary thrombosis.

George Alexander Brandon, Jackson, Tenn.; University of Nashville Medical Department, 1906; member of the American Medical Association; affiliated with the Henderson County draft boards during World War I and World War II; died February 26, aged 72, of cerebral hemorrhage.

Jerry B. Callahan, Orlando, Fla.; Leonard Medical School, Raleigh, 1907; died February 28, aged 63, of coronary heart disease.

Robert Taylor Childress, Kingsport, Tenn. (licensed in Tennessee in 1911); served as chairman of the county school board; died February 22, aged 68, of hypertension.

Chester Cyril Coates, New York; Illinois Medical College, Chicago, 1899; died in St. Clare's Hospital February 10, aged 73.

Joseph Evan Crawford ⊕ Ruston, La.; Memphis (Tenn.) Hospital Medical College, 1907; on the staff of the Ruston-Lincoln Sanitarium, where he died February 17, aged 68, of cerebral hemorrhage.

George Byron Cross, Lakeville, Minn.; Chicago Homeopathic Medical College, 1901; died recently, aged 68, of cerebral thrombosis.

Frank C. Dildine, Port Jefferson, N. Y.; Baltimore Medical College, 1897; member of the American Medical Association; died February 17, aged 79, of accidental monoxide gas poisoning.

Theodore David Dockstader, Ravena, N. Y.; Albany Medical College, 1905; died February 13, aged 63, of multiple sclerosis.

Pressly Young Donald, Selma, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; member of the American Medical Association and the Southeastern Surgical Congress; past president of the Dallas County Medical Society; served during World War I; member of the city school board; chairman of the county board of health; on the staffs of the Good Samaritan Hospital and King Memorial Hospital, where he died February 26, aged 57, of acute gangrenous cholecystitis and cholelithiasis.

Joseph Koger Fairey, St. Matthews, S. C.; Medical College of the State of South Carolina, Charleston, 1891; member of the American Medical Association; died February 21, aged 78, of pneumonia.

David Ferguson Jr., ⊕ Medical Inspector, Commander, U. S. Navy, retired, *Milledgeville, Ga.*; Emory University School of Medicine, Atlanta, 1914; specialist certified by the American Board of Internal Medicine; entered the U. S. Navy *on Dec. 31, 1917* and retired Dec. 1, *1941* for incapacity resulting from an incident of the service; died Aug. 19, 1946, aged 53.

Emma Culross Gibbons, Portland, Maine; McGill University Faculty of Medicine, Montreal, Que., Canada, 1923; *died February* 16, aged 71, of coronary occlusion.

Vincent Jones Gragg ⊕ Magnolia Springs, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1908; for many years health officer of Chilton County; at one time mayor of Clanton; president of the Baldwin County Medical Society; member of the board of directors and served as president of the Central Alabama Hospital in Clanton; died in the Highland Avenue Baptist Hospital, Birmingham, February 17, aged 70, of intestinal obstruction.

Edwin Austin Hatch, Brooklyn; Long Island College Hospital, Brooklyn, 1881; member of the American Medical Association; formerly on the staff of St. Mary's Hospital; died recently, aged 91, of ruptured aneurysm and arteriosclerosis.

Jacob Roland Heller, Allentown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1928; member of the American Medical Association; medical examiner for the school district in Allentown; interned at the Allentown Hospital, where he served as a member of the staff; began active duty as a lieutenant commander in the U. S. Naval Reserve in October 1942; service terminated in March 1946 with the rank of commander; died February 2, aged 44, of coronary occlusion.

David Williams Henderson ⊕ Salt Lake City; *Jefferson* Medical College of Philadelphia, 1912; specialist certified by the American Board of Ophthalmology; *member of the Western* Ophthalmological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; member of the staff of the Dr. W. H. Groves *Latter Day* Saints Hospital; died February 1, aged 65, of carcinoma.

Frederick Kingsley ⊕ Boston; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1905; for many years consultant at the Medfield (Mass.) State Hospital; died February 1, aged 66, of coronary thrombosis

John Raymond Lynch, New York; Fordham University School of Medicine, New York, 1915; member of the American Medical Association; served during World War I; died in the Fitch Sanitarium January 21, aged 54.

Jesse L. Macbeth ⊕ St. Clair, Minn.; Fort Wayne College of Medicine, 1905; died in St. Joseph's Hospital in Mankato recently, aged 66, of carcinoma.

John Tate McNabb, Trenton, Tenn.; University of Tennessee College of Medicine, Memphis, 1934; interned at the Baroness Erlanger Hospital, Pine Breeze Sanatorium and the Children's hospitals in Chattanooga; at one time assistant physician at the Eastern State Hospital in Knoxville; member of the American Medical Association; served during World War II; formerly associated with the U. S. Public Health Service Reserve; died in Monroe, La., April 9, 1946, aged 39, of chronic myocarditis while en route to Alexandria, La., to establish his practice.

M. Mozart Marrin, Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1932; member of the American Medical Association; awarded the Edward and Susan Lowe medical fellowship for 1941; fellow of the American College of Surgeons; served during World War II; on the staff of the Butterworth Hospital, where he served an internship and where he died February 8, aged 40, of coronary thrombosis.

Joseph Alston Maxwell ⊕ Tuscaloosa, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1912; served during World War I; fellow of the American College of Surgeons; on the staffs of the Druid City and Stillman hospitals; died February 14, aged 59, of heart disease.

George Henry Musso, Lynn, Mass.; New York University Medical College, 1898; member of the American Medical Association; affiliated with the Union Hospital, where he died March 1, aged 72, of rupture of the aorta.

Louis Myer Piatt ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1923; specialist certified by the American Board of Radiology; affiliated with the Grant, St. Francis and Mercy hospitals; killed in an automobile accident March 2, aged 47, while returning from vacationing in Mexico.

Arnold Frederick Plankers, St. Paul; John A Creighton Medical College, Omaha, 1910; died in the Good Samaritan Hospital recently, aged 61, of coronary thrombosis and myocarditis.

Nathan Shapiro, Brooklyn; University of Edinburgh Faculty of Medicine, Scotland, 1930; member of the American Medical Association; on the staffs of the Coney Island and Israel Zion hospitals; died recently, aged 45.

Frank Ernest Sohler ⊕ Healdsburg, Calif.; Cooper Medical College, San Francisco, 1906; formerly on the staff of the French Hospital in San Francisco; died recently, aged 65.

William Joseph Topmoeller, Cincinnati; University of Cincinnati College of Medicine, 1912; cited for bravery and received the Purple Heart for services during World War I; affiliated with the Good Samaritan, Deaconess and Children's hospitals; past president of the Xavier College Alumni Association; died in the Holmes Hospital March 10, aged 57, of brain tumor.

Frank White Whitmore, St. Paul; Northwestern University Medical School, Chicago, 1915; member of the American Medical Association; clinical associate professor of nervous and mental diseases at the University of Minnesota Medical School; on the staffs of the Miller, St. Luke's, Ancker and Bethesda hospitals; died recently, aged 56, of aortic stenosis.

William Walter Wolf, Minneapolis; Hahnemann Medical College and Hospital of Philadelphia, 1939; member of the American Medical Association; served during World War II; affiliated with the Swedish and Deaconess hospitals; died Dec. 14, 1946, aged 35, of coronary thrombosis.

Lieut. Harold A. Kepnes (MC), U. S. N. R., 1911-1942

Major Philip Bress, M. C., A. U. S., 1908-1944

Major Carlo J. Marinello, M. C., A. U. S., 1915-1944

Alfred Scheyer, New York; Friedrich-Wilhelms-Universität Medizinische Fakultat, Berlin, Prussia, 1896; member of the American Medical Association; on the staffs of the Lutheran and Gotham hospitals; staff member, Westside Y. M. C. A.; died March 17, aged 73, of heart disease.

Stamatis Demosthenes Zaph ⊕ Los Angeles; Chicago College of Medicine and Surgery, 1917; member of the Illinois State Medical Society; formerly affiliated with the Woodlawn Hospital in Chicago; died in Chicago March 7, aged 63, of pulmonary thrombosis.

KILLED IN ACTION

Harold Arthur Kepnes, Chelsea, Mass.; Tufts College Medical School, Boston, 1939; diplomate of the National Board of Medical Examiners; interned at the Queens General Hospital in Jamaica, N. Y.; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on July 7, 1941; promoted to lieutenant; served with the First Marine Division; killed in action in Guadalcanal Nov. 3, 1942, aged 31.

Philip Bress, Jackson, Ky.; University of Virginia Department of Medicine, Charlottesville, 1931; member of the American Medical Association; interned at the Baltimore City Hospitals; served a residency at St. Joseph's Hospital in Baltimore, Methodist Episcopal Hospital in Fort Wayne, Ind, and the Mercy Hospital in Logan, W. Va ; major, medical corps, Army of the United States; prisoner of war of the Japanese; killed in the South China Sea Oct. 24, 1944, aged 36, when the ship on which he was being transported was sunk.

Carlo James Marinello, Buffalo; University of Buffalo School of Medicine, 1939; diplomate of the National Board of Medical Examiners; served an internship and residency at the Edward J. Meyer Memorial Hospital; entered the medical corps of the Army of the United States as a first lieutenant in October 1940; spent fourteen months in the Panama Canal Zone; promoted to major; organized the 52d Portable Surgical Hospital, serving as commanding officer; with General MacArthur in the initial invasion of the Philippines; wounded Dec. 24, 1944; died in Leyte, Philippine Islands, Dec. 31, 1944, aged 29.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 26, 1947.

Medical History in Postage Stamps

An exhibition illustrative of medical history in postage stamps, which appears to be the first of its kind in this country, was held at the Historical Section of the Royal Society of Medicine. It was accompanied with a demonstration on the epidiascope and a running commentary. Stamps of medical interest are of comparatively recent issue but have multiplied in the last twenty years. They can be divided into two classes: those bearing the portraits of medical men and those depicting medical scenes, such as hospitals and medical congresses. The first medical man to be depicted appears to have been F. Espejo of Ecuador in 1899. But the first man of eminence so honored was Boerhaave, whom the Netherlands commemorated in 1928, though France began a series in honor of Pasteur's work in 1923. Among other famous men commemorated are Vesalius, Paré, Haller, Semmelweis, Purkinje, Ramon y Cajal and Reed. Britain has been backward in this form of commemoration. Not until Sir Wilfred Grenfell was commemorated on a Newfoundland stamp in 1941 was any British medical man depicted.

Intelligence and Fertility: Are We Degenerating?

At the request of the Royal Commission on Population Sir Cyril Burt, professor of psychology, University College, London, has surveyed the evidence on the relation between fertility and intelligence, and has come to a most disquieting conclusion. In different sections of the community the birth rate shows wide differences. Using data obtained from surveys of the school population by means of intelligence tests, Burt has considered whether differences in the birth rate are likely to alter the inherited mental qualities of the nation. He has found that children of the poorer social classes have an intelligence nearly two years below that of children of the better social classes, while at the same time they are drawn from families nearly twice as large. More important than this is his conclusion that the average level of intelligence in the general population is declining. He claims that the decline during the past generation has amounted to about three or four "natal months" (meaning that the intelligence tests show that the children have reached only the level of those younger by that period). The prolongation of such a decline would gravely affect in time the mental status of the population. Thus, if the rate assumed continues, in a little over fifty years the number of pupils of scholarship ability would be approximately halved and the number of feebleminded would be doubled.

Another point made by Burt is that in the numerous working class it is the more intelligent families who contribute fewest to the next generation. In general the larger the family the lower the level of intelligence; the smaller, the more intelligent the parents. These conclusions are so important that the need for further investigation is suggested. They are certainly open to some question. An offset to the higher birth rate of the less intelligent is their higher death rate. It is well known that throughout the living world the lower the organism the greater the powers of multiplication, but that has never meant the swamping of the higher forms of life by the lower, for there are countervailing forces, and so evolution has not been prevented. Herbert Spencer long ago emphasized as fundamental the antagonism between individuation and genesis. "Every higher degree of individual evolution is followed by a lower degree of race multiplication, and vice versa."

Fatal Failure to Remove a Tourniquet

An unusual case of negligence is reported as having occurred in the hospital of the large Lancashire manufacturing town of Oldham. A man aged 53, a head carder in a cotton mill, was admitted for a plastic bone operation, which consisted in removal of a piece of bone from the right leg for grafting on the right wrist. The operation was duly performed but he was returned to bed without removal of a tourniquet which had been placed on the leg. This was allowed to remain on eleven hours, although he was in great agony and complained to the nurse that there was something tight on his leg. His complaint was not investigated until he became worse. His condition became so critical that blood transfusion was performed. He collapsed and died.

His widow entered suit for damages against the hospital and the two surgeons who performed the operation. In court their lawyer said that he admitted the liability of the defendants and that it remained only for the judge to assess damages. The judge awarded $16,000 damages and costs against the hospital and the two surgeons who performed the operation. He said that he would not comment on the sorrow which had been caused, but it was a little surprising that the tourniquet had been left on. So far no explanation has been given of this apparently unprecedented mistake. But it may be surmised that it is not unconnected with two phenomena of the postwar period—overworked surgeons and shortage of nurses involving the placing of the partially trained in too responsible positions.

ITALY

(From Our Regular Correspondent)

April 26, 1947.

Center for Studies on Antibiotics

A center for information and studies on antibiotics has been established in Milan; Professor Alexander Fleming was nominated honorary president at the opening session. Professor Carlinfanti will act as director, with Dr. G. Pauletta as technical secretary. It is the aim of the center to support and to coordinate the forces of Italian research in the field of antibiotics. For the achievement of this aim the center will promote research on antibiotic substances by supporting Italian biologists, clinicians and chemists in carrying out and publishing reports of their work and by furnishing current literature, coordinate antibiotic research in Italy by favoring collaboration between research workers, by advice concerning methods of study, by furnishing research material and by the distribution of prizes. The center will answer questions of medical practitioners concerning antibiotics, organize lectures and conferences, publish the transactions and inform other countries of the contributions of Italian scholars to the subject. The Centro Italiano Informazioni Studi Antibiotici (Italian Information Center on Antibiotic Studies) is located at Corso Concordia No. 9, Milan.

International Congress on Reproduction

The first international congress on physiopathology of reproduction and of artificial fecundation will be held in Milan in April 1948 on the initiative of the Experimental Institute "Lazzaro Spallanzani" with the support of the University of Milan. The scientific objects of the institute are of interest to all countries of the world. The preparatory committee of the congress consists of biologists, geneticists, pathologists, gynecologists and zootechnicians and of representatives of various governmental departments. The rector of the University of Milan has been nominated as honorary president. The secretary general of the congress has his headquarters near the Institute Lazzaro Spallanzani, Via Bonzetti 17, Milan.

Association of Volunteer Blood Donors

The council of directors of the National Association of Volunteer Blood Donors, at a meeting in Bergamo, discussed the democratization of the former community organizations and establishment of new associations in places which have been deprived of an efficient transfusion service, provisions for safeguarding donors, provisions in the field of assistance, insurance and food supply, and suggestions for sanctions in order to prevent abuses. The council has asked the government for urgent recognition of the association to give more authority to the association and to improve the position of the volunteer blood donors.

Convention of Gastroenterologists

At the convention in Florence of practitioners specializing in diseases of the stomach and intestine those attending favored expanding the Italian Association of Gastroenterologists to include the problems of nutrition. At the meeting in Bologna in the spring reports will be presented on megaesophagus by Pieri-Bonadies and by Basso and on duodenitis, with the exception of duodenal ulcers, by Gasbarrini and by Di Gaetano.

OSLO

(From Our Regular Correspondent)

April 26, 1947.

Methyl Alcohol Poisoning

During the war several outbreaks of methyl alcohol (methanol) poisoning occurred in persons endowed with greater thirst than discrimination in the choice of their drinks. The patients were rushed to hospitals in or near Oslo, where they came under the enterprising observation of Dr. Oluf Röe, a young ophthalmologist. He has just published a 253 page study of the subject, on which he throws light calculated to promote research on new lines. Certain earlier teachings have hinged on experiments on animals, but Röe came to the conclusion that a fundamental difference probably exists between man and beast in this respect. His material consists of 82 patients treated in seven different hospitals. As many as 48 patients suffered from severe acidosis on admission to the hospital, and Röe has found that, whatever the reaction of experimental animals, in human beings at any rate the outcome of methanol poisoning depends entirely on the degree of acidosis. Hence his advocacy of bicarbonate treatment. His studies of the antecedents of his patients have led to the conclusion that ethyl alcohol counteracts methyl alcohol, a low concentration of the former in the blood being sufficient to prevent acidosis even when the concentration of the latter is high. Röe reviews (and dismisses as unconvincing) the hitherto commonly accepted notion that individual predisposition plays an important part in methanol poisoning.

The Prophylaxis of Dental Caries

It was only by chance that your correspondent found and was then intrigued by a communication by Professor G. Toverud on the prophylaxis of dental caries in the *Odontologisk Tidskrift* (1946, No. 3). For here, in only eighteen pages packed with tables and charts, is a comprehensive review of the recent research by Professor Toverud and his staff. Some of this research was started in 1936 and was voluntary; some depended on war conditions and was therefore more or less involuntary. It is suggested that all the research workers in this field should get together and study the behavior of dental caries during World War II—one of the greatest experiments in nutrition in the history of mankind. To those who are tempted to explain dental caries as an easily understood deficiency disease preventable and curable by the dietary of our primitive ancestors, Professor Toverud addresses a timely warning. In his opinion this disease is the outcome of the complex interplay of many factors about which we have still much to learn.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, April 26, 1947.

Active Rheumatic Carditis in Cardiac Failure

Rheumatism is considered in Brazil a relatively minor factor in the etiology of heart lesions, owing to the warm climate and the high incidence of syphilis in the population. Dr. Jairo Ramos, professor at the Paulista School of Medicine, São Paulo, has published a paper on cardiac failure in young patients through the involvement of the myocardium by an active rheumatic process. The report includes the analysis of 400 cases of acute and chronic cardiac rheumatism, among which 89 cases of rheumatic carditis were discovered (22.25 per cent). The criterion for the clinical diagnosis was to consider as rheumatic carditis the cases presenting simultaneously the largest number of signs of active rheumatism, particularly when the age was over 30 years. The age distribution in the 89 cases of active rheumatic carditis was 0-9 years 22 cases, 10-19 years 43, 20-29 years 17, 30-39 years 6, 40-49 years 1. The incidence of active rheumatic carditis within each ten year age group among the 400 cases of cardiac rheumatism varied: 0-9 years 22 out of 33, 10-19 years 43 out of 104, 20-29 years 17 out of 88, 30-39 years 6 out of 88, 40-49 years 1 out of 53, 50-59 years 0 out of 21. According to these figures the highest incidence of active rheumatic carditis occurs in young patients, a fact which is in accordance with the data in the medical literature of Europe and the United States Below 20 years of age more than half the patients with cardiac rheumatism present clinically active rheumatic carditis; above 40 years the condition is practically nonexistent.

Influence of Variation of Cellular Permeability on Immunity

Dr. F. da Rocha Lagoa of the Oswaldo Cruz Institute, Rio de Janeiro, recently completed studies on the influence of the variation of cellular permeability on the organic resistance to infections. He used three groups of substances. The first group comprised substances that increase the permeability—testosterone, acetylcholine and the diffusion factor of staphylococcus as demonstrated by Viale, McClean, Okamoto, Gellhorn and Duran-Reynals. The second group comprised substances that decrease the cellular permeability—atropine, epinephrine and calcium as demonstrated by Okamoto, Gellhorn and Voloskov. The third group was represented by adrenal cortex extract, which maintains without variation the cellular permeability, as recently demonstrated by Rauschschwalbe and by Cicardo. The author used synthetic testosterone propionate, acetylcholine Roche and Eschatin Parke-Davis. To ascertain the resistance to infections, several hundred adult mice were infected with sufficient amounts of Klebsiella pneumoniae, Pseudomonas aeruginosa, Salmonella enteritidis and Diplococcus pneumoniae. Adult rabbits were used for the determination of the production of antibodies (hemolysins, precipitins and agglutinins).

His main conclusions are that cellular permeability plays an important part in the development of infections. Substances that increase the permeability contribute to the development of infections; substances that decrease the permeability have no disclosed influence on the course of infections; substances which contribute to maintain the normal cellular permeability increase the resistance to infections. The substances that have been studied as modifying or not the cellular permeability do not exercise any influence worth mentioning on the formation of hemolysins, agglutinins and precipitins.

Correspondence

FATAL ALLERGIC REACTION DUE TO INFLUENZA VACCINE

To the Editor:—In the article with this title by Dr. Theodore J. Curphey in The Journal, April 12, the death described was, in my opinion, not due to the egg but to sensitivity to the bacteria of the vaccine. Egg allergies in children produce definite skin or other evidences of sensitivities with which parents are familiar and which they delete from their diets. Even a positive skin test would not definitely establish the cause as due to egg, because this patient had been having egg without symptoms.

In favor of bacterial allergy is the history of aspirin sensitivity, which, in my experience, is frequently a concomitant of bacterial sensitivity. I have seen small doses of catarrhal vaccine produce symptoms approaching the description of this fatal case, and for this reason we commence all our vaccine therapy with dilutions. For example, a supervising nurse at one of our allergy clinics was started with a dilution of 1 : 1,000,000, 0.02 cc., because a 1 : 10 dilution originally produced a violent constitutional symptom. A disabled policeman with asthma almost died with symptoms similar to those described in Dr. Curphey's case from a small dose of catarrhal vaccine; he too was sensitive to aspirin.

Although an intracutaneous test for egg sensitivity may throw some light on a case within twenty minutes, bacterial allergy cannot be diagnosed by skin tests alone.

The answer to the problem may be eased by not giving influenza vaccine *in one dose. Three or more ascending doses* are advisable; if there is a history of aspirin sensitivity the vaccine should not be used, but if it appears necessary epinephrine hydrochloride 1 : 1,000 should be injected twenty minutes before and an ephedrine phenobarbital combination should be given every four hours after the injection for at least three days (Serum Administration and Allergy, Queries and Minor Notes, The Journal, May 20, 1944, p. 238).

David Louis Engelsher, M D., New York.

ECLAMPSIA

To the Editor:—In connection with the "Contribution to the Study of Eclampsia" by Whitacre, Loeb and Chin in The Journal, February 15, may I draw your attention to the publication "Protein Depletion in Pregnancy Toxemia" in the *Western Journal of Surgery, Obstetric and Gynecology* (**54:** 392 [Oct.] 1946). The main sequence in eclampsia is (1) fetal demand for maternal protein, aggravated by inadequate protein intake, (2) hypoalbuminemia, (3) hypoproteinemic cerebral edema, (4) increased intracranial pressure and (5) elevation of blood pressure. There are many side effects complicating the picture. Changes in the kidneys are secondary and may be partly responsible for the high blood pressure. The important cause of the elevation of blood pressure in eclampsia is the increase in intracranial pressure. Hypoalbuminemia is a constant finding in pregnancy toxemia.

H. Spitzer, M.D , Curaçao, NWI.

HEPATIC IMPAIRMENT

To the Editor:—A number of questions arise when one reads the article by Mateer and his associates on hepatic impairment in The Journal, March 29. Their use of screening liver function tests in over 300 healthy individuals resulted in designating about 20 per cent as cases of "subclinical liver impairment." In the absence of exposure to known toxins or infectious agents this percentage appears high. Assuming that this group contains no false positives, what proportion may be expected to emerge as clinical hepatopathies? Has a control group of patients positive to liver function tests who have not had a therapeutic test been followed? What percentage of these show subsequent negative function tests?

On the other hand, in the presence of so many false negatives both in clinical and in subclinical liver disease, may not many so-called subclinical cases be false positives? The intangibles involved in studying a subclinical disease entity must be tremendous, especially when utilizing laboratory tests whose exact mechanisms are not well understood.

Sidney Cohen, M.D.,
Wadsworth General Hospital,
Los Angeles.

TRANSFUSION MALARIA

To the Editor:—I was interested in reading the letter from Dr. Coggeshall on the danger of transfusion malaria which appeared in the April 19 issue of The Journal. It is well known, of course, that there is a risk of malaria developing in the recipient when blood is used from a donor who has had malaria within the past few or several years, even though the blood may have been stored in a blood bank for a period of days. However, I believe one should not overemphasize the danger of transfusion malaria, because it is easily controlled, and one should not hesitate to use, in the face of an emergency, a donor who has had malaria even recently. In such a case, either the donor or the recipient should be treated with atabrine or chloroquin, which would most certainly prevent the development of malaria in the recipient. Furthermore, transfusion malaria, being trophozoite induced, does not give rise to "exoerythrocytic forms." Hence, relapses do not occur.

George M. Saunders, M.D., St. Louis.
Assistant Professor of Preventive Medicine, Washington University School of Medicine.

"MUMPSIMUS"

To the Editor:—I noticed that in The Journal, Dec. 14, 1946, you commented on John Forbes's article Myth and Mumpsimus and gave a meaningless explanation (though correct) of the derivation of mumpsimus.

To give the person, tense and mood of the verb *sumo,* from which sumpsimus was corrupted, gives no clue to the meaning whatsoever.

The explanation is that an illiterate English priest, when corrected for reading "Quod in ore mumpsimus" in The Mass, replied "I will not change my old mumpsimus for your new sumpsimus." This story originally came out in R. Pace De Fructu 1517, page 80—but maybe you have not had access to this reference. You can check this in the New English Dictionary or Ivor Brown's book "Just Another Word."

Richard Asher, M.D., M.R.C.P.
2, Seaford Court,
Great Portland Street,
London, W. 1., England.

DISSOLUTION OF TEETH BY LEMON JUICE

To the Editor:—The editorial comment on "Dissolution of Substance of Teeth by Lemon Juice" in the March 19 issue of The Journal is of great interest. However, it should be noted that this observation was first made by S. C. Miller of New York University College of Dentistry in 1935 and commented on in an editorial in *Dental Items of Interest* in October 1935. It is also discussed in Dr. Miller's Oral Diagnosis and Treatment (Philadelphia, Blakiston Company, 1936, p. 263; 1946, p. 367) and his Textbook of Periodontia (1938, p. 433; 1943, p. 61).

Morris Warren, D.D.S., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, May 24, page 395

BOARDS OF MEDICAL EXAMINERS

ALABAMA Montgomery, June 24 26 Sec, Dr D G Gill, 519 Dexter Ave, Montgomery 4

ARIZONA * *Examination* Phoenix, July 1 2 Sec, Dr J H Patterson, 826 Security Bldg, Phoenix

ARKANSAS * *Medical Examination* June 5 6 Sec, Medical Board of the Arkansas Medical Society, Dr L J Kosminsky, Texarkana *Eclectic* Little Rock June 5 Sec Dr C H Young 1415 Main St Little Rock

CALIFORNIA *Written* San Francisco July 7 10 *Oral* San Francisco, July 19 20 *Oral Clinical Examination for Foreign Medical Graduates* San Francisco June 21 Sec, Dr Frederick N Scatena 1020 N St, Sacramento 14

COLORADO * Denver, July 18 Final date for filing application is June 15 Sec, Dr J B Davis, 831 Republic Bldg, Denver

CONNECTICUT *Examination* Hartford, July 8 9 Sec, Dr Creighton Barker, 258 Church St, New Haven *Homeopathic* Derby July 8 Sec, Dr Joseph H Evans, 1488 Chapel St, New Haven

DELAWARE *Examination* Dover, July 8 10 *Endorsement* Dover, July 15 Sec Medical Council of Delaware, Dr J S McDaniel, 229 S State St, Dover

DISTRICT OF COLUMBIA * *Reciprocity* Washington June 9 Sec Commission on Licensure, Dr George C Ruhland 6012 E Municipal Bldg, Washington 1

FLORIDA * *Examination* Jacksonville, June 24 25 Sec, Dr Harold D Van Schaick 2736 S W Seventh Ave, Miami 36

GEORGIA Atlanta, Oct 14 16 Sec, Mr R C Coleman, 111 State Capitol Atlanta 3

HAWAII *Examination* Honolulu, July 8 11 Sec, Dr S E Doolittle, 881 S Hotel St, Honolulu 53

IDAHO Boise, July 14 16 Sec, Bureau of Occupational Licenses, Dr S M Poindexter Eastman Bldg Boise

ILLINOIS Chicago, June 24 26 Sec, Mr Philip M Harman Supt of Registration, State House, Springfield

INDIANA *Examination* Indianapolis, June 17 19 Exec Sec, Board of Medical Registration and Examination, Miss Ruth V Kirk, 416 K of P Bldg, Indianapolis

KANSAS *Endorsement* Kansas City, June 26 Sec, Board of Medical Registration and Examination Dr J F Hassig, 905 N Seventh St, Kansas City 10

KENTUCKY *Examination* Louisville Sept 22 24 Sec State Board of Health, Dr P E Blackerby, 620 S Third St, Louisville 2

MAINE Augusta July 1 2 Sec, Board of Registration in Medicine, Dr Adam P Leighton, 192 State St, Portland

MARYLAND *Medical Examination* Baltimore, June 17 20 Sec Dr E H Kloman 1215 Cathedral St, Baltimore *Homeopathic* Baltimore, June 10 11 Sec, Dr J A Evans, 612 W 40th St, Baltimore

MASSACHUSETTS *Examination* Boston, July 8 11 Sec, Board of Registration in Medicine, Dr H Q Gallupe 413 E State House Boston

MICHIGAN * *Examination* Detroit June 9 11 Semi Annual meeting Lansing, June 24 Sec, Board of Registration in Medicine Dr J E McIntyre, 100 W Allegan St, Lansing 8

MINNESOTA * *Examination* Minneapolis, June 17 19 Sec, Dr J F DuBois, 230 Lowry Medical Arts Bldg St Paul 2

MISSISSIPPI Jackson, June 23 24 Asst Sec State Board of Health, Dr R N Whitfield, Jackson 113

MISSOURI *Examination* St Louis June 9 11 Exec Sec Mr John A Hailey, Box 4, State Capitol Building Jefferson City

MONTANA Helena, Oct 6 8 Sec, Dr Otto G Klein 302 N Main St, Helena

NEBRASKA * *Examination* Omaha June Dir, Bureau of Examining Boards Mr Oscar F Humble, State Capitol Bldg, Lincoln

NEW HAMPSHIRE *Examination* Concord, Sept 11 12 Sec Board of Registration in Medicine, Dr John S Wheeler, 107 State House, Concord

NEW JERSEY *Examination* Trenton June 17 18 Sec, Dr E S Hallinger, 28 W State St, Trenton

NEW YORK *Examination* Albany Buffalo, New York and Syracuse, June 23 26 Sec, Dr Jacob L Lochner Jr State Education Bldg, Albany

NORTH CAROLINA *Endorsement* Raleigh June 24 *Examination* Raleigh, June 23 26 Acting Sec, Mrs L McNeill, 226 Hillsboro St, Raleigh

NORTH DAKOTA Grand Forks, July 1 4 Sec Dr G M Williamson, 4½ S Third St Grand Forks

OHIO *Examination* Columbus, June 17 20 Sec Dr H M Platter, 21 W Broad St Columbus

OKLAHOMA * Oklahoma City, June 3 4 Sec, Dr Frank Clinton Gallaher, 813 Braniff Bldg Oklahoma City

PENNSYLVANIA *Examination* Philadelphia and Pittsburgh, July 8 11 Final date for filing application is June 10 Acting Sec Bureau of Professional Licensing Department of Public Instruction, Mrs M G Steiner, 351 Education Bldg, Harrisburg

RHODE ISLAND * *Examination* Providence, June 19 20 Chief Division of Professional Regulation, Mr Thomas B Casey, 366 State Office Bldg, Providence

SOUTH CAROLINA Columbia, June 23 25 Sec, Dr N B Heyward, 1329 Blanding St, Columbia

SOUTH DAKOTA * Pierre, July 15 16 Sec, Medical Licensure, State Board of Health Dr Gilbert Cottam Capitol Bldg, Pierre

TENNESSEE * Memphis and Nashville June 11 12 Sec Dr Harley W Qualls, 1635 Exchange Bldg, 130 Madison Ave, Memphis 3

TEXAS Austin, June 5 7 Sec, Dr. T J Crowe, 918 20 Texas Bank Building, Dallas 2

UTAH Examinations are held in June of every year Asst Dir, Department of Registration, Miss Rena B Loomis, 324 State Capitol Bldg, Salt Lake City 1

VIRGINIA Richmond, June 18 21 Sec, Dr K D Graves 306 Medical Arts Bldg, 30½ Franklin Rd, Roanoke

WEST VIRGINIA *Examination* Charleston, June 30 July 1 2 Commissioner, Public Health Council, Dr Newman H Dyer, State Capitol, Charleston 5

WYOMING *Examination* Cheyenne, June 2 Sec, Dr G M Anderson Capitol Bldg, Cheyenne

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* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA June 17 Sec, Mr Francis A Roy, Science Hall University of Arizona, Tucson

CONNECTICUT June 14 Exec Asst State Board of Healing Arts Mr W G Reynolds, 250 Church St New Haven 10

DISTRICT OF COLUMBIA *Examination* Washington Oct 20-21 Sec Commission on Licensure, Dr G C Ruhland, 6012 E Municipal Bldg Washington

IOWA Des Moines, July 8 Sec, Dr Ben H Peterson Coe College Cedar Rapids

MINNESOTA Minneapolis, June 3 4 Sec, Dr Raymond N Bieter 105 Millard Hall, University of Minnesota Minneapolis 14

SOUTH DAKOTA Vermillion, June 6 7 Sec, Dr G M Evans 310 E 15th St, Yankton

TENNESSEE *Examination* Nashville and Memphis June 13 14 Sec Dr O W Hyman, 874 Union Ave, Memphis

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dentists: Extraction of Sixteen Teeth Not Necessarily Negligence.—The plaintiff sued for damages for the death of her husband allegedly caused by the negligence of the defendant dentist From a judgment of no cause of action, the plaintiff appealed to the Supreme Court of Michigan

The plaintiff's husband went to the office of the defendant dentist for the purpose of having sixteen upper teeth extracted Twenty minutes later he was dead, after having been administered gas as an anesthetic At the trial the defendant was not asked, nor did he state, how many teeth were actually extracted or how the death occurred A physician testified that he had examined the deceased's heart not long before and found it normal In this physician's opinion, the greater the number of teeth extracted, the greater the shock to the system, but in answer to a hypothetical question he said that the death could have resulted from any one of a number of causes

Considering the evidence in the light most favorable to the plaintiff, can it be said that the deceased's death resulted from the surgical shock following the extraction of sixteen teeth or from the improper administration of gas, asked the court? In a prior Michigan case (*Voss v Adams,* 271 Mich 203, 259 N W 889) there was testimony to the effect that, according to local standards, it was not proper practice to extract more than eight teeth at one sitting because of the increased danger of surgical shock and the increased infection let loose in the system In the instant case, said the court, there was no testimony in the record as to the standard practice in the locality and no showing of the cause of death The mere proof that sixteen teeth had been extracted at one sitting in the absence of testimony showing that this was not the usual and ordinary practice of dentists in the locality, is not, in and of itself, sufficient to establish negligence, added the court Plaintiff had the burden of showing that her husband's death was brought about by the defendant's failure to exercise the reasonable and ordinary care, skill and diligence possessed by others in the same line of practice and work in similar localities We are compelled, concluded the Supreme Court, to agree with the trial judge that the plaintiff failed to establish negligence on the part of the defendant Accordingly the judgment in favor of the defendant was affirmed—*Nemec v Green, 25 N W (2d) 20 (Mich, 1946)*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

33:1-134 (Jan.) 1947

Electrocardiographic Studies in Rheumatic Heart Disease with Reference to Interpretation of Multiple Unipolar Precordial Leads. S. R. First, A. W. Stickle and R. H. Bayley.—p. 1.
Duration of Electrical Systole (QT) in Acute Rheumatic Carditis in Children. L. M. Taran and Nelly Szilagyi.—p. 14.
Electrocardiographic Changes Associated with Methyl Alcohol Poisoning. A. S. Weisberger and J. A. MacLaughlin.—p. 27.
Atrionodal Rhythm with Ventricular Bigeminy: Report of Case with Unusual Mechanism. J. S. Perelman and R. Miller.—p. 34.
New Sensitive Portable Plethysmograph. G. E. Burch.—p. 48.
*Fatal Coronary Artery Disease in Young Men. W. D. Poe.—p. 76.
Effect of Sulfonamide Administration on Cardiac Function in Dog. Roberta Hafkesbring and Grace E. Wertenberger.—p. 84.
*Effect on Heart of Overdose of Epinephrine: Report of Case. A. P. McGinty and L. S. Baer.—p. 102.
*Case of Large Overdose of Epinephrine. O. Horwitz.—p. 107.
*Congenital Complete Heart Block Diagnosed in Utero with Sound Tracings and Simultaneous Electrocardiograph of the Mother. F. C. Jordan and H. Randolph.—p. 109.
Arteriosclerotic Aneurysm of Cardiac Coronary Arteries: Report of Case. N. Mitchell.—p. 112.
Congestive Heart Failure and Death in Case of Paroxysmal Auricular Tachycardia: Case Report. R. P. Grant.—p. 121.

Fatal Coronary Artery Disease in Young Men.—Coronary artery disease is not generally believed to be a frequent cause of death below the age of 40. Nine instances reported by Poe from the records of one army hospital comprised 7.4 per cent of all necropsies, a total of 121, performed on men between the ages of 18 and 40 years who died of natural causes. Few of these 9 young men gave evidence of having had symptoms of coronary disease before the fatal episode. Death was sudden and unheralded. Most of the 9 young men were of average or below average height. The weight of the heart did not reflect the seriousness of the cardiac condition. Slight to moderate enlargement of the liver may have been related to the heart disease. Evidence of old myocardial injury was frequent. Evidence of fresh infarction is rare in young men dying of coronary artery disease.

Effect of Overdose of Epinephrine.—McGinty and Baer report observations on a naval aviator who was inadvertently given an intramuscular injection of 5 cc. of a 1 : 1,000 solution of epinephrine hydrochloride. The arrhythmia noted in the first thirty minutes could have been due to frequent extrasystoles or to transient ventricular fibrillation. The precordial distress, the transient elevation of temperature, the increase of sedimentation rate and the prolonged electrocardiographic changes could have been due to actual infarction of the myocardium. The evidence in this case indicates that epinephrine in large doses causes relative coronary insufficiency in the normal adult.

Large Overdose of Epinephrine.—Horwitz observed a patient with urticaria who was given by mistake an intramuscular injection of 7 cc. of a 1 : 1,000 solution of epinephrine. There were no alarming immediate or late effects. There was no excessive perspiration and no cardiac arrhythmia other than a mild tachycardia. The highest blood pressure recorded was 220/96. The pulse rate reached 128 per minute. The epinephrine must have caused considerable angiospasm at the site of injection, thereby allowing itself to be absorbed slowly by the systemic circulation.

Congenital Heart Block Diagnosed in Utero.—Jordan and Randolph report that, because the fetal heart sounds five weeks before term were extremely slow, it was thought that the life of the fetus was in danger; but after observation for several hours with no change in the heart rate no attempt was made to induce labor. During the subsequent ten days the fetal heart rate was always between 40 and 46 per minute. Sound tracings of the fetal heart were made simultaneously with the maternal electrocardiogram. The mother was delivered at the beginning of the ninth month. The baby was an apparently healthy infant weighing 5 pounds 12 ounces (2,608 Gm.). Since birth the infant has presented a difficult feeding problem. Regurgitation of food is still frequent, yet fairly normal growth has taken place.

American Practitioner, Philadelphia

1:285-342 (Feb.) 1947

Diagnosis and Management of Acute Arthritis. W. D. Robinson.—p. 285.
Myocarditis in Infectious Diseases. I. Gore.—p. 292.
Present Status of Electroshock Therapy. M. Kleinerman.—p. 299.
Clinical Analysis of 550 Cases of Bacterial Meningitis: Diagnostic Features and Various Methods of Treatment. P. S. Rhoads.—p. 305.
Gastrointestinal Allergy. R. Chobot.—p. 315.
Renal Complications in Children Receiving Sulfonamide Drugs. H. B. Hutt.—p. 317.

American Review of Tuberculosis, New York

54:465-620 (Dec.) 1946

Heart Disease in Case Finding Program. H. F. West.—p. 465.
Cancer and Pulmonary Tuberculosis: Diagnostic Problems in Patients with Cancer of Lung in Presence of Pulmonary Tuberculosis. B. Gerstl, F. C. Warring Jr. and K. S. Howlett Jr.—p. 470.
*Cytology of Bronchial Secretions: Diagnostic Aid in Diagnosis of Pulmonary Tuberculosis. P. A. Herbut and L. H. Clerf.—p. 488.
Pneumothorax Fluid: Its Management by Systematic Aspiration. K. S. Howlett Jr. and H. L. Ehrenkrantz.—p. 495.
Cholesterol Pleural Effusion. L. C. Evander.—p. 504.
Extrapleural Pneumothorax in Silicotuberculosis. H. M. Maier and A. Hurst.—p. 509.
Tuberculosis—A Labor Problem. L. Price.—p. 512.
Mass Miniature Radiography: Survey in United States Army Air Forces. E. Wayburn.—p. 527.
Serial Tuberculin Tests and Stability of Tuberculin Reaction. Ruth R. Puffer, H. C. Stewart, R. S. Gass and E. F. Harrison.—p. 541.
*Certain Effects of Streptomycin in Mycobacteria in Vitro. G. Middlebrook and D. Yegian.—p. 553.
Synthesis of B Complex Vitamins by Tubercle Bacilli When Grown on Synthetic Media. Hilda Pope and D. T. Smith.—p. 559.
Relationship of Acquired Resistance, Allergy, Antibodies and Tissue Reactivities to Components of Tubercle Bacillus. S. Raffel.—p. 564.
Respiratory Patterns in Pulmonary Tuberculosis. M. N. Rao and L. Silverman.—p. 574.

Cytology of Bronchial Secretions in Pulmonary Tuberculosis.—Herbut and Clerf state that a presumptive diagnosis of pulmonary tuberculosis can be made from a cytologic study of smears made of bronchoscopically removed secretions and stained by the Papanicolaou technic. Rounded clusters of ciliated epithelial cells, single ballooned and vacuolated ciliated epithelial cells and giant cells of the Langhans type are of importance in the diagnosis of tuberculosis. The author describes the technic employed in preparing the smears and presents cases in which this procedure proved helpful. The method is of particular value in differentiating pulmonary tuberculosis from carcinoma in patients in whom the lesions are atypically situated, in whom there is little constitutional disturbance and in whom repeated examination of sputum fails to reveal tubercle bacilli.

Effects of Streptomycin on Mycobacteria in Vitro.—Middlebrook and Yegian describe the composition and preparation of the "Tween 80" medium, which is a liquid synthetic medium in which mycobacteria grow more rapidly and more diffusely than in the conventional mediums. Freshly isolated tubercle bacilli from patients with pulmonary tuberculosis appear to have a uniform susceptibility to streptomycin in vitro. Exposure of tubercle bacilli to streptomycin in relatively low concentration in vitro inhibits subsequent multiplication of multiplying but not of nonmultiplying tubercle bacilli when they are transferred to medium free of streptomycin. All mycobacteria thus far tested develop resistance to streptomycin in vitro at a rapid rate. Resistance to streptomycin persists for at least four months and appears not to be paralleled by diminution in virulence for guinea pigs. The acquisition of resistance of mycobacteria to streptomycin is independent of their acquisition of resistance to a sulfonamide (or a sulfonamide-like agent), and the development of resistance to these drugs is retarded when mycobacteria are exposed to the two types of agents simultaneously.

Annals of Internal Medicine, Lancaster, Pa.

26:191-340 (Feb.) 1947

Medicine in European Theater of Operations. W. S. Middleton.—p. 191.
Scrub Typhus in Dutch New Guinea. E. N. Irons and H. E. Armstrong.—p. 201.
*Treatment of Acute Bacterial Endocarditis with Penicillin. Freda Wilhelm, H. L. Hirsh, H. H. Hussey and H. F. Dowling.—p. 221.
*Cardiac Arrhythmias Complicating Total Pneumonectomy. E. Massie and A. R. Valle.—p. 231.
Rheumatoid Spondylitis: Study of 1,035 Cases. H. F. Polley and C. H. Slocumb.—p. 240.
*Trichinosis: Report of Epidemic. F. H. Hathaway and L. Blaney.—p. 250.
*Pleuropulmonary Tularemia: Observations on 12 Cases Treated with Streptomycin. J. S. Hunt.—p. 263.

Penicillin in Acute Bacterial Endocarditis.—Eight patients who had acute bacterial endocarditis were treated by Wilhelm and her associates with penicillin. Five patients died, the diagnosis being confirmed by necropsy. The clinical course of the 3 patients who recovered satisfied the criteria established for the diagnosis of this disease. The 3 patients who recovered had staphylococcic endocarditis, while of the 5 who died 4 had staphylococcic and 1 had pneumococcic endocarditis. The only hope in this disease lies in early diagnosis and vigorous treatment. Of the 5 patients who died, 4 probably were inadequately treated. The diagnosis was established late in the course of the disease in 3 of these patients, so that penicillin had been administered for two days or less before death. Whenever possible, the sensitivity of the causative organism should be determined and the dose of penicillin established accordingly. If the sensitivity of the organism to penicillin has not been determined, doses of 500,000 units per day should be given.

Cardiac Arrhythmias Complicating Pneumonectomy.—In an analysis of 120 patients undergoing total lung resection, Massie and Valle found that 11 developed arrhythmia of sufficient severity to have endangered the outcome of the operation or at least to have caused symptomatic difficulty. The arrhythmias included 5 instances of auricular fibrillation, 4 of auricular flutter and 1 each of frequent auricular and ventricular extrasystoles. The reason for the high incidence of arrhythmias following pneumonectomy could not be definitely determined. It is suggested that anoxemia and vagal stimulation may act synergistically in the production of these abnormal cardiac rhythms. Constant observation must be maintained for early recognition of the occurrence of abnormal cardiac rhythms. Treatment should be directed primarily to the attainment of prompt restoration of a normal sinus rhythm, and this result may be most often accomplished by rapid intravenous digitalization.

Epidemic of Trichinosis.—Hathaway and Blaney studied an epidemic of trichinosis among 587 German prisoners of war. Eighty-three were observed in the hospital; 437 who were not hospitalized had blood smears taken approximately one week after the last improperly prepared meal. The presence of eosinophilia in a high percentage of the men not hospitalized suggested the presence of trichinosis in a mild or subclinical form in 100 men. The exact date the trichinous meat was served cannot be determined, but sausage had been generally served uncooked. The typical clinical picture was characterized by a sudden onset of chilliness, fever, malaise and frontal headache. Associated with these complaints or occurring shortly afterward there was puffiness of the eyelids, which generally lasted three to five days. In most instances muscle pain, or muscle pain with tenderness, occurred a few days later but had disappeared or diminished considerably at the time of discharge. The average hospital stay was twenty-six days. The most significant laboratory finding was eosinophilia, which ranged as high as 61 per cent. The fact that this epidemic resulted after the ingestion of meat from reliable packers indicates that all pork products, regardless of the source, are potentially dangerous from the standpoint of trichinosis if served improperly cooked.

Pleuropulmonary Tularemia.—Hunt says that, during the period of the study of streptomycin therapy conducted in Nashville hospitals from April to September 1946, 15 cases of pleuropulmonary tularemia were encountered. Twelve of these patients were treated with streptomycin. The patients showed a prompt clinical response to small doses of the antibiotic. The rapid disappearance of Pasteurella tularensis from the sputum or pleural fluid, as determined by animal inoculation, indicated that the organism was rapidly killed in the tissues. The regression of pulmonic lesions and the healing of primary ulcers were believed to have been accelerated by streptomycin treatment but required a longer time interval than did clinical recovery. All the patients presented a rise in serum agglutinin titer after treatment. This increase in the serum agglutinin level may have resulted from the antigenic stimulus provided by the destruction of large numbers of organisms. Because of the diagnostic difficulties presented by many cases of tularemic pneumonia and the prompt response of tularemia to streptomycin therapy, the value of a therapeutic trial with this antibiotic in severe pneumonia of undetermined origin in areas in which tularemia is endemic is apparent.

Journal of Allergy, St. Louis

17:329-418 (Nov.) 1946

Studies in Food Allergy: V. Antigenic Relationship Among Members of Fish Family. L. Tuft and G. I. Blumstein, with technical assistance of V. M. Heck.—p. 329.
Measurement of Circulating Ragweed Antibodies and Antigen: Correlation with Symptoms and Treatment. H. L. Alexander, M. C. Johnson and J. H. Alexander.—p. 340.
Treatment of Residual Lymphoid Tissue in Nasopharynx by Radium. L. N. Gay.—p. 348.
Treatment of Intractable Asthma. A. L. Barach.—p. 352.
General Adaptation Syndrome and Diseases of Adaptation. H. Selye.—p. 358.

Journal of Immunology, Baltimore

55:103-204 (Feb.) 1947

Complement Fixation Test in Yellow Fever Epidemiology: Use of Globulin Antigen in Immunity Surveys. A. Perlowagora and T. P. Hughes.—p. 103.
Further Experimental Studies on Role of Plasma Cells as Antibody Producers. M. Bjørneboe, H. Gormsen and F. Lundquist.—p. 121.
Specific Antigen Recovered from Tissue Infected with M. Paratuberculosis (Johne's Bacillus): III. Further Studies on Nature of Antigen and on Methods for Demasking It. B. Sigurdsson.—p. 131.
Transition Forms of Blood Groups. L. Hirszfeld.—p. 141.
Antigenic Specificity of Syphilitic Antibody Globulin. S. D. Henriksen.—p. 153.
Relationship of Sulfhydryl and Disulfide Groups to Antigenic Power of Bovine Serum Albumin. R. R. Williams.—p. 161.
Complement and Opsonic Activities of Fresh Human Serums. E. E. Ecker and G. Lopez-Castro.—p. 169.
Detoxification of Crystalline Botulinum Type A Toxin. G. A. Hottle and A. Abrams.—p. 183.
Further Study of Quantitative Complement Fixation Test as Applied to Serum Diagnosis of Typhus Fever. Florence M. Varley and F. R. Weedon.—p. 189.
Specific Complement Fixing Diagnostic Antigens for Neurotropic Viral Diseases. C. J. DeBoer and H. R. Cox.—p. 193.

Journal of Infectious Diseases, Chicago

80:1-120 (Jan.-Feb.) 1947

Studies on Infection with Bacillus Anthracis: I. Histopathologic Study of Skin Lesions Produced by B. Anthracis in Susceptible and Resistant Animal Species. W. J. Cromartie, W. L. Bloom and D. W. Watson.—p. 1.
Id.: II. Immunologic and Tissue Damaging Properties of Extracts Prepared from Lesions of B. Anthracis Infection. W. J. Cromartie, D. W. Watson, W. L. Bloom and R. J. Heckly.—p. 14.
Id.: III. Chemical and Immunologic Properties of Protective Antigen in Crude Extracts of Skin Lesions of B. Anthracis. D. W. Watson, W. J. Cromartie, W. L. Bloom, G. Kegeles and R. J. Heckly.—p. 28.
Id.: IV. Preparation and Characterization of Anthracidal Substance from Various Animal Tissues. W. L. Bloom, D. W. Watson, W. J. Cromartie and M. Freed.—p. 41.
Studies on Bovine and Human Leptospirosis. H. Bernkopf, L. Olitzki and L. A. Stuczynski.—p. 53.
Laboratory Infection with Psittacosis Virus Treated with Penicillin and Sulfadiazine, and Experimental Data Bearing on Mode of Infection. T. Rosebury, H. V. Ellingson and G. Meiklejohn, with assistance of F. Schabel.—p. 64.
Asexual Reproduction of Plasmodium Cynomolgi in Rhesus Monkeys. W. H. Taliaferro and Lucy Graves Taliaferro.—p. 78.
Study of Aerobic Streptococci Isolated from Uterus and Vagina. K. Eileen Hite and H. C. Hesseltine.—p. 105.
*Typhoid Fever in Vaccinated Laboratory Workers. T. A. Haedicke.—p. 113.
Further Evaluation of Skin Test for Filariasis in Man, Based on Results Obtained in British Guiana. D. R. A. Wharton.—p. 117.

Typhoid in Laboratory Workers.—Of the 4 patients studied by Haedicke 2 acquired the disease while working in the typhoid vaccine laboratory at the Army Medical School. These 2 patients worked with material containing 35 billion typhoid bacilli per cubic centimeter. The other 2 patients acquired their infection in the typhoid research division of the Army Medical School. There was no accident to which these infections could be attributed. These patients had all received at least one complete series of typhoid vaccine prior to the onset of their illness. No relationship was found to exist between the date of the last immunization and the date of onset of the disease. The interval varied from twenty-eight days to eleven months. The diagnosis was difficult in all cases because of the absence of the usual signs and symptoms. The clinical course was less severe than that usually seen in persons who have not been vaccinated. All patients were only mildly ill. The average length of time during which the temperature was elevated was five and a half weeks. There were no complications.

Journal-Lancet, Minneapolis

47:47-82 (Feb.) 1947

Progress in Antibiotic Therapy. C. S. Keefer.—p. 50.
Progress in Allergy Therapy. S. M. Feinberg.—p. 52.
Progress in Fungous Disease Therapy. L. Schwartz.—p. 56.
Progress in Rickettsial Disease Therapy, with Special Reference to Para-Aminobenzoic Acid. A. Yeomans.—p. 60.
General Medical Aspects of Atomic Energy. F. H. Krusen.—p. 64.
Nuclear Physics and Medical Research. G. Failla.—p. 68.
Physiologic Reaction to Radioactive Isotopes. S. Warren.—p. 69.

47:83-124 (March) 1947

Common Dermatologic Diseases. M. G. Fredericks.—p. 83.
Orientation in Gynecologic Uterine Bleeding. C. E. McLennan.—p. 90.
Roentgenographic Aids in Carpal Scaphoid Fractures. R. E. Van Demark.—p. 94.
Few Essentials in Prescribing Physical Medicine in General Practice. E. C. Elkins.—p. 97.
Psychosomatic Diagnosis. G. R. Kamman.—p. 102.

Journal of Thoracic Surgery, St. Louis

16:1-98 (Feb.) 1947

Surgical Thoracic Tumors in Navy Personnel. W. L. Watson and H. D. Diamond.—p. 1.
Chest Tumor Registry. J. E. Ash.—p. 12.
Report of 196 Lobectomies Performed at Kennedy General Hospital Chest Surgical Center from 1943 to 1946 with One Death. R. H. Meade Jr., E. B. Kay and F. A. Hughes.—p. 16.
*Follow-Up of Cardiopulmonary Function in Four Young Individuals After Pneumonectomy. A. Cournand, A. Himmelstein, R. L. Riley and C. W. Lester.—p. 30.
Use of Curare in Anesthesia for Thoracic Surgery. H. B. Stephens, P. Harroun and F. E. Beckert.—p. 50.
*Surgical Treatment of Myasthenia Gravis. O. Theron Clagett and L. M. Eaton.—p. 62.
Aerosol Penicillin as Therapeutic Adjunct in Preparation of Patients with Suppuration of Lung for Pulmonary Resection. C. W. Findlay Jr. and R. H. Sweet.—p. 81.
Anesthesia for Thoracic Surgery in United States Army. L. H. Mousel.—p. 91.

Cardiopulmonary Function After Pneumonectomy.—Cournand and his co-workers followed through the period of growth the cardiopulmonary function of 4 patients who had undergone pneumonectomy during childhood or early adolescence. They studied at regular intervals the lung volumes, the ventilatory efficiency of the chest bellows, the efficiency of alveolar ventilation and the state of respiratory gas exchange in the lung and in the arterial blood at rest and during exercise. The right ventricular pressures and the pulmonary blood flow were measured in 3 of the 4 subjects. In 2 patients who developed moderate pulmonary distention the only significant observations were a reduction in breathing reserve and severe oxygen unsaturation in the arterial blood during strenuous exercise. The moderate degree of pulmonary distention, which increased slightly in 1 subject during growth of the lung, has not progressed during the last three years. One subject without pulmonary distention had the same performance as a normal person. No significant hypertension has developed in the lesser circulation.

Surgical Treatment of Myasthenia Gravis.—This report by Clagett and Eaton of the Mayo Clinic is based on a series of 32 patients with myasthenia gravis who have been followed for six or more months since operation on the thymus gland. The entire series consisted of 191 patients, 159 of whom were not operated on. In 15 of the 32 cases thymic tumors were found at operation. In all but 1 of the remaining 17 a good sized thymus gland was found and removed. The authors believe that the results to date warrant thymic exploration in all cases of myasthenia gravis in which the disease is severe or progressive and in which the condition will permit surgery. The sternum splitting approach offers the best exposure in most instances.

Kentucky Medical Journal, Bowling Green

45:1-30 (Jan.) 1947

Medical Management of Hypertension. W. B. Troutman.—p. 7.
Fundus Changes in Hypertension. H. A. Pfingst.—p. 9.
Surgical Treatment of Hypertension. E. G. Grantham.—p. 10.
Streptomycin in Treatment of Urinary Tract Infections. W. V. Pierce.—p. 17.
Evaluation of Present Day Treatment of Cancer of Stomach. C. C. Johnston.—p. 21.

45:31-56 (Feb.) 1947

Pathogenesis and Treatment of Essential Hypertension. R. C. Blount.—p. 34.
What Does Prostigmine Offer to Victims of Cerebral Palsy? T. M. Marks.—p. 40.

Symposium on Fluid Balance as a Pediatric Problem

Effect of Diarrhea on Water Balance in Infants and Children. J. W. Bruce.—p. 43.
Effect of Vomiting on Water Balance in Infants and Children. W. S. Ogden.—p. 45.
Clinical Physiology of Water Balance in Infants and Children. H. Lawson.—p. 47.

Medicine, Baltimore

26:1-114 (Feb.) 1947

Tropical Deterioration and Nutrition: Clinical and Biochemical Observations on Troops. R. M. Kark, H. F. Aiton, E. D. Pease and others.—p. 1.
Neurologic Conditions Resulting from Prolonged and Severe Dietary Restriction: Case Reports in Prisoners of War, and General Review. D. Denny-Brown.—p. 41.

Minnesota Medicine, St. Paul

30:121-224 (Feb.) 1947

Use of Insulin Mixtures. R. G. Sprague and L. O. Underdahl.—p. 153.
Present Southern Minnesota Medical Association: Its Antecedents, Purposes and Character. C. B. McKaig.—p. 157.
*Glomus Tumors: Report of 2 Cases. H. W. Meyerding and J. H. Varney.—p. 159.
Chronic Mastoiditis with Cholesteatoma and Stenosis of External Auditory Meatus: Report of 2 Cases. H. I. Lillie and J. B. McBean.—p. 161.
Further Observations on Prognosis in Angina Pectoris Due to Coronary Sclerosis: Study of 405 Patients Who Survived Ten or More Years. G. E. Montgomery Jr., T. J. Dry and R. P. Gage.—p. 162.
Polyneuritis: Differentiation of Infectious Polyneuritis (Guillain-Barré Syndrome) and the Neuritis of Porphyria. C. L. Yeager.—p. 166.
Industrial Integration. A. E. Ritt.—p. 174.

Glomus Tumors.—Meyerding and Varney point out that glomus enlargements, or arteriovenous shunts, occur normally in skin and subcutaneous tissue. They occur most frequently in the finger tips. With increased growth of these tumors they become excruciatingly painful. They are usually located under the nail. Because of their rarity they may remain unrecognized for years. The authors have operated on 2 patients who had glomus tumors of nine and sixteen years' duration respectively. In each case there was a complete relief of symptoms. Early diagnosis and eradication are dependent on the recognition of the lesion by the general practitioner.

Missouri State Medical Assn. Journal, St. Louis

44:163-240 (March) 1947

*Dissolution of Staghorn Calculus in Kidney Pelvis by Intermittent Irrigation with Solution G. J. J. Cordonnier.—p. 179.
Ear Canal Infections. O. J. Dixon.—p. 181.

Dissolution of Staghorn Calculus with Solution G.—Cordonnier says that solution G is a combination of citric acid, magnesium oxide and sodium carbonate in water. In view of the technical difficulty of a second operation on the left side of a woman aged 26 and the relatively poor condition of the right kidney, it was felt that dissolution of the left renal calculus should be attempted. Two number 6 F. catheters were passed to the kidney pelvis and left in place. Continuous irrigation with solution G was instituted. At the end of thirty-six hours the patient developed severe renal colic, gross hematuria and fever, and irrigations were discontinued. She then was placed on an acidification regimen using ammonium chloride, for two months. After this period the stone appeared less dense. The same procedure was followed as before, and irrigations with solution G were maintained for one hundred and twenty hours, when pain, fever and gross hematuria again prevented further treatment. At this time a great deal of the stone was found to have disappeared. She was again discharged on an acidification regimen and returned after one month, at which time the shadow in the pelvis was found to have disappeared.

New England Journal of Medicine, Boston

236:305-340 (Feb 27) 1947

The Physician and School Medical Services. G M Wheatley —p 305.
Physical Rehabilitation of Disabled Persons G. G Deaver —p 311.
Comparative Study of Penicillin X and G and Crystalline Penicillin G Georgine Rotman Kavka, H. L. Hirsh and H F. Dowling —p. 314
Treatment of Chronic Osteomyelitis with Streptomycin Preliminary Report. T. A. Lamphier and C. Cashman.—p 318
Psychiatry. V. P. Williams —p 322 .
Dissecting Aneurysm of Aorta, with Rupture into Left Pleural Cavity and with Localized Expansion and Partial Healing —p 327
Periosteal Fibrosarcoma of Jaw.—p 330.

Northwest Medicine, Seattle

46:89-168 (Feb) 1947

Treatment of Recurrent Peptic Ulcers Following Gastric Operations M. E Steinberg —p 114.
Advanced Carcinoma of Stomach Requiring Combined Gastrectomy and Colectomy. T. W. Buschmann —p 126
Use of Hormones in Gynecologic and Obstetric Practice E S Taylor. —p. 128.
Evaluation of Present Day Methods and Treatment of the Mentally Ill. N K. Rickles.—p 134

46:169-248 (March) 1947

Infectious Mononucleosis. Some Aspects of Its Etiology W M Brock —p 197.
Malignant Melanoma with Generalized Skin Blackening The White Girl Who Turned Black. D V. Trueblood —p. 199
Modern Surgical Methods T. L Hyde, W N Morse, L V Moore and J H. Skirving —p. 202.
Postoperative Parenteral Fluids, with Particular Reference to Use of Saline and Amino Acids J. A Aalpoel —p 205
Drug Toxicity in Renal and Hepatic Disease D M Green —p 210
High External Gastrostomy Opening in Upper Esophageal Obstruction J. K. Poppe —p. 211.
Ringworm of Scalp in Pacific Northwest L F Ray —p 214
*Chromaffin Tissue Tumors and Associated Paroxysmal Hypertension. H O. Schneider.—p. 216.

Chromaffin Tissue Tumors and Paroxysmal Hypertension.—A man aged 41 complained of attacks of faintness, flushing, palpitation and a choking sensation whenever stooping over. The only abnormal finding was a firm, smooth mass in the right upper abdominal quadrant. The patient complained of his presenting symptoms while the mass was being palpated. He became pale, restless and apprehensive. The pulse rate increased from 72 to 144 per minute. Blood pressure was 210/130. All symptoms and abnormal findings shortly returned to normal after the abdominal examination was completed These findings could be produced repeatedly by this manipulation. At operation a large tumor was found located in the region of the mesenteric ganglions. The tumor was removed The pathologic diagnosis was benign paraganglioma. Since his discharge from the hospital the patient has remained symptom free and has no evidence of hypertension Schneider reports this case of a palpable intra-abdominal chromaffin tissue tumor to focus attention on the possible existence of such tumors in the presence of hypertension.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

22:139-232 (Dec) 1946

*Experimental Chemotherapy of Filariasis Bancrofti. J T Culbertson, H M. Rose, F. H. Morales, J. O Gonzalez and Caroline Kreiss Pratt.—p. 139
Quantitative Determination of Schistosoma Mansoni 'Ova in Feces from Patients Under Treatment with Antimonial Drugs J. O Gonzalez and F. H. Morales —p 210.
Treatment of Schistosomiasis Mansoni Evaluation of Parasitotropic Effects of Fuadin and Tartar Emetic F. H Morales, Caroline Kreiss Pratt and J. O Gonzalez —p 224

Chemotherapy of Filariasis Bancrofti.—Culbertson and his associates summarize the results of a study designed to discover chemotherapeutic agents effective in filariasis bancrofti Preliminary tests were conducted on a naturally occurring filariasis (Litomosoides carinii) in the cotton rat. One hundred and fourteen patients with filariasis bancrofti have been treated with various drugs, 35 being treated with neostibosan, 11 with neostam, 6 with urea stibamine, 5 with stibanose, 15 with fuadin, 20 with anthiomaline, 4 with antimony and potassium tartrate and 18 with melarsen oxide. Fifteen patients have been left untreated to serve as a control group . Filariasis bancrofti can be eliminated from patients by the administration of certain compounds of antimony or arsenic.. The pentavalent antimonial neostibosan shows the greatest promise because it exerts a strong antagonistic effect on the filarial worm and can be used with comparative safety, being well tolerated by all subjects

Public Health Reports, Washington, D. C.

62:293-324 (Feb. 28) 1947

Comparative Study of Live and Killed Vaccines in Experimental Tuberculosis Preliminary Note. B. J. Olson, K. Habel and W. R Piggott —p. 293
Control of Anopheline Mosquito Larvae by Use of DDT-Oil Mists F F. Ferguson, E H. Arnold and W. M. Upholt —p 296
Inactivation of DDT Use in Anopheline Mosquito Larvicides W. M Upholt.—p 302.
*Isolation of Unidentified Spirochete From Hen's Eggs After Inoculation with Liver Tissue from Hens. E. A. Steinhaus and L E Hughes —p 309.

62:325-368 (March 7) 1947

Evolution of Official Tuberculosis Control in the United States R G Paterson —p 336

62:369-412 (March 14) 1947

Health Insurance Programs and Plans of Western Europe· Summary of Observations J W. Mountin and G St J. Perrott —p 369

Isolation of Unidentified Spirochete From Hen's Eggs.—The observations reported by Steinhaus and Hughes were made at the Rocky Mountain Laboratory near Hamilton, Mont, incidental to checking for the occurrence of disease in local flocks from which eggs were being obtained for laboratory use This is the first known evidence of the occurrence of a spirochete in the tissues of hens in the United States It has been felt desirable to report this finding, since it is of potential interest to laboratory workers using chick embryos for culturing various pathogens or for manufacturing vaccines.

Radiology, Syracuse, N. Y.

48:1-106 (Jan.) 1947. Partial Index

*Treatment of Malignant Tumors of the Testes Review of 100 Cases G M. Kelby and K W. Stenstrom —p 1.
Simultaneous Radiographic and Gastroscopic Examination of Stomach C L Ould and M. E Dailey.—p 8
Malignant Melanoma in Infancy. Report of 3 Cases P. E Russo —p 15
The "Last Straw" Factor in Low Back Disability· Summary of 100 Cases Examined and Evaluated by Medical Advisory Board of the Industrial Commission of Arizona, 1934 1943 W. W. Watkins —p 20
Diffuse Calcification of Pancreas A J. Present and M J. Geyman —p. 29.
Obstructive Hydronephrosis Produced by Aberrant Blood Vessels and Diagnosed by Intravenous Urography J Abowitz —p. 33
Practical Technic for Visualization of Bronchial Tree G W. Heublein and C D. N Gilfillan —p 37.
Cephalopelvimetry. L A Scarpellino —p 45

Treatment of Malignant Tumors of Testes.—Kelby and Stenstrom analyzed 100 cases of malignant tumors of the testes observed at the University of Minnesota Hospitals from 1926 to 1943 inclusive. The group consisted of 34 unclassified cases, 37 seminomas and 29 carcinomatous mixed tumors. Metastasis was known to be present before irradiation was started in 65 per cent of the seminomas, 86 per cent of the carcinomatous mixed tumors and 70 per cent of the unclassified group. Therapy consisted in simple orchiectomy and irradiation in 90 cases, irradiation alone in 6 advanced cases and Hinman's operation and irradiation in 4 cases. In seminomas of the testis the five year survival rate is 56 per cent. In the carcinomatous mixed tumor group only 1 patient survived five years, while in the unclassified group 29 per cent survived five years. A five year survival rate of 29 per cent was obtained in all the patients with malignant testicular tumors considered together.

Wisconsin Medical Journal, Madison

46:297-384 (March) 1947

New Methods for Control of Air Borne Infection, with Especial Reference to Use of Triethylene Glycol Vapor. O. H. Robertson —p. 311.
Injuries Due to Cold, with Particular Reference to Frostbite and Trench Foot. H. B. Schumacker Jr —p. 317.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

21:121-180 (Sept.) 1946

Congenital Tuberculosis. Mary R. Hughesdon.—p. 121.
Complications of Localized Pulmonary Emphysema in Childhood. S. van Creveld and J. van den Broecke.—p. 139.
Etiology and Effects of Minor Grades of Anemia in Young Children: Studies at Group of Wartime Day Nurseries. Helen M. M. Mackay, R. H. Dobbs, K. Bingham and W. J. Martin.—p. 145.
Dermatomyositis in Childhood: Report of 4 Cases. N. S. Clark.—p. 160.
Relationship of Blood Pyruvic Acid Level to Deficiency States in Infancy and Childhood. E. C. Allibone and E. Finch.—p. 165.
Acute Bilateral Suprarenal Hemorrhage. G. C. Arneil.—p. 171.

British Journal of Tuberculosis, London

41:1-32 (Jan.) 1947

Technic and Standardization of Radiographs of Tuberculosis of Chest. J. F. Brailsford.—p. 1.
Bronchostenosis in Pulmonary Tuberculosis: Problem in Treatment. M. Davidson.—p. 7.
Treatment of "Tension Cavities." A. Bernou.—p. 11.
Pulmonary Tuberculosis: Effect of Sea Voyage on 37 Unselected Cases. R. Hambridge.—p. 15.
Selecting Treatment for Patient with Pulmonary Tuberculosis. J. L. Collis.—p. 20.

British Medical Journal, London

1:245-284 (Feb. 15) 1947

Water and Salt Depletion. H. L. Marriott.—p. 245.
Therapeutic Possibilities of Radiophosphorus. J. S. Mitchell.—p. 250.
*Pink Disease: Review of 65 Cases. T. N. Fisher.—p. 251.
*Pellagrous Encephalopathy. P. R. Graves.—p. 253.

Pink Disease.—Fisher reviews the histories of 65 patients who attended the outpatient clinic at the Royal Manchester Children's Hospital during the fourteen years from 1932 to 1945. The average duration in the infants recovering from pink disease was four months. The disease develops insidiously and is usually well established when the infant enters the hospital. There are three basic symptoms: a profound change in temperament, muscular hypotonia and tachycardia. Muscular hypotonia may be extreme. The art of walking, if already attained, is lost. The cutaneous symptoms include the vasomotor phenomena of the extremities, the rash, excessive perspiration and the special manifestations affecting the buccal and conjunctival mucous membranes. The puffy, pink or bluish red, cold, clammy hands and feet and the sudaminal eruption on the trunk and limbs, crisscrossed by excoriation from scratching, are the two most regularly appearing features. There were 9 deaths in this series. The precise cause of the disease is unknown and treatment has been symptomatic, with special emphasis on prevention of secondary infections. Home nursing is the method of choice. A high vitamin intake has been advised as a measure of protection against superimposed infection. The main principles in management are scrupulous attention to bodily hygiene, particularly when desquamation is in process, segregation from any human source of nasopharyngeal or respiratory infection, and patience in feeding. All food should be boiled or cooked and served as cold as possible.

Pellagrous Encephalopathy.—Graves describes a deficiency syndrome which was present among prisoners of war in Singapore. The clinical manifestations suggested a brain lesion: the only pathologic support for this contention was the naked-eye appearances of the brain and spinal cord at the necropsies in the fatal cases. No microscopic examination was possible. The syndrome occurred in the form of a comparatively small outbreak after large epidemics of vitamin B_1 deficiency resulting in neuritic and edematous beriberi and Wernicke's encephalopathy and later epidemics of B_2 complex deficiencies giving rise to angular stomatitis, glossitis, scrotal dermatitis, pellagra, dermal lesions, retrobulbar neuritis and the painful foot syndrome. The observations presented in this paper are based on 63 cases, of which 6 were fatal. When severe, this condition is responsible for widespread disorder of cerebral function resulting in disturbance of memory, coma with quadriplegic rigidity characteristic of a decorticate animal, and in some cases convulsions. As recovery occurred spastic paraplegia was the common residual state. In minor disorders less evidence of the initial cerebral illness may yet be followed by a crippling spastic paraplegia or a lesser degree of spastic weakness. Complete recovery may ensue after a severe initial onset.

Lancet, London

1:201-240 (Feb. 8) 1947

Prevention of Acute Respiratory Diseases, with Particular Reference to Influenza. C. H. Stuart-Harris.—p. 201.
Malnutrition in Indian Prisoners of War in Far East: Survey of 2,000 Cases. J. H. Walters, R. J. Rossiter and H. Lehmann.—p. 205.
Amyloid Macroglossia: Report of Case. Margaret D. Baber.—p. 210.
Production of Substance B by Corynebacterium Diphtheriae: Relation to Type of Strain and Severity of Toxemia. R. A. Q. O'Meara, R. S. W. Baker and H. H. Balch.—p. 212.
Bilateral Ureterocolostomy: Review of 17 Cases. A. C. Lovett-Campbell.—p. 214.
Outbreak of Weil's Disease. W. R. Gauld.—p. 216.

1:241-276 (Feb. 15) 1947

*Thyroidectomy and Thiouracil in Toxic Goiter: Interim Comparison. H. P. Himsworth, M. E. Morgans and W. R. Trotter.—p. 241.
Blood Volume Changes in Protein Deficiency. J. H. Walters, R. J. Rossiter and H. Lehmann.—p. 244.
Loiasis. R. D. C. Johnstone.—p. 250.
Painful Nodular Breast: Plea for Term Fibroadenosis. H. J. B. Atkins.—p. 253.
*Penicillin Prophylaxis in Acute Rheumatism. P. J. Burke.—p. 255.

Thyroidectomy and Thiouracil in Toxic Goiter.—Himsworth and his associates assess the relative values of thyroidectomy and thiouracil. Sixty-five cases of toxic goiter that were treated with the thiouracil series of drugs were followed for periods of up to thirty months and compared with 93 cases treated with subtotal thyroidectomy. The reduction in pulse rate and basal metabolic rate during the first three weeks of treatment with thiouracil was similar to that produced by thyroidectomy in the same period but was probably of lesser degree. From three to thirty months after the beginning of treatment there was no appreciable difference in the condition of the patients treated with thiouracil and those treated with subtotal thyroidectomy. Continued use of thiouracil drugs appears to be a good alternative treatment of toxic goiter. Thyroidectomy is advisable when tracheal obstruction is present, when a drug reaction occurs and when the patient is unable or unwilling to attend regularly for an indefinite period. After the administration of thiouracil is stopped, relapses occur. The longer patients were followed after the cessation of treatment, the more frequently did relapse occur. It is impossible as yet to say whether such remission can be permanent.

Penicillin Prophylaxis in Acute Rheumatism.—Burke used penicillin by mouth as a prophylactic against attacks of pharyngitis, particularly those due to streptococcic infections, in an effort to prevent the recurrence of acute rheumatic manifestations in susceptible patients. Twenty patients who had had acute rheumatism within the previous twelve months were divided into two groups of 10. The patients in the treated group were given three pastilles, each containing 500 Oxford units of calcium penicillin, to suck each day. They were instructed to place the pastilles between the cheek and the lower gum, to allow them to dissolve slowly, and to swallow the saliva containing the penicillin in solution. After the prophylactic treatment had been continued for a year it was evident that rheumatic manifestations were five times and throat infections six times more frequent in the control group than in the treated group.

Medical Journal of Australia, Sydney

1:193-224 (Feb. 15) 1947

*Basophilic Stippling of Red Corpuscles with Special Reference to Its Occurrence During Chrysotherapy. L. J. A. Parr and Eva A. Shipton.—p. 193.
Heterospecific Pregnancy: II. Incompatibility of ABO Groups. P. M. de Burgh, Ruth A. Sanger and R. J. Walsh.—p. 199.
Description of Modified Apparatus for Continuous Gastric or Duodenal Aspiration, with Brief Historical Review. P. W. Gill.—p. 201.
Note on Selection of Medical Students. E. S. Meyers and D. H. Meyers.—p. 203.

Basophilic Stippling, Especially During Chrysotherapy.—Parr and Shipton studied 20 patients taken at random from a series undergoing chrysotherapy. Basophilic stippling in the blood was revealed in all irrespective of the age or sex of the patient or of the variety of arthritis. The cases of rheumatoid arthritis investigated were divisible into two main types, those in which sweating and clammy cyanotic hands were present and those in which the skin was dry and normal and no sweating or cyanosis was present. Many of the patients who had a dry skin and only slightly raised blood sedimentation rate proved to be ideal for chrysotherapy with regard to both the clinical response to treatment and the absence of toxicity. The authors suggest that patients showing severe anemia, eosinophilia, increased blood sedimentation rate, a shift of the neutrophil cells to the left and cold, clammy, cyanosed hands or dehydration should be carefully checked from time to time for stippled cells in their blood to prevent the onset of deleterious reactions.

Thorax, London

2:1-64 (March) 1947

Some Sequels of Abnormality at Thoracic Outlet. J. R. Learmonth. —p. 1.
Treatment of Pulmonary Hydatid Disease. N. R. Barrett.—p. 21.
Cavernous Haemangioma of Lung. W. Whitaker.—p. 58.

Progrès Médical, Paris

75:49-80 (Feb. 10) 1947

*Myeloma Following Bone Trauma and Osteomyelitis. M. Loeper, J. Vignalou and Mrs. T. Boreau.—p. 51.
Treatment of Chronic Bronchitis and of Pulmonary Emphysema with Aerosols on a Sodium Hyposulfite Base. L. Binet and F. Contamin —p. 52.
Nosologic Considerations on Pain in Disturbances of Liver and of Biliary Tract. L. Cornil, H. Walther and G. F. Bonnet.—p. 54.

Myeloma Following Bone Trauma and Osteomyelitis.—Loeper and his co-workers report the occurrence of myeloma in a woman and in 2 men aged 52 and 30. The woman had sustained a fracture of the arm five years before sternal puncture revealed cells of definite plasmocytic type, and examination of the urine demonstrated the Bence Jones body and x-ray examination revealed multiple cavities of the humerus, the femur and the tibia. The older man sustained a fracture of the femur five years before plasmocytosis was revealed on sternal puncture. Urinalysis revealed Bence Jones albumosuria, but x-ray examination was negative. In the younger man the myeloma resulted from an osteomyelitis of twenty-five years' duration, with a residual fistula through which the bone tumor became exteriorized. In these 3 cases, in contrast to Bloodgood's observations, the trauma or the infection did not reveal a primary disease of the bone. The trauma and the chronic infection were instrumental in producing the myeloma, supporting Coley's observations and Kjurkoff's concept.

Cardiologia, Basel

11:111-174 (No. 3) 1946-47

*Cardiac Disturbances in Connection with Infectious Hepatitis. E. Adler and E. Lyon.—p. 111.
*High Oxygen Concentration Under Normal and Increased Respiratory Pressure in Cardiac Pain and in Pulmonary Edema. Inga Lindgren. —p. 127.
Unusual Electrocardiographic Pattern of Myocardial Infarction (Type QT_1C_{5-6}). V. Puddu, A. Mussafia and G. Giordano.—p. 133.
2-Thiouracil in Heart Failure and in Angina Pectoris. A. Sanabria. —p. 143.

Cardiac Disturbances in Infectious Hepatitis.—Adler and Lyon report 8 cases in which infectious hepatitis and jaundice was accompanied with electrocardiographic and subjective signs of myocardial lesions. The author directs particular attention to prolongation of the QT time and elevation of the T wave.

High Oxygen Concentration in Cardiac Pain and Pulmonary Edema.—Lindgren studied the effects of 100 per cent oxygen under normal and increasing respiratory pressure in patients with cardiac pain and in pulmonary edema. Pain in angina pectoris and in myocardial infarction was relieved by 100 per cent oxygen, and the electrocardiogram improved in angina pectoris. Electrocardiograms with the typical signs of coronary insufficiency during rest showed improvement during such oxygen administration. One hundred per cent oxygen at an increased pressure of about 10 mm. of mercury has been used with good results in cardiac failure with acute pulmonary edema. The treatment has been life saving in eclampsia complicated with pulmonary edema. In pulmonary edema the increased pressure is of value by increasing the oxygen content of the blood and by diminishing the venous return.

Nordisk Medicin, Gothenburg

32:2797-2836 (Dec. 6) 1946. Partial Index

Experiences and Impressions in Ophthalmologic Studies in U. S. A. in Spring of 1946. Gunnar von Bahr.—p. 2797.

Hospitalstidende

Determination of Meulengracht's Jaundice Index by Aid of Pulfrich's Stufenphotometer. P. H. D. Waagstein.—p. 2805.
Methylthiouracil in Continuous Treatment of Exophthalmic Goiter. E. Meulengracht, K. Kjerulf-Jensen and K. Schmidt.—p. 2806.
*Some Experiences with Propylthiouracil in Treatment of Exophthalmic Goiter. K. Kjerulf-Jensen and E. Meulengracht.—p. 2809.
Effect of Thiouracil Combinations on Fetus. E. Freiesleben and K. Kjerulf-Jensen.—p. 2811.

Norsk Magasin for Lægevidenskapen

Is Mantoux Reaction Reliable as Sign of Resistance to Tuberculous Infection? A. H. Brinchmann.—p. 2815.

Hygiea

Case of Celiac Disease in Uniovular Twins. S. Lahdensuu and O. Somersalo.—p. 2819.

Propylthiouracil in Treatment of Hyperthyroidism.—Kjerulf-Jensen and Meulengracht's preliminary evaluation of propylthiouracil compared with methylthiouracil is based on the results of treatment of 32 patients with hyperthyroidism. They increased the original dosage to 0.1 Gm. three times daily, or 40 per cent of their usual methylthiouracil dosage. Even the most resistant case reacted to the treatment, but in 2 instances the thyrotoxic sympoms failed to decrease notably in spite of a month's treatment; further treatment of these patients with methylthiouracil gave good results. There was no indication that propylthiouracil possesses any fundamental effect different from the known effect of methylthiouracil. Partly because of the smaller amounts used, there were fewer by-effects after propylthiouracil than after methylthiouracil. Typical drug fever was seen in only 1 patient, who was also sensitive to methylthiouracil.

32:2837-2900 (Dec. 13) 1946. Partial Index

Medical Studies in the United States. J. Waldenström.—p. 2837.

Hospitalstidende

Albers-Schönberg's Marble Bones (Osteosclerosis Fragilis Generalisata): Two Personal Cases, One Treated by Neurosurgery. I. Søndergaard. —p. 2843.
Localization of Antianemic Principle in Human Stomach: I. Antianemic Effect of Powdered Human Fundus. E. Landboe-Christensen.—p. 2846.

Hygiea

**Pathophysiology and Therapy in Adynamic Ileus,* Postoperative and in Peritonitis. Yngve Edlund.—p. 2849.

Svenska Läkaresällskapets Förhandlingar

Some Proposals for Reforming Medical Training. H. Malmros.—p. 2877.

Pathophysiology and Therapy of Adynamic Ileus.—Edlund says that circulatory changes in the intestinal blood vessels due to reflex responses to stimulation of the peritoneum are most important in the pathogenesis of adynamic ileus. They cause decreased intestinal motility, disturbed resorption of the stomach and intestinal contents, changes in the composition of the blood with release of water, electrolytes and plasma albumin from the blood through the capillaries, and, as a result of the diminished blood volume, a state of shock. In the first phase of treatment circulatory disturbances are counteracted by supplying plasma, by mechanical drainage of the gastrointestinal canal and by oxygen inhalation. In addition, salt and glucose are given parenterally to counteract dehydration and chloropenia. In the second phase of treatment amino acids and glucose are administered to prevent inanition and proteinemia; later a diet rich in calories and especially in proteins. Careful preoperative treatment and choice of anesthesia, together with adequate postoperative treatment, are important in preventing postoperative adynamic ileus. Toxemia is an added factor in adynamic ileus of peritonitis. Intensified administration of carbohydrates and protein is indicated to increase the patient's general resistance and the resistance of the liver and to accelerate detoxification. Further, therapy with sulfonamide preparations and penicillin may be considered.

Book Notices

Western Reserve University Centennial History of the School of Medicine. By Frederick Clayton Waite. Cloth. Price, $6. Pp. 588, with illustrations. Western Reserve University Press, 2073 Adelbert Road, Cleveland 6, 1946.

This history of a medical school is not simply a parochial account of local events of interest only to the old grads but is also stimulating to the general medical reader. The volume is much more than the history of a medical school, as might well be anticipated from the scholarly pen of Frederick Clayton Waite, who occupies an esteemed position as a medical historian. The hundred years of this medical school, since its origin in 1843, is pictured in the setting of medical education in the country at large. Western Reserve shared the vicissitudes and irregular progress of other medical schools. An example of historian Waite's eagerness to relate his school to significant and often previously unrecorded events in the history of medical education is seen in the opening sentence of his chapter on homeopathy: "This chapter is inserted in a volume otherwise concerned with regular medical colleges because no printed account exists that covers the entire period of homeopathic medical education in Cleveland." The author is rightfully proud of the history of Western Reserve University School of Medicine, quoting Flexner as saying to the university president, after the famous survey, "The Medical Department of Western Reserve University is, next to Johns Hopkins University, which for various reasons occupies an exceptional position, the best in the country." Yet the pride of local accomplishment emerges from the book as merely a part of the author's appreciation of advances in medical education everywhere. The broadness of his approach will appeal to any one interested in the history of medical education.

Urgent Surgery. Volume I. Edited by Julius L. Spivack, M.D., LL.D., Associated Professor of Surgery, University of Illinois College of Medicine, Chicago. Cloth. Price, $10.50. Pp. 714, with 572 illustrations. Charles C Thomas, 301-327 East Lawrence Ave., Springfield, Illinois, 1946.

This is a comprehesive book covering a large field in surgery. Urgent surgery is defined as that type of surgery which is not traumatic or elective but comprises cases in which operation becomes imperative within a matter of days. The first four chapters cover blood transfusion, anesthesia, all types of intravenous infusions, shock, hemorrhage, septicemia and gas gangrene. These subjects are presented as one would deal with them in urgent surgery as defined by the author. The chapter on laparotomy is one of the best. It explains what is meant by laparotomy and stresses the important fact that if such a procedure is undertaken the operating surgeon must be equipped and qualified to deal with major pathologic conditions. It also covers the various types of incisions and their closure and takes up the question of drainage. Three chapters are then devoted to surgery of the stomach and duodenum, including gastrotomy and pyloric stenosis. The subject is handled in routine fashion, similar to most textbooks on surgery. In dealing with gastrotomy the Spivak tubovalvular gastrotomy is stressed, explained and illustrated in full detail.

The chapter dealing with the pancreas is well written and covers the field in a concise and clear manner. Carcinoma of the pancreas and adenomas of the pancreas are mentioned. As these lesions do not come under the category of urgent surgery the treatment is merely mentioned without going into detail.

A very full, long chapter is allotted to urgent surgery of the liver and bile ducts, covering the field thoroughly. The author strongly recommends the costal incision for most biliary surgery. Several controversial subjects are brought up. One is that the author prefers operating on the gallbladder before opening the common duct. His reasons are that he gets better exposure of the common duct and a wider operative field and that he removes a potentially infected organ before operating on the common duct. He stresses the importance of electrocoagulation of the gallbladder wall adjacent to the liver. He terms this "mucoclasia." In this chapter he briefly mentions thrombosis of the veins of the lower extremities as a possible complication and advises the rather unusual treatment of elevating the legs on a splint and using ichthammol ointment dressings.

The field of appendicitis is covered completely. Two controversial subjects are handled: how to manage the appendical stump (he advises the true inversion without suturing) and drainage. He advocates the use of drainage routinely in appendical abscesses and in those cases in which satisfactory peritonization cannot be accomplished.

The chapter on intestinal obstruction covers the field thoroughly. When resections are indicated the closed type of anastomosis is favored. The last few chapters deal with urgent surgery in infants and surgery of the colon. The last two chapters cover perforated peritonitis and nonperforated peritonitis. From the author's remarks in several places in the book, especially in the chapters on laparotomy and appendicitis, he seems to favor early ambulation of operative cases.

The illustrations are plentiful and well done. They are used mainly to illustrate various surgical technics.

The book covers the field of urgent surgery in a detailed and competent manner, including preoperative diagnosis and preparation; also the surgical technic involved in the various operations. It follows through with postoperative care. This book is ideally suited to the use of residents in surgery. It is too far advanced for medical students. For the experienced operator it will be of interest, but it does not cover any one subject profoundly enough to be used as a book of reference.

Daniel Coit Gilman, Creator of the American Type of University. By Abraham Flexner. Cloth. Price, $2. Pp. 173, with 3 illustrations. Harcourt, Brace and Company, 383 Madison Ave., New York 17, 1946.

The life and the scholarly and academic ideals and accomplishments of Daniel Coit Gilman, first president of Johns Hopkins University, are described in this stimulating volume. When Gilman accepted this post in 1875 there was no true university in his sense, or in the European sense, in this country. Gilman's ideal was the establishment of an institution in which scholars "should be free to pursue their own researches, stimulating their students to prosecute study with a truly scientific spirit and aim." Gilman was not interested in just another undergraduate college whose professors would be burdened with "doing the duty of schoolmasters." His ideas were immediately accepted by the board of trustees and were financed with the (then) munificent endowment of $3,500,000, most of which was in Baltimore and Ohio stock, which some years later became worthless. The spirit of Gilman carried this idea into full fruition in the quarter century of his sojourn at Hopkins and set a pattern for graduate education in this country, emulated since in our better universities and research institutes. Gilman's emphasis was on the securing of promising men and providing them with opportunities for research productivity. Nowhere in the university was this principle more effectively applied than in the medical school, where Gilman added such scholarly names as Welch, Osler, Halsted, Kelly, Mall, Howell and Abel. His achievement in the medical school was especially notable, since medical education in America at that time was a sorry spectacle. The story is well told by one who was first inspired by Gilman's ideals and who himself became a master. It will interest every one concerned with higher education and medical education.

The Anatomy of the Bronchial Tree with Special Reference to the Surgery of Lung Abscess. By R. C. Brock, M.S., F.R.C.S., Surgeon to Guy's Hospital, London. Fabrikoid. Price, $12. Pp. 96, with 142 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4, 1946.

The anatomy of the bronchial tree has received attention by various authors. But this volume describes the unique anatomy of the bronchial tree. The author has made dissections of all the bronchi and has made metal casts of them. In addition he has made detailed bronchographic studies in the living subject to verify the interpretations which he presents in this volume. The illustrations are beautifully executed from the standpoint of photography and of artistic value. Many colored plates clarify the description in the text. The cost of producing these numerous plates, drawings and x-ray films must have been considerable. The Clinical Research Committee of Guy's Hospital gave a generous grant to the author in order for him to be able to present this beautiful work.

While the subject of the book is the anatomy of the bronchial tree, the purpose of the author appears to be the relationship to the causes of abscess of the lung and the methods of exact localization. With this in mind the work demonstrates most beautifully the anatomy of the bronchi. In addition to the approach to the localization there are numerous drawings from bronchoscopic appearances of the various larger bronchi. It is interesting to note that in the description of the lymph nodes at the hilus of the lung the author uses the term "lymph glands." This term is obsolete in this country.

The photographs of the x-ray films are in the positive. In the American literature one almost always finds the reverse, the negative film being demonstrated. It is interesting to note that the author rarely uses stereoroentgenograms but prefers to use many positions and particularly the lateral view together with the anteroposterior position. The author is convinced that abscesses of the lung are produced by direct aspiration into the various bronchi and states that the upper lobes of the lung are involved almost as frequently as the lower, depending on the position in which the patient may be lying following operations.

With regard to embolism as a cause of abscesses, the author states that "this misconception is held by many people, and the object of this chapter is to show that the causal factors responsible for the development of an abscess in any particular site in the lungs are chiefly inhalation and posture, and that far from disproving the hypothesis of bronchial embolism the frequent occurrence of abscess in the upper lobes is the greatest single piece of evidence in favor of bronchial embolism and against vascular embolism."

The author quotes the Rabin method of localizing abscesses frequently and much of the presented material shows the value of the injection of iodized oil and methylene blue at the area where the abscess is outlined previous to operation. The pagination is unique, the pages of the reading matter being numbered independently of the illustrations. This book is recommended highly to all physicians who are interested in diseases of the lungs, particularly thoracic surgeons. physicians and roentgenologists.

The Eye Manifestations of Internal Diseases. By I. S. Tassman, M.D., Associate Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Second edition. Cloth. Price, $10. Pp. 614, with 243 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1946.

This edition is somewhat enlarged by additions of material on epidemic keratoconjunctivitis, toxoplasmic encephalomyelitis and other subjects. The author states in the preface that he has added descriptions of ocular allergy. He has included only tuberculous uveitis, conjunctivitis and keratitis but does not mention others which are more important in "bridging any existing gap between the eye manifestation and other aspects of internal disease." There are numerous omissions which should be included in such a work. Under metastatic gonorrheal infection there is no mention of dacroadenitis. In the section on macular degeneration, more lengthy discussion should be made of heredomacular disease, senile macular degeneration, familial macular degeneration, Noguchi's disease, central angiospastic retinitis and other conditions. A full discussion of the relation of the eye to headaches and dizziness should have an important place in such a book. On page 167 under treatment of cataract the author states that regular examination should be more frequent as the cataract approaches maturity. The stage where close observation is necessary is during the much earlier intumescent stage when there is danger of glaucoma. On page 165 is the statement that "complicated cataracts are also considered as secondary cataracts." Secondary cataract is a term which should be used only for the membrane, capsule and organized cortex remaining after an extracapsular lens extraction or injury to the lens. On page 194 about angioid streaks it is stated that it is associated with diabetes, Paget's disease and inflammations of the choroid. No mention is made of pseudoxanthoma elasticum, which is much more commonly seen with angioid streaks than all the others combined. The book will have a wide popularity because, for the time being, there is no better one on the market.

Science and Scientists in the Netherlands Indies. Edited by Pieter Honig, Ph.D., and Frans Verdoorn, Ph.D. Natuurwetenschappelijk tijdschrift voor Nederlandsch Indië, Volume 102—Special Supplement. Cloth. Price, $4; £1.1.0. Pp. 491, with 134 illustrations. Board for the Netherlands Indies, Surinam and Curaçao, 10 Rockefeller Plaza, New York 20, 1945.

According to the editors this volume is intended to present a picture of the development and status of various branches of the natural sciences, pure and applied, in the Netherlands Indies. They call attention to the fact that the book was prepared during the military occupation of both the Indies and the Netherlands, which made it impossible to obtain the collaboration necessary for a complete history of science in the Netherlands Indies. The book is made up of original articles and reprints of previous publications dealing with the development or status of various branches of science in the Netherlands Indies and also of travel accounts, biographic sketches, reviews and a list of scientific institutions, societies and workers at the time of the Japanese invasion. The editors are to be congratulated, for they have produced a valuable book which should fulfil their hope that this volume might be of use and interest to visiting civilians and members of the armed forces of North America, Great Britain and other countries. Moreover, it affords a valuable reference work which should be useful to scientists working in many fields throughout the world, especially to those who are concerned with the future progress of international health and human welfare.

Squint and Convergence: A Study in Di-Ophthalmology. By N. A. Stutterheim, M.D. Cloth. Price, 15s. Pp. 95, with 41 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1946.

This small volume is a culmination of work done and articles printed in the literature over a period of the last twenty-five years. The trend of the author's thoughts and somewhat radical ideas were presented in a previous volume entitled "Indications for the Kinetic Treatment of the Eyes." The basic idea of this new physiologic approach to the correction of convergent strabismus is that fusion is a function of the nervous system integration and therefore is wholly independent of any refractive error. A battery of prisms is passed before each eye in increasing strength until the patient's abduction or divergence insufficiency is overcome. The refractive error remains uncorrected. The last half of the volume is completed with case reports and results. Stutterheim's colleagues have shown little desire to follow his work, either to corroborate it or to find fault. Until others have taken the time and effort to verify his findings, the work must be looked on as a most interesting experiment.

The Thyroid Gland in Medical History. *By Alfred H. Iason*, M.D., Instructor of Anatomy, New York Medical College, New York, Fabrikoid. Price, $3. Pp. 136, with 50 illustrations. Froben Press, 4 St. Luke's Place, New York 14, 1946.

Iason has compiled a book that will be found useful to the specialist in thyroid physiology or pathology, for it apparently provides all the basic information about the development of our knowledge of the thyroid gland from the Egyptians to our day. The book is well illustrated, the paper is excellent and the format such that it can be read with comfort. The author has put his material together in a most orderly fashion, but in so doing the book, from the point of view of the nonspecialist reader, loses background. Focusing wholly on the thyroid, one has the impression that other actors too must have been concerned in the play. But to trace them would have made a much bulkier book and might have diverted the reader from the subject of the dissertation. As it is, the volume is a worth while contribution to our knowledge.

Studies of Compulsive Drinkers. Part I. Case Histories. By Herman Wortis, M.D., and Leonard R. Sillman, M.D. **Part II. Psychological Test Results.** By Florence Halpern, M.A. *Edited by* Jane F. Cushman, M.A., and Carney Landis, Ph.D. Foreword by Nolan D. C. Lewis, M.D. [Distributed by Quarterly Journal of Studies on Alcohol.] Paper. Price, $1. Pp. 90. *Hillhouse Press*, 432 *Temple St., New Haven*, Connecticut, 1946.

As usual, Florence Halpern's psychologic work and contribution are valuable in this monograph, containing in part I 18 detailed and interestingly presented case histories with clinical and test findings and in part II psychologic test results.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HISTIDINE TREATMENT OF VASCULAR DISEASE

To the Editor:—The treatment of vascular disease by the use of histidine and ascorbic acid was discussed in a recent article in The Journal (Wirtschafter and Widmann, March 1, 1947). The article did not describe the routine to be followed or the dose. Information on this subject would be appreciated.

Henry B. Gotten, M.D., Memphis, Tenn.

ANSWER.—The two compounds are administered in the following manner: All patients are started with an intravenous injection of 500 mg. of sodium ascorbate. This injection is a preliminary one and is not repeated thereafter. It is meant purely as an attempt to saturate the patient with ascorbic acid prior to the institution of the actual therapy. Immediately after the intravenous injection the patients are put on a regimen consisting of the intramuscular injection of 5 cc. of a 4 per cent aqueous solution of l(—) histidine monohydrochloride and the subcutaneous injection of 100 mg. of sodium ascorbate. These injections must be given separately. The gluteal muscle for the injection of the histidine compound and the area of the deltoid for the injection of the sodium salt of ascorbic acid are preferred. The reason for giving these injections separately is to prevent the reaction from proceeding at too rapid a rate. Though in the original article the time intervals between the administration of the two compounds varied from every four to every twelve hours, it is now believed that it is best to give the drugs every four hours day and night. If this is not possible, the drugs should be given not less often than every six hours day and night. Any longer time intervals will only prolong the time of healing and sometimes triple the patient-hospital days. Along with the injections, all patients receive 200 mg. of ascorbic acid by mouth, three times daily, a total of 600 mg. orally. When open lesions exist, either wet dressings in the form of boric acid or packs of isotonic solution of sodium chloride are used continuously or the wound is dressed with petrolatum gauze daily. Depending on the nature and severity of the wound, wet dressings may have to be repeated two to four times during a twenty-four hour period. The sodium salt of ascorbic acid must be used. The methyl glucamine salt of ascorbic acid and the sodium bisulfite salt of ascorbic acid have been tried and both of these have been found to produce a definitely lessened reaction. This has been confirmed by the patients themselves. The solutions used must be clear. Ascorbic acid solution which is definitely yellow is not as active as the clear solution. Similarly, it must be emphasized that the histidine solution should be clear and not a light brown, nor should it contain a brownish precipitate.

DANGERS OF PINWORM FISH FOOD

To the Editor:—Pinworms are commonly cultured as food for tropical fish. Is this type of pinworm capable of infesting man? Is the use of this pinworm for fish food hazardous?

M.D., Michigan.

ANSWER.—Dealers advise that the "pinworms" cultured as food for tropical fish belong to the genus Tubifex and related genera. These worms are free living annelids and are not related to the pinworm which infects man. This worm, Enterobius vermicularis, is a strictly parasitic form and has been reported only from man and the higher apes. Effort has been made to infect experimentally several other animals without success. Under the circumstances there is no hazard in the use of the free living annelids mentioned as fish food.

POSTOPERATIVE IRRADIATION OF CHOROIDAL MELANOMA

To the Editor:—What is the present status of postoperative irradiation by radium or x-rays of melanoma of the choroid?

M.D., Pennsylvania.

ANSWER.—Good evidence that postoperative irradiation is of value in the treatment of melanoma of the choroid does not exist. However, its use must be considered with the view that it may possibly be effective.

HONEY FOR TREATMENT OF PEPTIC ULCER

To the Editor:—A man with a peptic ulcer has been under rigid management for many years, with only fair success. Seven months ago he began taking honey as a therapeutic measure. He is now on a normal diet and has not had symptoms since starting honey. Two friends of his have also started this diet of honey and whatever else they want to eat. They report that they are also symptom free. What is the therapeutic rationale of using honey in the treatment and management of peptic ulcer?

M.D., Wisconsin.

ANSWER.—The natural course of chronic benign peptic ulcer is characterized by periodicity of symptoms for reasons not clearly understood. This together with the important although intangible effect of mental suggestion renders the evaluation of any treatment difficult. (Palmer, W. L., in Portis, S. A.: Diseases of the Digestive System, ed. 2, Philadelphia, Lea & Febiger, 1944, p. 219). The patient and his 2 friends are convinced, no doubt, that honey is an "ulcer cure." The possibility that all 3 had spontaneous remissions would seem an unsatisfactory explanation. On the other hand, honey has a variable composition. The chief constituents, dextrose and levulose, do not have any specific therapeutic effect in peptic ulcer. To attribute the relief of ulcer symptoms to the use of honey per se would also seem an inadequate explanation. In this connection it is interesting to note that of a group of 20 ulcer patients treated with daily injections of 5 cc. of distilled water 12, or 60 per cent, became symptom free. Five, or 25 per cent, became symptom free after the first injection (Sandweiss, D. J.: Treatment of Gastroduodenal Ulcer with Histidine Monohydrochloride, THE JOURNAL, April 25, 1936, p. 1452). Such observations emphasize the difficulties in evaluating ulcer treatment. They also illustrate the importance of mental suggestion, enthusiasm, faith or whatever term one wishes to apply to the frequently observed phenomenon of "ulcer cures" following nonspecific therapy. The importance of these intangible factors in the treatment of peptic ulcer is well recognized even if not clearly understood. Consequently the therapeutic rationale of the use of honey seems quite clear. One can hardly escape the conclusion that it is only of psychotherapeutic value.

DERMATITIS IN MEAT HANDLER

To the Editor:—A woman worker in a lunch-packing factory develops a severe acute contact dermatitis involving the face and neck and arms (all exposed areas of the body) whenever she works at her usual job making hamburger "patties" from meat (which is "untreated" at the plant). The hands, including the dorsal surfaces, are entirely clear during the handling of the meat. Roach powders and fly sprays, which are used from time to time at the factory, have been eliminated as a cause. That the dermatitis is caused by something at work is proved by the fact that it disappears after two weeks at home and treatment with the usual wet compresses and recurs one hour after she returns to her job. A warm air blower which is the only spray in the plant is used to blow out the grinding machine. (No chemicals are used.) The patient does not have an allergic history and has eaten meats of all kinds all her life. Ordinary lighting facilities are used in the plant.

M.D., Ohio.

ANSWER.—There can be but little doubt that the patient described in the query has an occupational dermatitis, as shown by the fact that she gets well when she is away from work and the eruption returns when she goes back to work. In order to find the actual irritant in her occupational environment which causes the eruption it would be necessary to make an exhaustive study of the substances with which she comes in contact. "Patties" are not entirely excluded in spite of the fact that she has eaten meats of all kinds, because hamburger patties may contain spice and other substances which she does not ordinarily eat. Besides, it is possible to develop a dermatitis from contact with raw meat and yet not develop dermatitis when the same meat is cooked and eaten.

The warm air blower also should be investigated, because instances have occurred wherein warm air brought from one part of the plant has carried an irritant to another part of the plant. Cases have also occurred wherein warm air flowing in the direction of a cold area has been known to pick up irritants on the way, which have caused dermatitis on workers in the area of final distribution of the warm air. A series of patch tests as a result of such an investigation may reveal the actual irritant.

As preventive measures while working, it is suggested that impervious sleeves made of a plastic such as vinylite be worn on the arms, and that the face and neck be covered by a protective ointment such as equal parts of lanolin and cold cream and that before the lunch hour the ointments be washed off and reapplied immediately after lunch.

Reference:

Schwartz, Louis; Tulipan, Louis, and Peck, S. M.: Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1947.

DIAGNOSTIC PROBLEM—POSSIBLE EPILEPSY

To the Editor:—A man aged 24, about 5 feet 6 inches (168 cm.) tall, weighing 175 pounds (79 Kg.), was involved recently in an airplane crackup. He was taken from the plane in shock, which was of eight hours' duration. He was given intravenous saline solution for three days and epinephrine and morphine injections. His previous history included nervousness, contusions and lumbar strain. The blood pressure is 100/68. Since this accident, whenever the patient is under tension and becomes nervous he begins shaking and "blacks out." He becomes cold to such a degree that his teeth chatter and he attempts to pull himself together in an effort to get warm. He has severe headaches and vomits. His knees give way under him. His entire body becomes red and even his eyes are bloodshot. It is my impression that the blood vessels become dilated. It seems as if one big hive was manifesting itself. If he tightens his face, clenches his fist and tautens his muscles or skin, the area becomes white. The patient appears to be in extreme shock during this period. In recovery there are pains in the knees and pins and needles sensations in the fingers. At cessation of the spells he feels well enough to participate in any form of work or play. Three of these spells occurred during the last week—one at a football game, one at the table and the third while making a hard shot at pool. Is this a petit mal epilepsy?

Morris H. Pett, M.D., Gloucester, Mass.

Answer.—Before a satisfactory diagnosis can be made further studies should be carried out including the blood pressure and blood sugar during and following an attack, x-ray examination of the skull, examination of the cerebrospinal fluid including that of the pressure, cells, protein, Wassermann and colloidal gold, and a complete physical and neurologic examination. It may also be desirable to perform a ventriculogram or an encephalogram.

The possibility of a "diencephalic epilepsy" such as was described by Wilder Penfield (*Arch. Neurol. & Psychiat.* **22:** 358 [Aug.] 1929) must be considered. Such attacks might arise from a tumor in the third ventricle. Such a lesion would also account for the associated severe headaches and vomiting—a paroxysmal hypertension from an adrenal tumor seems unlikely unless the phase of vasodilatation is secondary and is preceded by one of vasoconstriction. In many respects the attacks suggest the response to an intravenous injection of histamine, and this may be an unusual histamine reaction. The reason for such a condition is of course not obvious.

STABILITY OF MORPHINE AND ATROPINE SOLUTIONS

To the Editor:—How long will ampules of morphine sulfate or morphine sulfate and atropine preserved in chlorobutanol and sodium sulfite keep? Is it safe to use them at all after several years? How soon will their potency diminish?

Anthony M. Susinno, M.D., Palisades Park, N. J.

Answer.—Solutions of morphine sulfate are fairly stable and would probably keep indefinitely in ampules or if protected by chlorobutanol and sodium sulfite against bacterial or fungous contamination. A 1 per cent solution of morphine hydrochloride is official in the British Pharmacopeia. It contains 25 per cent of alcohol. Atropine sulfate solutions deteriorate quite rapidly. Sollmann's Manual of Pharmacology, sixth edition, page 376, quotes Simon, 1915, that there is considerable loss of activity even in three days, and Joachimglu, 1915, that sterilized solutions in ampules retain their full activity for at least four weeks. The rate of change varies with conditions which are not always predictable. The change involves only the potency; the toxicity would not be increased. It would be quite safe to use the ampules after several years, but they may not be fully active.

ELECTROCOAGULATION FOR POSTTONSILLECTOMY HEMORRHAGE

To the Editor:—Is electrocoagulation a satisfactory means for hemostasis after tonsillectomy? Is secondary hemorrhage more likely after electrocoagulation than after spontaneous clotting, sponge compression, hemostat crushing or tying? Can the concentration of ether vapor in the patient's alveolar air be such as to make the use of electrocoagulation in the mouth hazardous if, after the induction of deep surgical ether anesthesia, all anesthesia equipment is removed from the operating room?

M.D., Texas.

Answer.—Electrocoagulation can be used to stop bleeding after tonsillectomy. It is not as satisfactory as sponge pressure, the hemostat or the ligature. The latter are simple, are easy to use and do not require special precautions as to anesthesia.

The methods used to obtain hemostasis vary with the experience and inclination of the operator. In general, one should attempt to obtain a dry tonsillar fossa, using methods that give minimum tissue injury and the shortest amount of time for anesthesia. Sponge pressure harms the tissues the least but is more time consuming and less sure. The hemostat is more accurate because it can be applied directly to the offending spot but, because of its crushing effect, there must be a certain amount of secondary tissue necrosis and sloughing and danger of bleeding later. The ligature that is tied over the end of a hemostat may come off; the ligature that is placed with a needle requires skill; the needle may break, and there is danger of introducing infection into the deep tissues of the neck.

All three methods may be employed, from the simple to the more difficult, as conditions demand. At all times as little trauma as possible is inflicted and, if ether is used, the time of anesthesia is made as short as possible.

If electrocoagulation is used for hemostasis, the least amount of current necessary is applied, so that tissue destruction is kept to a minimum. It can be a useful instrument in practice, although there are limitations. The apparatus often requires adjustment, and this means that one other person must be present besides the operator. In an adult, or when a local anesthetic has been used, there may be little difficulty in gaining access to the desired area. However, a child with a metal mouth gag in a small mouth offers difficulties in approach and opportunities for short-circuiting and burning of the lips and gums. Before using electrocoagulation one should try simpler and less dangerous methods.

Secondary bleeding follows electrocoagulation more often than after the use of other methods; and, in addition, this bleeding is apt to be more stubborn.

The hazard of explosion is definitely present if electrocoagulation is attempted in the course of an ether anesthetic unless the patient is allowed to waken to such an extent that the ether concentration in the lungs is minimal. At this stage the patient is not anesthetized to a worth while degree, from a pain killing point of view. Also at this stage he is apt to retch, vomit and be so active and uncooperative as to make a painstaking procedure difficult, if not impossible.

BRIDGING OF THE SELLA TURCICA

To the Editor:—A man has had chronic headaches for years. Roentgenograms reveal calcification of the sella turcica or rather a bridging over of the sella. What is the significance of this finding and can it be the cause of his headaches? What is the treatment?

Arthur Henrichsen, M.D., Van Nuys, Calif.

Answer.—Bridging of the sella due to close approximation of the interior and posterior clinoid processes is found normally and usually is not significant. However calcification in, above, below or to the side of the sella turcica is very significant. It is found in (1) a calcified internal carotid artery, (2) suprasellar cysts, (3) intrasellar tumors such as adenoma or glioma, (4) meningioma and (5) glioma of the optic chiasm. The patient described in the query should have repeated testing of his visual fields, i. e. every 15 degrees, for form and color. Both optic nerve heads should be examined for optic atrophy or papilledema. Glucose and insulin tolerance tests also should be made. If all these tests are within normal limits then other causes should be sought, such as hypertension or arteriosclerosis.

VISION TESTS

To the Editor:—What are the advantages of the Telebinocular (Keystone Company) or the Massachusetts vision test (Welch Allyn Company) over the Snellen Chart for testing school children?

D. H. Lawler, M.D., Hammond, Ind.

Answer.—In the visual examination of school children the advantages of the Telebinocular, which is basically a stereoscope, are that (1) little space is required for use, (2) it combines reasonably accurate tests for distance visual acuity, muscle balance, color vision and stereopsis and (3) it facilitates rapidity of examination, especially in groups of 15 or more, and in older children and adults. Among its disadvantages are (1) expense, (2) limited adaptability for small groups and (3) possibility of misinterpretation of the information afforded.

The advantages of the Massachusetts vision test are that (1) it is designed especially for the examination of school children and is well adapted for those in the primary grades, (2) it combines an accurate test for visual acuity and muscle balance both for distance and near and affords a possible separation of hypermetropes from myopes and (3) it facilitates rapidity of examination especially with large groups. Among its disadvantages are its cost and the advisability of having trained help in its use.

The Snellen Chart has the advantages of being easily procurable, inexpensive and easy to install. Small groups may be practically tested for distance visual acuity with literate or illiterate Snellen Charts if intelligently used. Among its disadvantages are that (1) variations of illumination are often associated with its use, (2) its letters and figures are easily memorized and (3) its usefulness is limited to distance visual acuity.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 6 Chicago, Illinois June 7, 1947

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TREATMENT OF CORONARY ARTERY DISEASE

Dicumarol Therapy

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Though the long range outlook in any phase of the treatment of coronary artery disease is necessarily colored by the inherent progressive trend of an essentially degenerative process, with all of its unpredictable proclivities, nevertheless a favorable outcome could reasonably be anticipated in about 80 per cent of well managed myocardial infarctions following coronary occlusion. It now appears that with the newer developments in anticoagulant therapy, there may be justification for a revision of the philosophy of treatment by adopting the more positive program of management offered by Dicumarol (3,3′-methylene-bis-[4-hydroxycoumarin]) in addition to the established methods of control.

In the treatment of coronary artery disease in general, the following important considerations necessarily influence the symptoms and signs as well as the prognosis and therapeutic response: (1) the type of coronary syndrome presented, whether angina pectoris, acute coronary insufficiency or actual occlusion; (2) the presence and extent of any ensuing myocardial infarction; (3) the amount of associated cardiac damage and consequent impairment of myocardial reserve. This can often be inferred by the antecedent history of response to effort and stress *before* the acute coronary episode and is further indicated by electrocardiographic, roentgenologic and other laboratory studies, and (4) the constitutional background of the patient, including heredity and temperament, associated hypertension or metabolic disorders and the general vascular status.

ANGINA PECTORIS

This is an event that ofttimes casts its shadow before. Preliminary warning of impending angina pectoris may take the form of a vague, indefinite substernal or epigastric discomfort following effort or emotional stress, especially after a large meal. The overweight, the hypertensive and the diabetic persons seem particularly vulnerable, and anemia, paroxysmal tachycardia and hyperthyroidism may be contributing factors. Anginal subjects are more frequently than not possessed of a hyperreacting temperament; they are characteristically restless, often without natural or cultivated tranquillity and poise, and seem notably lacking in the ability to relax or let up on sustained tension in their occupational or even recreational pursuits. The implications for guidance appear obvious, but correction is usually difficult and failure of accomplishment notorious.

Effective management of the anginal state entails carefully planned reduction of cardiac demand in the face of impaired coronary supply, which offers far greater possibility of adjustment than do currently available measures for increasing coronary flow. The most effective measure at the physician's command is a positive ban on smoking, because of the dual cardiac handicap which tobacco presents; the vasoconstrictor action of nicotine and the increase in the level of carbon monoxide in the blood (tables 1 and 2).[1] Not only does this impair its oxygen-carrying power but the relative anoxia may readily touch off a susceptible coronary reflex just as disease of the gallbladder may initiate an irritable coronary constrictor mechanism. The combination of a sensible protective philosophy of living and the curtailment of smoking will control many an effort anginal syndrome.

Other therapeutic measures that appear to merit a place in the treatment of angina pectoris include the use of nicotinic acid, papaverine and alcohol in moderation and teaching the anginal subject to anticipate unavoidable circumstances, such as going out in cold air, by using $\frac{1}{200}$ to $\frac{1}{100}$ grain (0.3 to 0.6 mg.) glyceryl trinitrate sublingually in order to prevent anginal pain. No harm can accrue from frequent resort to this valuable measure. Alcohol is probably the best coronary dilator, with papaverine more adaptable to protracted action when needed. The conventional dosage of papaverine has undoubtedly been inadequate, as it appears to require from 2 to 4 grains (0.13 to 0.26 Gm.) three or four times a day to be most effective in preventing "angina decubitus" or in controlling a lowering effort threshold of anginal pain. The use of nicotinic acid because of its vasodilatory effect appears to be justified in an attempt to increase the collateral coronary supply.

In the matter of xanthine derivatives my observation parallels that of Evans and Hoyle,[2] Steinberg and Jensen,[3] and Stevens,[4] in that these compounds are generally ineffective in the management of effort angina uncomplicated by myocardial failure, although apparent clinical response appears to justify their use in those cases that do show improvement.

Read in a symposium on "Treatment" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] Hanson, H. B., and Hastings, A. B.: The Effect of Smoking on the Carbon Monoxide Content of Blood, J. A. M. A. **100:** 1481 (May 13) 1933.

[2] Evans, W., and Hoyle, G.: The Comparative Value of Drugs Used in the Continuous Treatment of Angina Pectoris, Quart. J. Med. **2:** 311-338 (July) 1933.

[3] Steinberg, F., and Jensen, J.: The Use of Theophylline Aminoisobutanol in Angina Pectoris, J. Lab. & Clin. Med. **30:** 769-773 (Sept.) 1945.

[4] Stevens, R. S.: The Present Status of Treatment of Coronary Artery Disease, Canad. M. A. J. **44:** 124-128 (Feb.) 1941.

As to the other forms of treatment in current use, I feel that iodides are probably of value but that androgen therapy does not appear justified. The beneficial effect of small doses of thyroid extract to 21 patients was recently reported by Lerman and White[4a] with the thought of producing general vasodilatation by increasing the metabolic rate. These investigators considered that this effect might decrease the work of the heart even though cardiac output per minute was increased. Thyroid also tends to lower cholesterol blood levels, an effect which in the present state of medical knowledge appears to be desirable. The dosage should be small (½ to 1 grain [0.03 to 0.06 Gm.] a day) and cholesterol levels should be checked.

The importance of mild sedation cannot be overlooked in the management of chronic coronary insufficiency with angina, but it must be remembered that in older subjects, particularly those with cerebral vascular changes, there may develop intolerance to protracted barbiturate therapy. When barbiturate drugs are employed they should be alternated with other sedatives such as bromides, carbromal or perhaps codeine.

TABLE 1.—*Percentage of Saturation of Hemoglobin with Carbon Monoxide in the Blood of Normal Nonsmoking Subjects* *

Subject	CO Content, Vol %	Hb Content, Vol. %	Saturation, %
Ti	0.29	20.3	1.4
Tr	0.38	19.8	1.9
F. H.	0.34	20.3	1.7
M.	0.26	18.8	1.4
H	0.35	20.6	1.7
H	0.31	20.6	1.5
L	0.23	19.3	1.2
Average	..		1.5

TABLE 2.—*Percentage of Saturation of Hemoglobin with Carbon Monoxide in Blood of Tobacco Smokers*

Subject	CO Content, Vol %	Hb. Content, Vol %	Saturation, %	Comment
R	0.82	20.6	4.0	After smoking 15 cigarets
B	0.77	21.0	3.7	After smoking 15 cigarets
Hs.	0.64	20.6	3.1	After smoking 12 cigarets
Q	1.46	21.7	6.7	After smoking 12 cigarets
A.	0.80	19.9	4.0	After smoking 10 cigarets
K.	0.87	20.1	4.3	After smoking 15 cigarets
Hn.	0.79	20.6	3.8	After smoking 10 pipe loads
Hn.	0.87	21.4	4.1	After smoking 10 pipe loads
Hn.	0.42	21.0	2.0	Next morning, 12 hours since last smoke
Hn.	0.45	21.1	2.1	Evening, same day, 18 hours since last smoke

* The tables are from Hanson and Hastings.[1]

In cases in which increasing frequency or severity of anginal seizures, with an ever lowering threshold of effort tolerance, perhaps to the point of "angina decubitus," suggests the danger of approaching occlusion, the most effective coronary vasodilator available is an adequate dosage of papaverine by mouth or even intravenously, should the need appear urgent in order to ward off threatened occlusion or at least to limit regional vasoconstriction if complete occlusion with ensuing infarction appears inevitable.

In the treatment of effort angina in the obese with protruding abdomens, I have noted considerable improvement in effort capacity from adequate abdominal support, such as that described by Kerr[5] in the form of the Kerr-Lagen belt. On fluoroscopic examination the diaphragms of such persons are often below the normal position, and their movement apparently is limited by the weight of the abdominal viscera. Partially restored diaphragmatic function by an elastic, lifting type of support apparently aids the return flow of blood to the heart. In my observation androgen therapy has not been effective in angina pectoris.

THE PREVENTION OF ACUTE CORONARY EPISODES

Given a case of typical effort angina in which such perpetuating influences as overweight, diabetes, hypertension, anemia, hyperthyroidism and faulty habits of living have been dealt with as effectively as possible, are there any specific measures which may further protect the heart against sudden catastrophe or at least minimize that possibility? Such a question naturally presents a therapeutic challenge. The problem is to make the most of what coronary supply is potentially available, therefore one seeks to discourage such vasospastic influences as tobacco, cold and emotional stress while protecting coronary reserve by the curtailment of unnecessary demands on the heart and guarding against the dangers of gastric overdistention and undue fatigue. All this entails thoughtful planning and understanding cooperation attainable only by cultivated self control and self discipline, characteristics which are all too infrequently encountered in the mental attributes of the typical anginal subject, to whom the application of the proverb, "He that ruleth his spirit is greater than he who taketh a city," seems particularly appropriate.

A painstaking review of the anginal subject's daily activities by the clinician is likely to prove far more useful and effective than any regimen of drug or biologic therapy now available. It is astonishing what obvious and commonplace circumstances, heedlessly encountered by the average anginal subject, may be avoided or at least moderated by the cultivation of a sensible, protective attitude of living, thus helping to bridge the gap between physiologic demand and attenuated coronary supply. Therapeutic measures aimed at stepping up coronary flow must necessarily be directed toward an attempt to enhance collateral circulation around a narrowed channel, a process necessarily long and uncertain even if eventually successful. In the meantime protective measures to conserve the lowered coronary reserve must be emphasized and insisted on in any thoughtful program of management. Only in as far as such a program is successful can one hope to delay eventual coronary occlusion or acute coronary insufficiency at least as long as the attendant physiologic and pathologic conditions permit.

It is known that the reduction of blood pressure after spinal anesthesia may precipitate acute occlusion in a coronary subject. Furthermore, coronary occlusions tend to occur at night when the tide of pressure is at low ebb. If this nocturnal lowering be in any way accentuated after a day of unusual effort and consequent fatigue, then fatigue might well constitute a precipitating influence in bringing about an occlusion during the ensuing night. Clinical observation seems to justify this concept and consequently appears to rationalize the importance of avoiding fatigue at any cost, in the interest of which a period of rest during the day is highly desirable if not imperative. Two grains (0.13 Gm.) of papaverine before retiring after a day of unusual strain or stress, particularly when accompanied by the least suggestion of substernal uneasiness, is indicated as a logical effort toward the maintenance of coronary relaxation. The administration of similar or larger doses through the day may be indicated, as papaverine is the best coronary vasodilator in contemporary usage. The longer acting nitrites, such as mannitol hexanitrate and erythrityl tetranitrate, three or four times a day, have occasionally been effective in preventing attacks, in cases in which anginal seizures respond well to glyceryl trinitrate but require a great many tablets daily. As stated previously, smoking should be interdicted, whereas the use of alcohol in moderation is permitted in cases in which it is well tolerated, since it apparently exerts a protective influence probably because of its vasodilatory effect.

[4a] Lerman, J., and White, P. D.: Metabolic Changes in Young People with Coronary Heart Disease, read before the thirty seventh annual meeting of the American Society for Clinical Investigation, Atlantic City, N. J., May 27, 1946.

[5] Kerr, W. J.: Treatment of Angina Pectoris by Methods Which Appear to Promote More Adequate Filling of the Heart, Am. Heart J. **16**: 544-548 (Nov.) 1938.

6, 7 and 8 Footnotes deleted by author.

IMPENDING OCCLUSION AND ACUTE CORONARY INSUFFICIENCY

The imminence of complete closure developing in an already narrowed coronary vessel is suggested when anginal pain results from ever lessening degrees of effort or stress or when it occurs during rest, with or without a history of preceding effort angina.

Acute coronary insufficiency may be brought about by a cardiac overload beyond the capacity of narrowed coronaries to deliver blood, or may result from impoverishment of the supply of blood after hemorrhage, shock or the dehydration of any severe debilitating illness in a coronary subject. Such coronary failure may result in irreversible myocardial changes due to prolonged anoxia, so that infarction often develops. This can at times be averted by the prompt intravenous injection of 1 to 2 grains (0.06 to 0.13 Gm.) of papaverine, followed by theophylline ethylenediamine intravenously where indicated and by prompt oxygen therapy when available. If papaverine is ineffective within a few minutes, the subcutaneous or even intravenous use of morphine is in order, should the distress be serious or prolonged. The intravenous administration of theophylline ethylenediamine often proves beneficial when congestive failure develops; otherwise it is best avoided, because it increases the work of the heart proportionately more than it enhances coronary flow. Meanwhile the possibility of a developing myocardial infarction must always be kept in mind so that appropriate management can be instituted where indicated.

CORONARY OCCLUSION WITH MYOCARDIAL INFARCTION

Presented with a clinical picture of coronary occlusion and developing infarction, the first consideration should be the relief of pain followed by treatment of shock and prevention of further extension of coronary thrombosis by decreasing the thrombosing tendency with Dicumarol. The established conventional measures, though apparently sound and thoughtful procedures, nevertheless are all directives that might tend to encourage further thrombosis, such as inactivation and heavy sedation, augmented by dehydration incidental to sweating, frequent nausea and vomiting and consequently restricted fluid intake. Such dehydrating measures, sometimes further enhanced by the effect of the xanthine derivatives, decrease the fluidity and the volume of the blood.

TREATMENT WITH DICUMAROL

Dicumarol therapy represents the first step in the form of a positive therapeutic approach to the problem of coronary thrombosis and ensuing myocardial infarction, except for oxygen. The eventual place of this drug in the management of coronary occlusion cannot be arbitrarily stated at this time, much further comparative investigation being essential before any final conclusions can be drawn. The American Heart Association is setting up a committee under the chairmanship of Dr. Irving S. Wright, composed of the heads of large medical services who will be asked to use Dicumarol in alternate cases in an attempt to evaluate its influence on mortality. Wright[9] has treated 80 patients, in whom the anticipated mortality appears to have been reduced at least a third by comparison with previous series on conventional therapy. Wright found that Dicumarol had not aggravated the disease in any patient, and there was no evidence of recent hemorrhages in the intima of the coronary vessels in autopsied hearts. In no case was there any evidence that the old thrombus might have resolved or that the progression of an established infarction had been intercepted. It is realized that such a process cannot be anticipated, but it is thought that the drug may combat the tendency for propagation of a thrombus and may reduce the tendency toward phlebothrombosis and intramural thrombi as well as the incidence of consequent pulmonary infarction and systemic embolism.

Peters, Guyther and Brambel[10] have reported a reduction of embolic phenomena to one-eighth and mortality rate to one-fifth in comparing 50 dicumarolized with 60 nondicumarolized patients, and they concluded that such reduction appeared sufficiently significant to warrant further clinical evaluation of anticoagulant therapy.

Nichol and Page[11] used the drug in 50 consecutive occlusive episodes, with a history of previous myocardial infarction in 20. All 26 patients who suffered their first attack survived. Eight others died within the first six weeks. Six necropsies were performed which failed to reveal any mural thrombi or systemic or pulmonary emboli on these dicumarolized patients.

Contraindications to Dicumarol therapy in coronary occlusion include hemorrhagic blood dyscrasias, advanced hepatic disease, a history of ulcer or recent hemorrhages of the gastrointestinal tract and renal insufficiency which might prevent proper excretion of the drug.

It should be borne in mind that dicumarol therapy may influence to some extent the sedimentation rate, thus making this useful guide concerning progress somewhat less consistent and dependable, although in my experience the test is still useful and worth observing.

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[9] Wright, I. S.: Experiences with Dicumarol in Treatment of Coronary Thrombosis, Am. Heart J. **32**: 2031 (July) 1946.

[10] Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130**: 398-403 (Feb. 16) 1946.

[11] Nichol, E. S., and Page, S. W.: Dicumarol Therapy in Acute Coronary Thrombosis, J. Florida M. A. **32**: 365-370 (Jan.) 1946.

ROUTINE FOR DICUMAROL THERAPY

1. Patients must be hospitalized and Dicumarol therapy must not be attempted unless it is certain that the laboratory is prepared to make accurate prothrombin readings, which must be done each morning before the day's dosage of the drug is given.

2. Preliminary management consists in the administration of papaverine intravenously, with oxygen and morphine if necessary.

3. After the diagnosis is established, check the prothrombin level and give 300 mg. of Dicumarol by mouth.

4. Repeat the dosage of 300 mg. daily after the morning prothrombin level is determined, until 50 per cent is reached.

5. After 50 per cent is reached, give 100 mg. of the drug each morning until 35 per cent is attained.

6. Now stop the medication for several days (as the level is likely to drop lower without further dosage). Thirty-five per cent is the stop signal!

7. When the level again rises above 35 per cent, give 50 to 100 mg. of the drug daily, attempting to hold the level between 35 per cent and 50 per cent.

8. Keep this level for four to six weeks, as long as the patient is in hospital.

9. If the level gets down to 15 per cent (rare), watch for hemorrhagic phenomena, such as red cells in urine, petechial spots or purpuric areas. Treatment: Give 60 to 72 mg. of synthetic vitamin K intravenously; give the second dose in four hours.

10. In the event of alarming hemorrhage, give *freshly* citrated blood as often as needed. Blood loses its prothrombin in from twenty-four to thirty-six hours.

Since 1942, Barker[12] has reported no serious or fatal hemorrhage except in 1 patient with carcinoma of the duodenum, in over 1,000 cases of all types treated with Dicumarol.

For the pain of an actual occlusion just as in threatened occlusion, intravenous papaverine should be given promptly, followed in ten to fifteen minutes by hypodermic or intravenous morphine if needed. Such measures not only relieve pain rapidly but appear to minimize shock and may even serve to limit the coronary vasoconstrictor reflex, with all the implications such limitation may have on the ultimate extent of the infarcted area. Prevention of reflex vagus vasoconstriction by the administration of 1/75 grain (0.86 mg.) of atropine appears to be a sound measure, even though no more than a well founded suspicion of developing infarction exists. The antifibrillation effect of papaverine, as demonstrated by Lindner and Katz[13] in experiments on dogs, appears to justify the clinical use of this drug in myocardial infarction. LeRoy and Snider[14] demonstrated that after coronary ligation in dogs there was a generalized coronary vasoconstriction subsequent to the myocardial infarction. This seemed to be the factor bringing about ventricular fibrillation, which, when it occurred, appeared to be the immediate cause of death in animals succumbing to the experiment. It would appear that the protection of the regional myocardium from vasoconstrictive reflexes, which might extend the area of infarction or even produce fatal ventricular fibrillation, constitutes sufficient rationale for the use of papaverine in all cases of severe or sustained coronary pain.

Absolute physical and mental rest is of course imperative. Anxiety should be attenuated in every way possible. Oxygen given by nasal catheter or comfortable facial mask is an important protective measure and is always indicated, particularly in severe infarctions.

The occurrence of frequent ventricular extrasystoles after myocardial infarction appears to be an ominous sign. Woods and Barnes[15] observed that the more frequently they occurred the greater was the mortality. It is the opinion of several observers that infarcted areas of myocardium are hyperirritable and constitute foci for ectopic beats, which by their summation may lead to ventricular fibrillation, a frequent cause of sudden death after myocardial infarction, and one which can apparently be minimized by the use of quinidine sulfate, which seems to be more effective as a prophylactic agent against ventricular tachycardia and fibrillation than as a curative one. I[16] have been using 3 grains (0.2 Gm.) of quinidine sulfate three times a day in the management of severe myocardial infarctions, particularly where there is a tendency to extrasystoles.

During the period of convalescence from myocardial infarctions, because of the lowered blood pressure and prolonged period of rest in bed, circumstances are favorable for the formation of thrombi in the iliac veins, from which source pulmonary embolisms produced 10 per cent of the deaths following acute myocardial infarction, as reported by Woods and Barnes[15] and Bean.[17] The latter reported that every instance of fatal massive pulmonary embolism after myocardial infarction had arisen from the veins of the pelvis or lower extremities. In addition to the anticoagulant effect of Dicumarol, one may combine knee flexing and deep breathing after the method of Potts,[18] who employed this procedure several times a day in postoperative surgical cases for the prevention of phlebothrombosis and subsequent pulmonary embolism. With this objective in mind, convalescent patients with myocardial infarction are instructed to take from eight to ten deep breaths while the legs are being flexed, at first passively and later actively, four times daily. Coronary thrombosis does not often repeat itself within a few weeks. An apparent second attack at such a time is usually due to pulmonary embolism, especially from leg veins. Dicumarol therapy apparently obviates such a complication, as it appears to discourage venous and intramural thromboses from forming (Nichol and Page[11]).

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[12] Barker, N. W., and others: Use of Dicumarol in Prevention of Post-Operative Thrombosis and Embolism, Surgery **17:** 207-217 (Feb.) 1945.

[13] Lindner, E., and Katz, L. N.: Papaverine Hydrochloride and Ventricular Fibrillation, Am. J. Physiol. **133:** 155-160 (May) 1941.

[14] LeRoy, G. V., and Snider, S. S.: Sudden Death of Patients with Few Symptoms of Heart Disease, J. A. M. A. **117:** 2019-2024 (Dec. 13) 1941.

[15] Woods, R. M., and Barnes, A. R.: Factors Influencing Mortality Rate Following Acute Coronary Occlusion, Proc. Staff Meet., Mayo Clin. **16:** 341-345 (May) 1941.

[16] Falk, O. P. J.: Causes and Prevention of Sudden Death in Coronary Disease, J. A. M. A. **119:** 1250-1252 (Aug. 15) 1942.

[17] Bean, W. B.: Infarction of the Heart: III. Clinical Course and Morphological Findings, Ann. Int. Med. **12:** 71-94 (July) 1938.

[18] Potts, W. J.: Pulmonary Embolism, Ann. Surg. **111:** 554-563 (April) 1940.

Myocardial failure associated with severe pulmonary edema and, sometimes, acute hepatic congestion is an occasional complication of myocardial infarction. Indications for its management include the judicious and careful use of digitalis and theophylline ethylenediamine, with adequate oxygen therapy.

MYOCARDIAL INFARCTION AFTER SURGICAL OPERATIONS

Coronary occlusion and myocardial infarction are not infrequently the cause of sudden death in subjects past middle life during surgical anesthesia and in the early postoperative period. The fall in blood pressure that characterizes such states presents an ideal situation for an already impaired coronary vessel to develop complete occlusion. This possibility justifies a painstaking preoperative appraisal of coronary efficiency and myocardial reserve, by careful inquiry into the middle-aged and older patient's cardiac response to the demands of his every day life, as well as a comprehensive survey and evaluation of the objective clinical, roentgenologic and electrocardiographic data. Naturally the proper choice of anesthetic with careful observation and management during anesthesia and in the immediate postoperative period is imperative. It would appear good judgment to reduce the time of surgical procedure to a minimum in any case of suspected coronary insufficiency. One must always bear in mind the danger of medical or surgical shock as a precipitating factor in the production of myocardial infarction, especially if the history of the patient suggests the presence of chronic coronary disease.

DIET AND ELIMINATION IN MYOCARDIAL INFARCTION

After three or four days of liquid diet the patient may receive a soft diet, which may include cooked cereals, weak tea, broth, gelatin, cottage cheese, applesauce, junket, baked potatoes and soft boiled eggs. No food is to be taken in large quantities. A small glass of milk or malted milk with a few wafers may be taken between meals if desired. Should the first week show evident progress without complications, a light general diet may be given, limiting the size of meals and minimizing fat, which tends to delay gastric emptying. Although increased blood cholesterol is not infrequently associated with coronary atherosclerosis, particularly in middle-aged subjects, a low fat diet alone does not reduce cholesterol levels. It appears to be the manner in which fat is disposed of and not the amount in the food that counts. Roughage should be limited because of its influence on gaseous distention. In general small meals, eaten slowly, and unaccompanied by much fluid, are preferable. Such a diet may include all the softer vegetables, eggs, lean meat, fowl or fish, toasted bread, cereals, tapioca, cooked ripe fruits, fruit juices and gelatin.

With regard to bowel movement, moderate elimination is to be procured with the least possible disturbance. Therefore the use of oil and agar preparations morning and evening, augmented by a glycerin suppository or small enema when necessary, is the optimum arrangement. The patient must be warned not to strain at stool or to try to help himself on or off the bedpan, as any extra exertion may present a serious hazard. When a chair commode presents less effort and stress, its cautious use is recommended.

REST IN THE TREATMENT OF CORONARY DISEASE

Arbitrary standardization of the time essential for complete rest in bed and avoidance of all physical activity after myocardial infarction is manifestly impossible. Acute coronary insufficiency frequently requires only a week or ten days of rest in bed, provided no area of actual infarction develops, which can be determined by the clinical course, sedimentation rate and electrocardiographic findings. Moderate degrees of [illegible] may only require three weeks of rest in bed, but the severer types require a minimum of from four to six weeks. Frequently the beneficial effects of rest in bed are offset by visitors, the intrusion of personal responsibilities or business worries, all of which should be shut off entirely from the patient's immediate horizon during his period of convalescence.

After recovery the most important phase in the restoration of reasonable functional capacity is adaptation to a lowered plane of activity, the development of a more philosophic outlook on life and the transition to a more tranquil and quiet existence. A degree of personal interest and patient guidance, tinctured with an understanding optimism is of greater benefit to a coronary convalescent than any program of medication, which on the whole is essentially protective in its objective.

The etiologic trinity of coronary disease consists of the predisposing, the precipitating and the perpetuating influences. The predisposing has already manifested itself in the afflicted subject—more often than not inscribed in the archives of his family history. Precipitating influences should be thoughtfully avoided and the lethal threat of stress and strain kept in mind. The perpetuating influences of coronary disease have been discussed, including overweight, injudicious habits of eating, drinking and smoking, uncurbed emotional proclivities along with unwarranted fatigue, all of which must be carefully and thoughtfully avoided in the interest of functional recovery and future welfare.

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ABSTRACT OF DISCUSSION

Dr. E. Sterling Nichol, Miami, Fla.: My comments will concern the treatment of acute coronary thrombosis with Dicumarol. The principal reason for using an anticoagulant in coronary thrombosis is to prevent embolic phenomena and extension of the initial thrombus or the occurrence of a second thrombus during the convalescence. The incidence varies, depending on whether one is dealing with clinical or autopsy data. To date 68 attacks occurring in 62 patients have been treated over the past three years. These were unselected, consecutive episodes, as it was not considered possible to tell which patient would need an anticoagulant. Although the idea of treating with Dicumarol only if the prothrombin activity is increased may be very good, there are other variables about which nothing is known. One cannot select a patient and say "he will have a small infarct." The results were not astounding but do compare favorably with published series. In the 68 attacks, 11 deaths gave a mortality of 16 per cent. No proven embolic phenomena occurred in the entire series. One patient may have died with pulmonary infarction, but no autopsy was allowed. In the 8 autopsies performed there were absolutely no signs of mural thrombi. Since autopsy statistics show that 50 per cent of all myocardial infarcts produce mural thrombi, it seems rather significant that in these 8 cases no mural thrombi were found. There were 38 first attacks with only 1 death, which is certainly a satisfactory ratio. Heparin will probably replace Dicumarol as an anticoagulant as soon as it becomes available in the Pitkin solution. I would like to take substantial exception to the idea that the best treatment for coronary thrombosis is "masterful inactivity." Comparison of mortality figures published over the past twenty years with the clinician philosophy reveals a striking parallel between the death rate and the inactivity!

Dr. William J. Kerr, San Francisco: In most patients with angina pectoris the major factor which is responsible for controlling the person's symptoms is getting more blood back to the heart. Methods have been devised which will aid in getting blood back to the heart by the use of a properly fitting elastic abdominal belt. In a period of ten years I have had hundreds of patients with angina pectoris, and most patients who fall in this general category are almost entirely relieved of attacks of anginal pain immediately, as soon as the belt is put on and properly adjusted. Most of the patients in this category no longer require any vasodilating drugs. Their weight is reduced as may be necessary, and later postural training is instituted. One of the most important factors in the treatment of the patient with an acute attack of coronary occlusion with infarction is the immediate relief of pain. One can give small doses of morphine intravenously immediately. The pain usually will stop while the morphine is being given. That is a great advance in the shortening of the attack of pain and thereby in the reduction of shock. It is the shock that often extends the zone of infarction. As Dr. Falk so well pointed out, many things are done that might even promote the extension of the infarcted area. It is essential that the patients start moving their arms and legs to prevent thrombosis in the veins. Do this as soon as possible. Many of the patients that I see in the second week or third week after an attack, when it is thought they are having a subsequent attack or an extension of the process, have only a pulmonary embolus resulting from a thrombosis in some part of the periphery. Vasodilators given in too large amounts may be harmful, because if there are narrowed coronary orifices or there is sufficient narrowing of the vessels in some part of the coronary system, should vasodilators cause peripheral dilatation and also result in dilatation of the coronaries, their purpose has been defeated. Temporary relief of pain may be obtained, but it may make patients worse. I have seen patients who have been taking 20 and 30 tablets of glyceryl trinitrate a day get worse and worse. By omitting these drugs entirely they may be almost completely relieved of their attacks. Some have spoken about the persistent pains in the shoulders of patients with coronary occlusion, assuming that this is on some reflex basis. There may be some patients in this category, but most of the patients I see have the frozen shoulder or bursitis or have shortening of the pectoralis muscles and latissimus dorsi and their tendons. That is the chief cause of painful shoulder, in my experience, and it is not due to some reflex from the diseased arm.

Dr. O. P. J. Falk, St. Louis: I believe every point has been covered by the generous discussion of Drs. Nichol and Kerr, for which I am grateful.

Eyestrain.—The most common factor determining eyestrain today, even to those with normal eyes, is insufficient or ill distributed illumination. There is a popular superstition that too much light is bad for the eyes and that harm results from work under artificial illumination: it is true that to look directly into the sun is dangerous since the infra-red rays may produce a retinal burn, but the eyes have been evolved to see and work most efficiently under illuminations comparable to that of diffuse daylight. There is no medical danger in artificial lighting; its usual fault is that it is either not nearly strong enough or so badly distributed as to induce the annoyance of glare. Summer sunlight at noon has an intensity of the order of 10,000 foot-candles, and on an overcast day it is about 1,000 foot-candles. Too often at work or when reading in the evening the illumination available is of the order of 1 or 2 foot-candles. No one can work or read efficiently or comfortably unless he sees what he is doing, and it is only necessary to turn on the available artificial light at noon to realize how poor a showing it makes and how great are the disadvantages under which our eyes habitually work.—Stewart Duke-Elder: Eyestrain, *Practitioner,* May 1947.

INFILTRATING CARCINOMA OF THE BLADDER

Application of Pathologic Observations to Clinical Diagnosis and Prognosis

HUGH J. JEWETT, M.D.
Baltimore

An inquiry into the reasons for the existing low survival rate in cases of infiltrating carcinoma of the bladder has disclosed four cardinal causes of failure with any method of treatment: (1) preexisting metastases; (2) preexisting extravesical extension; (3) intercurrent complications, and (4) incomplete destruction or extirpation of the primary growth.

It therefore seems obvious that accurate evaluation of the efficacy of any treatment in the total eradication of primary infiltrating tumors will depend first on the exclusion of metastasis and extravesical extension. The clinical application of our recent pathologic observations[1] to each individual patient now permits the exclusion or recognition of metastasis and extravesical extension in a fairly high percentage of cases and indicates the prognosis in most instances.

In 1944 the late Dr. Hugh H. Young proposed to me an analysis of the 1,400 cases of carcinoma of the bladder in the files of the Brady Urological Institute, for the purpose of ascertaining and standardizing the best method of treatment for each type of case. However, a preliminary survey made with the assistance of Dr. John Egan revealed the uselessness of such a program. First, in a large but uncertain number of cases the disease apparently had been hopelessly advanced and incurable at the time treatment was commenced, although many failures undoubtedly had resulted from incomplete destruction of a potentially curable tumor. Second, in some instances it seemed that cures had been attributed to certain methods of treatment although there was no conclusive evidence that the tumor had been infiltrating, beyond the impression gained from simple cystoscopic inspection. Therefore, since infiltration had not been established in every case and metastasis and extravesical extension had not been properly excluded, an accurate appraisal of treatment was not possible at that time.

The presence of metastasis or extravesical extension indicates an advanced stage of tumor, which is obviously incurable by any of the known methods of treatment. Four common reasons exist for the fact that these extensive tumors still comprise a large proportion of the vesical neoplasms seen in many urologic clinics. First, cancer of the bladder usually has an insidious onset and grows silently and sluggishly. Thus, the characteristic symptoms of hematuria and vesical irritability, of which one or the other appears in 80 per cent of the cases, may occur late. Second, the patients themselves, or their physicians, are often apathetic toward these warning symptoms for long periods of time. In a recent study[2] of 103 cases at the Johns

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From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] (*a*) Jewett, H. J.: Infiltrating Carcinoma of Bladder: Relation of Potential Curability to Depth of Infiltration, Tr. Am. A. Genito-Urin. Surgeons **37**: 51-65, 1944. (*b*) Jewett, H. J., and Strong, G. H.: Infiltrating Carcinoma of the Bladder: Relation of Depth of Penetration of the Bladder Wall to Incidence of Local Extension and Metastases, J. Urol. **55**: 366-372 (April) 1946.

[2] Jewett, H. J., and Strong, G. H.: Infiltrating Carcinoma of the Urinary Bladder: Diagnosis and Clinical Evaluation of Curability, South. M. J. **39**: 203-208 (March) 1946.

Hopkins Hospital, it was found that, prior to admission, 31 per cent of the patients had had symptoms from two and a half weeks to six months, and 50 per cent had had symptoms longer than one year. Third, after early and accurate diagnosis, the conservative treatment employed sometimes results in incomplete destruction of the tumor, and its growth may continue in the bladder wall beyond the range of cystoscopic visualization. Fourth, the diagnosis occasionally is missed in the case of a small, superficially infiltrating, sessile tumor, a specimen of which is not subjected to biopsy.

In summary, then, if one excludes an unnoticed recurrence caused by a persistent carcinogenic agent, two general causes exist for low curability: (1) late diagnosis, at which time there usually is extravesical spread, and (2) inefficacy of treatment, which allows a tumor without extravesical spread to persist, often unrecognized, in the bladder wall until it has extended extravesically or metastasized. Late diagnosis will be avoided only after more complete education of the members of the laity and the medical profession. Inefficacy of treatment will be recognized earlier and more frequently when the importance of an accurate appraisal of the entire pathologic picture is more fully appreciated. The efficacy of different methods of treatment under varying conditions will be demonstrated by the results obtained in the case of potentially curable tumors; that is, in cases in which there is no evidence of local extravesical extension or metastasis.

PATHOLOGY

In order to determine the conditions under which extravesical extension and metastasis occur, Dr. George H. Strong and I, in 1944, studied a series of 107 cases of infiltrating carcinoma of the bladder on which autopsies had been performed at the Johns Hopkins Hospital.[2a] We separated the cases into three groups (table 1): Group A comprised those in which penetration was limited to the submucosa. Group B consisted of those in which infiltration had extended into, but not through, the muscularis. Group C included all cases in which tumor cells had extended completely through the muscularis. We then determined in each group the number of cases with metastases, the number showing local lymphatic invasion only and the number with perivesical fixation of the mass. In each group the number without these three evidences of tumor spread gave us our figure for potential curability, which naturally represented only a theoretic possibility. Although the figure for potential curability is probably too high in each category,[3] the wide discrepancy between that in group B and that in group C is significant. Metastasis and extravesical extension are frequently associated with group C tumors and explain the low curability in this group following all methods of treatment.

Of the 89 cases comprising group C, regional or distant metastases were reported in 52. The cardinal sites and the frequency with which they were involved are indicated in table 2.

In 1945, the late Dr. S. S. Blackman of the Department of Pathology and I made a critical study of the histopathology of the tumors and their metastases in our series of autopsy cases.[4] The purpose of this study was twofold: First, to understand better the biologic characteristics of each individual tumor, and second, to see whether the correlation of the microscopic anatomy of the tumor with its degree of penetration of the bladder wall would have any bearing on the incidence of metastasis.

Without any preconceived ideas in regard to classification, we examined histologically 97 of our 107 autopsy cases, in which the pathologic material was suitable for detailed microscopic study. Only 48 of the primary tumors consisted of a homogeneous histologic pattern with practically the same degree of cellular differentiation throughout the available sections. Twenty-six manifested a homogeneous pattern but showed variation in the degree of cellular differentiation. In the remaining 21 cases the primary tumor was papillary in some places and epidermoid in others, and in some of these cases there was also a considerable variation in the degree of cellular differentiation.

TABLE 1.—*Relation of Curability to Depth of Infiltration in One Hundred and Seven Autopsy Cases*

	Infiltrating Carcinoma of Bladder		
	Group A	Group B	Group C
Number of cases	3	15	89
Metastases	0	1	52
Perivesical lymphatic invasion only	0	1	6
Perivesical fixation only	0	0	8
Potentially curable	3	13	23

TABLE 2.—*Cardinal Sites and Frequency of Metastasis in Group C, with Metastasis in Fifty-Two of Eighty-Nine Cases*

Site of Metastasis in 52 Cases	Number of Cases
1. Regional nodes	33*
2. Liver	26
3. Lungs	18
4. Vertebra, including pelvis	11
Other sites	20

Other sites involved in only 4 cases without involvement of sites 1, 2, 3 or 4.

* Nodes negative in 19.

Seventy-five of these cases were uniformly papillary, epidermoid or totally undifferentiated carcinoma throughout the available sections. However, we were able to demonstrate variation in the degree of cellular differentiation in 53 of the papillary and epidermoid carcinomas. Since variation in the degree of differentiation throughout a single tumor makes accurate classification on such a basis impossible, it seems obvious that infiltrating carcinomas of the bladder cannot be so classified with any degree of accuracy.

It therefore seems justifiable, from the evidence so far obtained, to segregate the tumors according to the three major categories, papillary, epidermoid and undifferentiated carcinoma, and in the papillary and epidermoid groups to record the poorly differentiated varieties. A section, however, which shows only a well differentiated carcinoma may be misleading, for in another area of the same tumor the cells may be totally undifferentiated.

The correlation of the microscopic anatomic structure of these tumors with the depth to which they had penetrated the bladder wall was of considerable significance. In group A (table 1) only 2 of the 3 cases were suitable for accurate classification. One was fairly well differentiated papillary carcinoma, and the other, poorly differentiated papillary carcinoma. Neither had metastasized.

[2a] Footnotes 1b and 2.

[3] A higher incidence of metastasis undoubtedly would have been found among these autopsy cases if all grossly normal regional lymph nodes had been sectioned.

[4] Jewett, H. J., and Blackman, S. S.: Infiltrating Carcinoma of the Bladder: Histologic Pattern and Degree of Cellular Differentiation in Ninety-Seven Autopsy Cases, J. Urol. **56**: 200-210 (Aug.) 1946.

Table 3 shows the histologic classification of the tumors comprising group B, and table 4, those comprising group C. A comparison of these two tables shows that undifferentiated carcinoma did not appear among the small number of cases comprising group B and epidermoid carcinoma predominated in group C. With these exceptions, however, the microscopic anatomy of the tumors in these two groups was much the same, but local lymphatic invasion and metastasis were infrequent in group B. It is possible that they would have been more frequent if the highly malignant, undifferentiated carcinomas had been present.

The ability to invade lymphatics depends on the malignancy of the tumor. But the presence or absence of lymphatic invasion in the case of a tumor of known malignancy is governed largely by accident. Since the tumors in group C are larger and the lymphatics in their environment are larger and more numerous,[1b] the opportunity for metastasis is greater in this group.

Table 3.—*Histologic Classification of Fourteen Tumors in Group B*

	Primary Tumor	Metastases
Papillary carcinoma	10	1
Epidermoid carcinoma	4	0
Undifferentiated carcinoma	0	0

In the papillary group 4 tumors were poorly differentiated, and 1 of these had metastasized.

In the epidermoid group 2 were poorly differentiated, and neither had metastasized.

Table 4.—*Histologic Classification of Eighty-One Tumors in Group C*

	Primary Tumor	Metastases
Papillary carcinoma	28	11
Epidermoid carcinoma	35	22
Undifferentiated carcinoma	18	15

In the papillary group 13 tumors were poorly differentiated, and 5 of these had metastasized. In the epidermoid group there were 22 cases in which the tumors were poorly differentiated, and of these 16 had metastasized.

It therefore may be said that the cellular appearance alone of an infiltrating carcinoma of the bladder indicates neither the presence nor the absence of metastasis. However, when the tumor is known to be deeply infiltrating, the poorly differentiated papillary carcinomas have metastasized in nearly half the cases,[3] the poorly differentiated epidermoid carcinomas in at least three fourths, and the undifferentiated carcinomas in practically all the cases.

For the clinical application of all these pathologic data, it is necessary that the diagnosis in each case be complete. The mere observation that a tumor exists in the bladder is not sufficient. The entire pathologic condition must be appraised.

SYMPTOMATOLOGY

The diagnosis will be made earlier when the patient and his physician fully appreciate the disastrous consequences of apathy toward slight hematuria or vesical irritability, especially in patients over 40 years of age. In a previous report [2] it was emphasized that cancer of the bladder claims 3.2 per cent of all persons dying of malignant disease. In this same report it was shown that, in our series of 107 cases, the presenting symptom was hematuria in 66 (61.7 per cent) and vesical irritability (frequency, urgency and pain on urination, usually with pyuria) in 34 (31.8 per cent). One or the other, but not both, of these 2 symptoms was present in 87 (81.3 per cent) of the cases.

DIAGNOSIS

The diagnosis is necessarily incomplete unless three specific procedures are carried out. These are cystoscopy, biopsy and bimanual palpation.

1. *Cystoscopy.*—The recognition of tumor of the bladder usually rests on cystoscopic inspection of the gross characteristics of that portion of the mass lying within range of visualization. Its size, location and margins must be noted. Most cases are recognized as pedunculated or sessile and may or may not be associated with edema, necrosis and ulceration with fibrin or calcareous deposition and hemorrhage. Papillary cystitis, bullous edema and simple ulceration occasionally make accurate diagnosis difficult.

2. *Biopsy.*—In questionable cases the diagnosis is established by a properly taken biopsy specimen. A good sized piece of tissue, including some muscularis, should be removed under anesthesia, preferably with a cold rongeur. In the case of pedunculated tumors the piece should be taken immediately beneath the base of the pedicle (figs. 1, 2 and 3). In this case a specimen of superficial tissue for biopsy would have led to the diagnosis of benign papilloma, whereas beneath it, in the wall of the bladder, lay a moderately differentiated epidermoid carcinoma.

The inclusion of some muscularis in the properly taken biopsy specimen establishes the presence or absence of infiltration as well as the diagnosis of tumor. The clue to the prognosis, however, is not furnished by biopsy alone, for it must be borne in mind that this tissue represents only a relatively small part of the whole tumor. Poorly differentiated carcinomas, when deeply infiltrating, have metastasized in the majority of cases. When they are superficially infiltrating, metastases from these tumors are infrequent. Carcinomas which appear well differentiated in biopsy sections may actually be poorly differentiated in other areas.[4]

3. *Bimanual Palpation.*—With the diagnosis made, and with infiltration established by biopsy, the next step is to determine the extent to which the tumor has penetrated the bladder wall. Since deeply infiltrating tumors in over 80 per cent of the cases cause stony, hard induration, and since superficially infiltrating tumors practically never cause stony induration, the clinical segregation of these two groups of cases will depend largely on accurate palpation. In the male, this is best accomplished rectoabdominally under anesthesia deep enough to achieve complete muscular relaxation.[5] In the female, simple pelvic examination usually suffices.

The significance of the observations is as follows:

1. Extravesical extension, with or without fixation, is readily recognized and indicates incurability.

2. Stony induration without evidence of extravesical extension indicates the presence of metastasis in the

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[5] Jewett, H. J.: Carcinoma of the Bladder: The Importance of Recto-Abdominal Palpation Under Anesthesia in the Selection of Cases for Total Cystectomy, J. Urol. **49**: 34-41 (Jan.) 1943.

great majority of poorly differentiated tumors and in nearly all undifferentiated tumors.

3. Rubbery induration without extravesical extension denotes a slightly lower incidence of metastasis. In cases of this type, if undifferentiated carcinoma can be excluded, complete destruction or extirpation of the primary growth should result possibly in a higher percentage of cures.

4. No palpable induration, with the patient under completely satisfactory anesthesia and relaxation, indicates in practically all cases absence of metastasis and therefore a high potential curability.

Roentgenograms of chest, spine and pelvis, excretory urography and the examination at laparotomy of the bladder, regional lymph nodes and liver complete the appraisal of the gross pathologic condition.

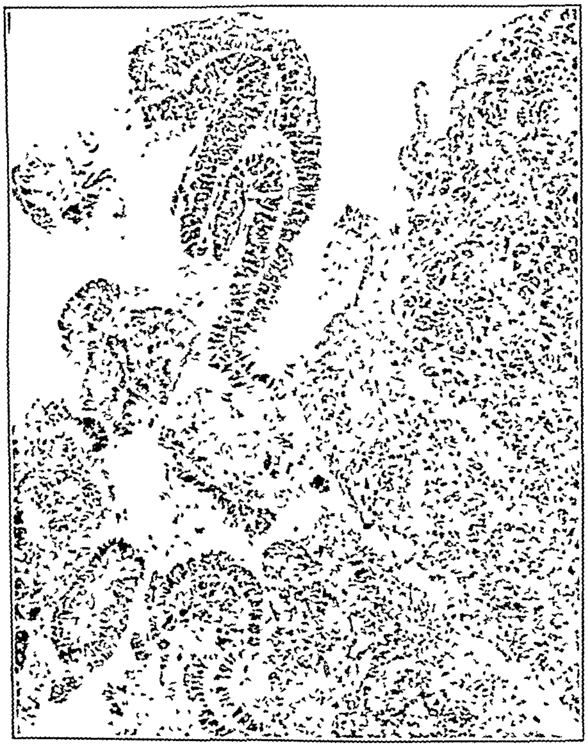

Fig 1 —Photomicrograph of a section of bladder wall showing papillomas on the surface and infiltrating carcinoma in the underlying tissues

In cases without metastasis and extravesical extension a good prognosis presupposes complete eradication of the tumor of the bladder and early, adequate treatment of future recurrences.

SUMMARY

Incurability in infiltrating carcinoma of the bladder depends largely on metastasis and extravesical extension. These may occur before, during or after treatment. The efficacy of the treatment can be evaluated only when these factors can be excluded before treatment. This can be done with a fair degree of accuracy only by clinical appraisal of the entire pathologic condition, of which the most significant component is the extent to which the tumor has penetrated the bladder wall.

Deeply infiltrating tumors are associated with a high incidence of metastasis and as a rule cause stony induration, which usually can be felt by bimanual palpation with the patient under anesthesia. When tumors of this type are poorly differentiated they probably have metastasized in nearly all the cases.

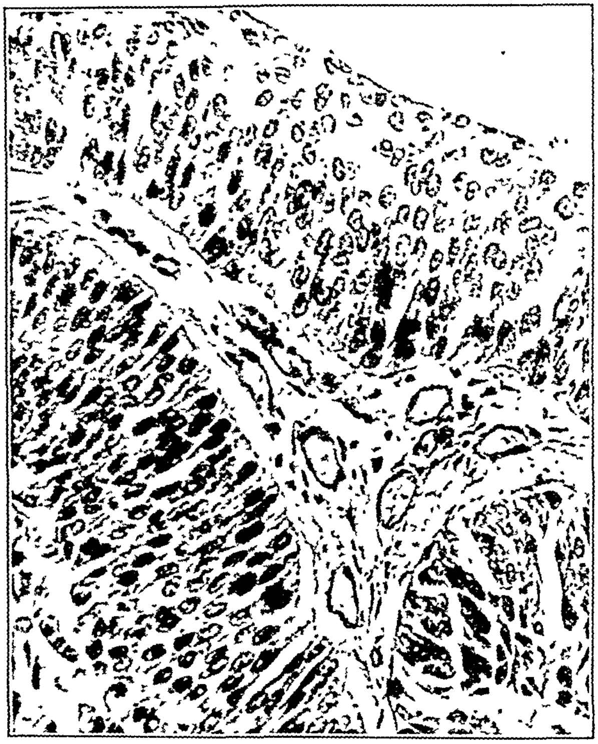

Fig 2.—High power view of section of benign papilloma in fig. 1.

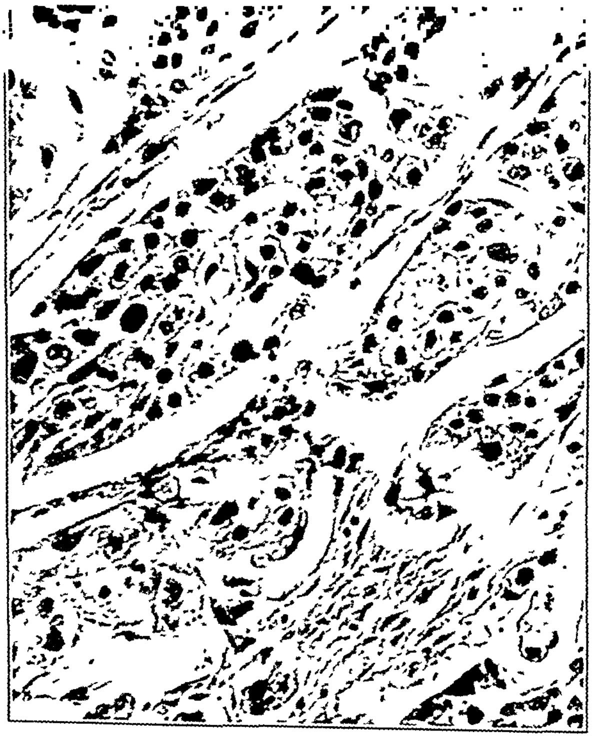

Fig. 3 —High power view of moderately differentiated epidermoid carcinoma in the bladder wall beneath the benign papilloma in figs 1 and 2

Superficially infiltrating tumors produce in the bladder wall a consistency varying from normal to rubbery. In these tumors the incidence of metastasis is low except perhaps in the case of undifferentiated carcinomas.

CONCLUSIONS

In infiltrating carcinoma of the bladder an evaluation of all the obtainable data concerning its gross and microscopic characteristics will indicate, with a fair degree of accuracy, the presence or absence of metastasis and extravesical extension. When these are absent, a good prognosis will depend on complete destruction or extirpation of the tumor and adequate treatment of future recurrences.

ENDOSCOPIC TREATMENT OF TUMORS OF THE BLADDER

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The purpose of this paper is to present some of the advantages of the endoscopic method of resection of tumors of the bladder. It is by no means proposed that all such tumors be treated by endoscopic means. It is recognized and admitted that open operation is the method of choice in certain types of tumors of the bladder, especially if they are located in the free portion of the bladder. In the majority of these tumors, however, treatment by means of endoscopic surgery offers more satisfactory results than open surgery.

In successful management of tumors of the bladder the most important factor is early diagnosis. Tumors which are discovered in an early stage are more likely to be curable by endoscopic means. Tumors found early are less likely to be infiltrating, are more likely to be pedunculated. Tumors found early are less likely to be malignant. Although these facts have been emphasized repeatedly, patients are still being seen with tumors of the bladder who have had hematuria for months and in some instances for a year or longer. The family physician must insist on immediate cystoscopic examination of the patient when blood appears in the urine. To fail in this is to be guilty of malpractice. The value of early endoscopic examination to determine the source of blood in the urine cannot be overemphasized. The danger of delay cannot be overemphasized. We must continue to call attention to this fact again and again.

In considering the treatment of tumors of the bladder by endoscopic means, two main groups are recognized. In the first group we place tumors that are considered curable. In this group are nonmalignant papillomas, pedunculated malignant papillomas, small elevated carcinomas either noninfiltrating or of the early infiltrative type, possibly only through the mucosa.

In the second group we place tumors that are not considered curable. In this group are extensive malignant papillomas, extensive carcinomas and recurrent nodules following previous operative intervention. Treatment in this group is palliative, but, as will be shown, is by no means hopeless.

When seen sufficiently early practically all tumors of the bladder fall into group 1 and are curable. Endoscopic resection of the tumor with wide and deep destruction of the base is the method of choice in the treatment of these early tumors.

Technic: The Stern-McCarthy resectoscope activated by the electrosurgical unit is the apparatus customarily used. A short beaked sheath is preferable to the standard length sheath.

The end of the standard resectoscope sheath projects over and beyond the loop and often prevents thorough resection of a tumor mass, especially when it is located in a concave portion of the bladder. With the end of the beak cut off or shortened the operator can get the loop of the resectoscope closer to the tumor and can thoroughly resect and even excavate the base of the tumor. The resection of the tumor base should be extended through the mucosa and at least half through the muscle of the bladder. The resection should extend ¼ to ½ inch (0.5 to 1 cm.) wide on all sides beyond the base of the tumor. Fulguration of this area should be thorough. Rest of the bladder by insertion of a retention catheter should be maintained for three to four days, after which the catheter may be removed. From six weeks to two months after the resection the bladder should be inspected. The whole bladder as well as the previously resected area should be examined. Regular inspection must be made at three month intervals for three years and then at four month intervals for two or more years longer. An added precaution is yearly inspection of the bladder even after five years have elapsed without recurrence. Provided no recurrences are observed in this time the patient may be considered cured. Destruction by fulguration of any recurrent small tumor masses can usually be performed in the office. As a rule the recurrent tumor does not get sufficiently large between inspections to necessitate more radical treatment.

Examples of tumors of the bladder entirely cured by endoscopic resection are numerous in the experience of almost every urologist. A few cases will suffice to illustrate.

Case 1.—Mr. J. E. H., aged 39, came in three weeks after blood was noticed in the urine. A small tumor in the left side of the bladder just outside the trigone was resected, and the base was fulgurated. Microscopic examination of the tissue showed papillary carcinoma, grade 2. Regular cystoscopic examinations have been made for six and a half years. No recurrence has been found.

Case 2.—Mr. W. H. S., aged 63, first noticed blood in the urine six weeks before coming in for examination nine years ago. Cystoscopic examination revealed a mass approximately 2 cm. in diameter just lateral to the right ureter. The lateral lobe of the prostate gland was seen to be pressing into the urethra from each side. Complete resection and fulguration of the base of the tumor was done. The prostate gland was resected at the same time. Microscopic studies showed that the tumor of the bladder was a papillary adenocarcinoma, grade 3. The prostatic tissue showed benign hyperplasia. This patient came back for regular cystoscopic inspections every three months for a period of three years. No recurrence was noted in this time. A report received from him two weeks ago states that he has moved to Florida and is well.

Case 3.—Mr. L. P. M., aged 50, came in six years ago with blood in the urine of two months' duration. Examination revealed a tumor in the bladder above and lateral to the right ureter. Endoscopic resection of the tumor was done, and the base of the tumor was fulgurated thoroughly. Microscopic study revealed papillary carcinoma, grade 2. Cystoscopic examination six weeks later showed a slight ulceration still present at the site of the tumor. One month later the tumor site, although healed was fulgurated. Regular cystoscopic inspections have been made since, the last time two months ago. No tumor or evidence of tumor has been found. The importance of regular cystoscopic inspections is again demonstrated.

Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

For extensive tumors of the bladder endoscopic resection is often the means of palliative treatment, sometimes even after the metastases have occurred. Bleeding may be checked, cystitis lessened and function of the bladder improved by endoscopic resection of tumor masses, even though cure or control of the tumor is impossible. The next 4 cases are examples of palliative treatment.

Case 4.—Mr. E. D., aged 67, had been bleeding off and on for over twelve months. Examination revealed a large seminecrotic tumor mass almost filling the left side of the bladder. A cystogram after the injection of air was made, which showed that most of the bladder was occupied by the tumor. There was also grade 2 enlargement of the lateral lobes of the prostate. Metastatic areas were noted by roentgen examination in the lower part of the spine and sacrum. Endoscopic resection of the tumor mass and of the prostate gland was performed. The microscopic sections exhibited papillary carcinoma, grade 3. The prostatic tissue showed benign hyperplasia with fibrosis. This patient experienced great relief for over a year. This improvement and relief justified palliative endoscopic treatment for this man.

Case 5.—Mr. A. M., aged 50, was seen twenty-nine years ago with hematuria of two to three months' duration. A papilloma was found in the bladder and fulgurated with the old high frequency current by my superior, the late Dr. Edgar Ballenger. This patient had recurrences from time to time, and during the succeeding twenty-six years 21 fulgurations were done. When last seen four years ago this man was 75 years of age and without evidence of tumor in the bladder.

Case 6.—Miss R. C., aged 50, noticed blood in her urine eight months before being referred to us by her family physician. It is hard to understand the delay in reference of this case. Cystoscopic study showed extensive malignant tumor involving the dome and upper half of the lateral wall of the bladder. A subtotal cystectomy was performed, and all demonstrable tumor was removed. Microscopic studies revealed epidermoid carcinoma, grade 3. Three months later small recurrences were observed on inspection of the bladder. Endoscopic fulguration was performed in the office. This procedure was repeated eight weeks later, but the tumor was observed to be progressing rapidly, and endoscopic resection of the recurrent masses was then done with the patient under spinal anesthesia in the hospital. Further recurrences may be expected and may be treated by endoscopic resection as before. Provided regular inspections of the bladder are continued, these recurrences may be kept under control.

Case 7.—Mr. E. W. S., aged 47, came in three years ago with a history of recurrent bleeding for twelve months. His family physician told him repeatedly to come in for cystoscopic examination during this twelve months. When he did come in the tumor was about the size of a lime and covered an area in the right side of the base of the bladder. The tumor was removed transurethrally, and the base thoroughly cauterized. He stayed away almost twelve months, and the tumor recurred. Another endoscopic resection was performed, and the patient has reported for inspection of the bladder regularly every three months since. A few weeks ago cystoscopic examination showed a small recurrent tumor mass near the site of the original tumor. The mass was small and was fulgurated in the office. It will be necessary for this man to continue to have regular inspections.

SUMMARY AND CONCLUSIONS

Endoscopic resection is one of the important methods used to control and cure tumors of the bladder. Palliative resections are useful when tumors are recognized late; they are justified in that morbidity is reduced and comfort and relief is afforded many patients with incurable tumors of the bladder. The highest degree of success is afforded when the tumor is recognized early. The importance of early diagnosis therefore is impossible to overemphasize. Hematuria demands immediate investigation as to the source. The family physician must insist on this investigation. Regular cystoscopic inspections at least four times a year are essential and must be insisted on for all patients who have had operations, whether open or endoscopic for tumor of the bladder. This policing job is a must for patients with tumor of the bladder.

57 Forsyth Street, North West.

A COMPARISON OF RADIATION AND SURGERY FOR CANCER OF THE BLADDER

VICTOR F. MARSHALL, M.D.
New York

Apparently there are no spontaneous cures of cancer of the bladder. Forber[1] reported the average duration of life, presumably from the time of diagnosis, of 33 untreated patients to be 18.8 months, while Welch and Nathanson[2] in a series of 28 untreated patients found that 14 had died in fourteen months, 21 had died in thirty months, and 25 had died by the end of five years. The average age of 302 patients of this series was 59.4 years, for which age group statistics compiled by a life insurance company for the general population show a life expectancy of 15.49 years; approximately 88 per cent survive five years. It is obvious, therefore, that untreated cancer of the bladder is a highly fatal disease. Though perhaps not so rapidly lethal as pulmonary and gastric cancer, the situation existing five years after diagnosis is nearly the same. Furthermore, the morbidity associated with tumors of the bladder is great. The fact that there are numerous methods for treatment suggests that none are highly successful. In general, the therapeutic procedures can be divided into two classes: those in which reliance is placed on radiation, and those in which reliance is placed on surgical procedures. No doubt these methods will be improved on, and endocrine and chemical therapy may be added as knowledge of these methods of treatment increases.

Radiation therapy has much to recommend it. Since some cancers have been found definitely radiosensitive, and since the bladder is sufficiently accessible for a reasonable dosage to be delivered, treatment by radiation seems to offer hope on a theoretic basis. Furthermore, some vesical neoplasms have been cured by radiation in actual experience. The immediate mortality is low, and with radon seeds and x-ray machines readily available, the method is convenient for both physician and patient. If radiation is given to the ambulatory patient the turnover in the hospital census may be rapid, allowing a larger number of patients to be treated in the surgeon's time, as compared with the time required for purely surgical therapy. The suffering ambulatory patient is usually less of a burden to the urologist than the miserable inpatient whom he must see daily. Mastery of the technic of radiation is not difficult to acquire by consulting one of several published plans, which are based on sound physical principles; or, even more easily, the precarious respon-

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From the Department of Surgery (Urology) of Cornell University Medical College, the Memorial and New York hospitals.

Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Forber, J. E., in Annual Report of the British Ministry of Health, London, His Majesty's Stationery Office, 1931.

[2] Welch, C. E., and Nathanson, I. T.: Life Expectancy and Incidence of Malignant Disease, Am. J. Cancer 31: 596-597, 1937.

Dr. [illegible]
U. E. B. Medical College
59

sibility for treating these patients may be divided with a radiologist! The surgical skill necessary for the implantation of radon seeds, or radium, into the bladder is rudimentary. The operative time is brief. With all these qualities the radiation method of treating carcinoma of the bladder appears most tempting. Accordingly, it has been popular. Now that a fairly large group of patients has been enthusiastically treated by radiation, it seems only proper to take stock of the results obtained. What percentage of the whole number of patients, whose disease was accurately diagnosed, survived five years? How *many not only survived* but were apparently free of disease five years after diagnosis, when they had been treated by radiation? What was the morbidity? Did patients die of the treatment rather than in the natural course of the disease?

Three hundred consecutive cases of neoplasms of the bladder from 1932 to 1938 inclusive were under the care of the Cornell staff at the New York and Memorial hospitals. In all these cases the lesions have been biopsy-proved to be neoplasm, although it is possible that a few papillomas with atypical features may have crept into the group classified as cancer. Incidentally, the results obtained in cases of benign papillomas were much poorer than anticipated. The pathologic diagnoses were made by Dr. N. C. Foot of the New York Hospital and Drs. Fred W. Stewart and Frank Foote at the Memorial Hospital. In a large number of cases, including all the possible cures, the slides were reexamined. In many instances the slides were examined by all three pathologists with little essential variation in diagnosis. These pathologists do not call simple papilloma grade 1 cancer, and in general their opinions label the grades lower than do many pathologists, including the Bladder Tumor Registry. In fact the use of the Bladder Tumor Registry reports would definitely improve the results in this study by allowing the inclusion of lower grade lesions in higher grades and by allowing many papillomas to be grouped as cancer. No known case was excluded in which a diagnosis of vesical cancer was made, except for approximately 3 to 5 cases, constituting 1 per cent or less, in which the charts of the patients were so incomplete as to be virtually worthless for study. This small exception is more than favorably offset by the inclusion of a few long-term cures being currently followed: that is, cases first observed before 1932 in which the patients have been seen during the last three years. Roentgen, radium and radon therapy were readily available in a variety of forms, although supervoltage radiation was not then available. An early impression of the results obtained by supervoltage radiation, however, is that there is little difference from the results obtained before its use. In brief, the method used was the implantation of radon seeds into the base of the tumor, usually after the excision of the more superficial portion, followed by roentgen radiation delivered around the pelvis. Gold radon seeds, averaging 1.5 millicuries each, were placed 1 cm. equidistant from each other and approximately 0.5 to 1 cm. beneath the surface and into an area 1 to 2 cm. wide of normal-appearing tissue about the margin of the tumor. Technical considerations mainly determined whether the implantation should be suprapubic or cystoscopic, though cystotomy was favored as allowing greater accuracy, particularly for the larger lesions. Roentgen radiation was usually given to six large portals around the pelvis by a 200 or 250 kilovolt machine at 50 to 70 cm. target skin distance, approximately 2,000 r in air to each portal. Recurrences were treated by additional radiation, either radon seeds, roentgen radiation, or both. The end results do not seem to have clear correlation to variations in technic but rather do seem to have correlation to the general size and type of tumor, as will presently be pointed out. Occasionally, roentgen radiation was omitted altogether, but the reason for this is not evident, in view of the enthusiasm for this method which prevailed during that time.

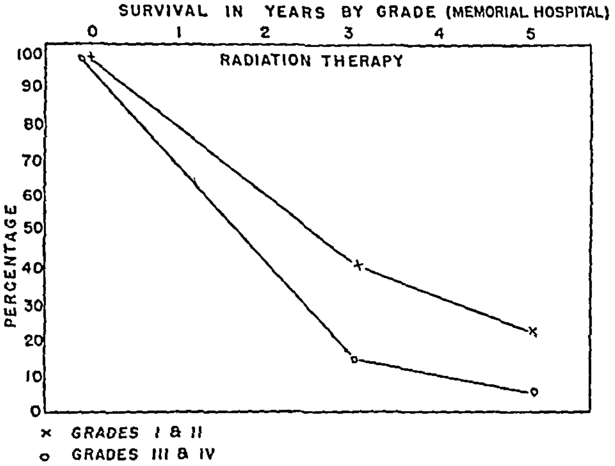

Chart 1.—Survival after radiation therapy.

Table 1.—*Comparison of Survival Rates*

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Average survival	15 years	18.8 mo.	24.5 mo.
Percentage surviving 5 years	88	10	17.3
Percentage of 5 year successful results	—	0	5-6

Of the 300 patients with cancer of the bladder only 52, or 17 per cent, were known to have survived sixty months or more after the time of the diagnosis. Two hundred and forty-two, or 80.6 per cent, were known to be dead at some time in the follow-up, and on only 24, or 8 per cent, there was no reliable record in regard to the five year survival. Accordingly, the follow-up is fairly accurate for this category, so that by the radiation methods used in the thirties a 15 to 20 per cent five year survival was obtained.

Table 2.—*Two Hundred and Fifty-Five Cancers (Not Papilloma) Graded at Memorial Hospital*

11.4% were grade 1
33.3% were grade 2
45.8% were grade 3
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Of the 300 patients with vesical cancer 6 were dead of other causes before the fifth year anniversary, without evidence of neoplasm at the time of death—2 per cent. Three were lost track of, without recurrence—1 per cent. These 9 cases are classified as of indeterminate result, leaving 291 cases on which to base the calculations in this study. Known to be dead as a result of the disease, its complications or treatment are 232, or 79.7 per cent. Twenty-one with disease were lost track of and are considered therapeutic failures; and 11 were living at the five year anniversary, but with disease. Thus the results in 264 of the determinate group of 291 cases are considered failures at the time of the five year anniversary—90.8 per cent. Twenty-seven patients, or 9.2 per cent, were alive and by fair evidence had no neoplasm at the end of five years, although it cannot be said that each of these 27 patients would stand a severe reexamination as to whether they were unquestionably cured. Ideally, there should be no signs or symptoms of tumor of the bladder by all methods of examination, including cystoscopy, on or shortly after the five year anniversary. Practically, the record indicated that there was no tumor found at the last examination, that the patient was definitely alive at the end of five years and that the patient's condition on that anniversary did not suggest persistent or recurrent tumor. The majority of the patients who survived five years were seen in person, but a few answered letters. Almost none of these 27 patients could be regarded as free of disease throughout the five year period, but rather it is meant to say that on the date five years after diagnosis of the disease the record would permit reasonable interpretation of the patient's condition as free of neoplasm. In at least 5 instances the records were not completely satisfactory, but by liberal allowances the patients could be termed free of disease. In 3 or more cases there is some doubt of the pathologic diagnosis of cancer as opposed to papilloma. Three patients were apparently free of disease because of a total cystectomy performed after the failure of radiation therapy. At least 5 have died since the five year anniversary, and some of these had definite symptoms of cancer. In other words, only 10 to 15 of the 27 cases of supposed cure can stand under cross examination as cures most likely effected by radiation: approximately 6 per cent of the entire series.

Table 3.—*Radiation Survival by Grade (Complete Follow-Up for Three Years or More)*

	Average, Mo.	3 Years or More Percentage at
Grades 1 and 2 (107 cases)...............	35.1	40.2
Grades 3 and 4 (132 cases)...............	21.1	15.1

During the era of enthusiasm for radiation, the high morbidity is attested by several items. In 102 consecutive cases at the New York Hospital, 16 patients, or 15 per cent, required unforeseen operations on the upper part of the urinary tract for acute serious processes and not for the autonephrectomy type of lesion. The originally held opinion that radon seeds placed near a ureteral orifice would not cause obstruction, and that if obstruction did occur this would be due to tumor, has been disproved many times; especially has it been the more frequently disproved as follow-up intravenous pyelograms have been made. The vast majority of patients had severe symptoms of cystitis, many lasting several months and some, several years. Contracted bladders, calcific incrustations, actual vesical calculi and poorly healing cystotomy wounds were not unusual. In at least 2 patients there developed fecal fistulas, and in 4 communications developed between the bladder and the vagina. Radiation proctitis, varying degrees of incontinence, late radiation ulcerations of the skin and chronic edema of the genitalia, while not common, were by no means infrequent. Diversion of the urinary stream for symptomatic relief seemed to be performed more commonly as the series increased, but even so 3 patients had cystectomies performed to prevent exsanguination after radiation therapy and urinary diversion had been accomplished. Of course, metastases and local extension of cancer were commonly seen. These considerations should not imply that all this morbidity resulted from the radiation rather than from the disease, but certainly an extensive morbidity was not avoided by radiation, and probably some was added.

A problem which frequently arose was the difficulty of determining whether tumor still existed beneath the inflammation and slough. This is also one of the difficulties encountered in compiling the statistics.

Undoubtedly some of the patients died from the treatment rather than from the disease, as some mortality, however slight, results from almost any form of treatment. How frequently this untoward situation occurred is difficult to say, but some known facts do throw a light on the matter. Of 53 autopsies, including a few apparently accurate reports on cases from other institutions, no metastases were found in 23; 27 did have metastases, while in 3 no statement in this regard appeared in the record. In other words nearly half of the fatal and completely studied cases in these institutions, which are not primarily for terminal care, did not have metastases sufficiently developed to be recognized at autopsy. At any rate, nearly one half of these dead patients died not of carcinomatosis but primarily of sepsis and obstruction of the upper part of the urinary tract, except for the few dying of such relatively unconnected causes as embolism and coronary thrombosis. It seems apparent, therefore, that the rate of survival would have been definitely improved if the upper portion of the urinary tract had been protected from obstruction and infection. In fact, this protection was lacking to such an extent that a significant number of patients died from this lack, some of whom might otherwise have been cured. If a method could be devised for protecting the kidneys, more cures and certainly longer survivals could be accomplished, whether the treatment of the neoplasm was by radiation therapy or by surgical intervention. Penicillin and sulfonamide drugs will be valuable aids but hardly the main solution to the problem, as mechanical obstructions and sloughing neoplastic tissue are the natural prime causes of infection in this disease, to which the trauma of radiation is so often added.

Hospital mortality after the implantation of radon seeds by cystotomy was approximately 5 per cent, which indicates that only a small portion of the poor results can be attributed to the surgical procedures involved, especially as one remembers that death after operative intervention in a patient with cancer does not by any means indicate that death was due directly to the surgical maneuvers. Since only 15 to 20 per cent of the patients survived five years and only 6 per cent were cured in five years, the average survival time for the radiation-treated cases should be expected to be low. As has already been pointed out from the literature, the average survival, apparently from the time of diagnosis, of untreated patients was nearly nineteen months. The life expectancy for the general population of the same age was approximately fifteen years. With 287 patients (some more recent than 1938) having a complete follow-up of three years or more, death before that time being considered complete also, the average survival was 27.1 months from sibility for treating these patients may be divided with a radiologist! The surgical skill necessary for the implantation of radon seeds, or radium, into the bladder is rudimentary. The operative time is brief. With all these qualities the radiation method of treating carcinoma of the bladder appears most tempting. Accordingly, it has been popular. Now that a fairly large group of patients has been enthusiastically treated by radiation, it seems only proper to take stock of the results obtained. What percentage of the whole number of patients, whose disease was accurately diagnosed, survived five years? How many not only survived but were apparently free of disease five years after diagnosis, when they had been treated by radiation? What was the morbidity? Did patients die of the treatment rather than in the natural course of the disease?

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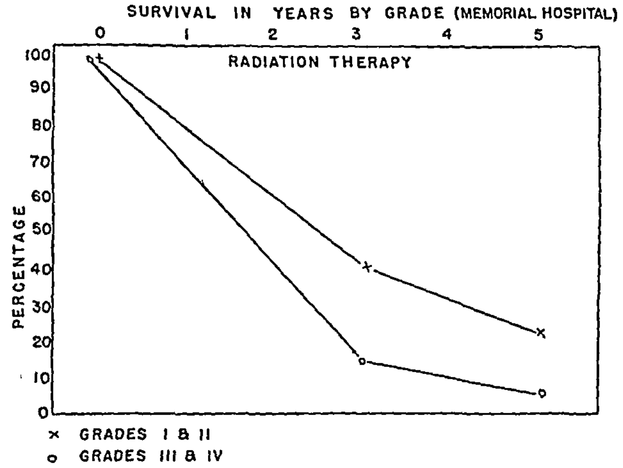

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Perhaps a high percentage of extremely malignant tumors has hidden good results obtained by radiation in the numerically smaller group of tumors of lower grades. Accordingly the composition of a group of 377 roughly consecutive and unselected tumors, including for the moment only papillomas, at the Memorial Hospital from 1932 to 1941 was determined on the basis of the histologic grade of cancer; 132, or 32.2 per cent, were diagnosed benign; 29, or 7.6 per cent, grade 1 cancer; 85, or 22.2 per cent, grade 2; 117, or 31 per cent, grade 3, and 24, or 6.3 per cent, grade 4. Of the 255 histologic cancers of this group, 11.4 per cent were grade 1, 33.3 per cent grade 2, 45.8 per cent grade 3 and 9.4 per cent grade 4. It can be seen that nearly half of the cancers were of grade 3, which, if grading is significant, should have a direct bearing on results and in an unfavorable direction. However, the grade 4 lesions were fortunately few, so that the group of grade 1 and 2 lesions is nearly as large as that of grade 3 cancers. Thus, there is not an overwhelming preponderance of decidedly malignant tumors.

The records of 107 unselected and roughly consecutive cases at the Memorial Hospital, in which the disease was originally diagnosed three or more years previously as grade 1 or 2 cancer, showed the average survival to be 35.1 months, with only 43 patients, or 40.2 per cent, known to survive three years or more. On the same basis 132 patients with grade 3 or 4 lesions survived an average of 21.1 months, with only 15.1 per cent known to survive three years. It can be seen that the composition of the group as to grade of cancer can make a difference in the results for the whole series, but considering that less than half of the patients with low grade lesions survived even the relatively short time of three years, the results obtained by radiation are poor regardless of the histologic composition of the group as a whole.

The classification of tumors of the bladder by histologic grading alone has severe weaknesses. In the present study it has been used for two reasons. First, this is the one characteristic of the tumor which was most constantly present and specifically stated in the records. Second, this quality of the tumor represents the opinion and knowledge of an independent, nonurological observer, who could reproduce the diagnosis on review of the sections as unknowns and whose grading does have a general correlation with the results obtained in these cases.

During this investigation some outstandingly good cases were discovered. Although every record on vesical tumor was not consulted, over 500 were examined. Nine cases of survival for ten years were set aside for further study. Two lesions were simple papillomas; 1 was diagnosed as papillary cancer but was not graded; 3 were grade 1; 1 was grade 2, 1 was probably grade 3, and only 1 was definitely grade 3. Only 2 of these lesions could be classified as anything but small, these 2 being estimated at 4 cm. and 2 cm. in diameter, respectively. Apparently, radiation therapy was responsible for the long survivals in these cases, even though they were rarities.

In summary, there are no five year cures of untreated cancer of the bladder, but approximately 10 per cent of patients may survive five years. On the other hand, 6 per cent of the radiation-treated patients were cured at five years, and 17.3 per cent survived five years. Approximately 90 per cent of patients with untreated cancer of the bladder die within five years, whereas 80 per cent of the radiation-treated patients were known to be dead in five years. Morbidity in both the treated and untreated series was decidedly high. The average survival without treatment was 18.8 months, while the average survival of the group receiving radiation therapy was 24.5 months, compared to a life expectancy in the general population at the same age of approximately fifteen years. All the untreated patients must have died with cancer, although not necessarily of carcinomatosis. In 43 per cent of the autopsies on the radiation-treated patients, metastases were not sufficiently developed to be discovered, indicating that these patients did not die of carcinomatosis. Those with grade 1 and 2 malignant lesions survived, on the average, better than did those with grade 3 and 4 cancer in the radiation series. However, patients with cancer of grades 1 and 2 survived poorly, as indicated by the fact that less than half were known to have survived three years. A small number of ten year survivals, which were apparently obtained by radiation, seems to indicate that it is possible for radiation therapy to cure cancer of the bladder, even though such results are uncommon. Perhaps the very nature of the disease will not permit significant improvement with any armamentarium now available, but these results are so poor even after fairly extensive trial that it seems justifiable to attempt therapy by a different method. If the new method should prove a total failure, the loss to the whole group of patients with cancer of the bladder would be hardly extreme.

The surgical treatment of vesical urinary tumors varies from such relatively simple procedures as cystoscopic fulguration to such extensive measures as transplantation of the ureters and total cystectomy. Few internal cancers are cured by simple local destruction of tissue, and experience with cancer of the bladder does not indicate a major exception. Although I was once of the impression that several small malignant neoplasms had been cured by fulguration, cystoscopically or via cystotomy, critical reexamination of the cases revealed that most of the lesions were histologically simple papillomas which could not be included in the cancer classification. The most optimistic conclusion from this reexamination was that infrequently a small and superficial, usually low grade, tumor had been apparently successfully treated by fulguration alone. But how to select such a case was obviously difficult, as evidenced by many failures in the treatment of seemingly perfect cases and, most infrequently, a good result in a seemingly poorly chosen case. As previously mentioned, the results of fulguration of benign papillomas were not as satisfactory as anticipated, though better than with cancers.

The next more extensive surgical procedure after simple fulguration is resection of the bladder, which has been done in 33 instances. Three deaths occurred in the hospital after operation: 1 due to a cerebrovascular accident, 1 to clinical embolism and 1 to sepsis and carcinomatosis. The longest follow-up is fifty-two months, and many cases are relatively recent. Twelve of the 33 are known now to be dead. The average survival of 30, 3 having been lost after discharge, is 19.9 months, even though the follow-up period is less than twelve months in 14 cases and less than twenty-four months in 17. It will be recalled that patients with untreated vesical cancers apparently survived 18.8 months and the radiation group survived 24.5 months, in a more complete follow-up than is at present possible with this group of resection cases. Three patients with resection of the bladder have subsequently had total cystectomy performed, and 1 other has had a bilateral ureterointestinal transplantation. Eleven of the patients were known to have a recurrence or persistence of the cancer in the bladder. The impression is unavoidable that the lesions which were attacked were too large, and that too little margin was obtained. Reimplantation of the ureter to obtain adequate margin seems entirely justifiable,[3] but if this is done to remove the actual site of the tumor it appears unlikely that sufficient margin will be often obtained. A margin of 3 and preferably 4 cm. of normal-appearing bladder with the underlying perivesical fat would seem to be the minimal extent for a really hopeful resection. Naturally, in bladders with a tendency to multiple origination of neoplasm there would be a high recurrence rate. A rigid comparison cannot be made between the resection and radiation cases, as the resection cases are necessarily selected whereas the radiation cases in general were nearly unselected. On the other hand, it is evident that a small number of carefully selected cases of vesical cancer can be greatly benefited and possibly cured by resection, particularly if the surgeon's understandable desire to save the function of the bladder and avoid more immediately hazardous procedures does not weigh too heavily in the decision.

After partial resection of the bladder, total excision of the organ is the next more extensive step, but this necessitates a preliminary attack on that major urologic problem of the permanent diversion of the urinary stream. Bilateral nephrostomies are difficult to care for and, although urgently required at times, they carry considerable morbidity. This procedure has been used only in dire necessity.

Transplantation of the ureters to the skin is a relatively simple procedure, and relatively few patients die of the operation itself. Nearly all the postoperative deaths can be attributed to the patient's extremely poor preoperative condition. Morbidity from stricture and the formation of abscesses has been common. In occasional patients there have developed calculi. Indwelling catheters were used as a rule, but patients who can and will wear cups without catheters possibly have fewer complications later. At best, however, the patient must wear a cumbersome and untidy apparatus, requiring at least a moderate amount of care. At first, my cystectomy patients had cutaneous transplantations because it was considered that cystectomy was hazardous enough without adding the reported great risk of ureterointestinal transplantation. Subsequent experience proved that the immediate risk of ureterointestinal transplantation was not so great as anticipated, and certainly those patients with good bowel implants have been much more comfortable and clean than those wearing apparatus.

TABLE 4.—*Data on Thirty-Three Patients with Resections of the Bladder*

Postoperative deaths	3
1. Embolism	
2. Cerebrovascular accident	
3. Carcinomatosis	
Lowest possible average survival	19.9 mos.
Still alive	21
Longest survival	52 mos.
Persistence or recurrence known	11

TABLE 5.—*Data on Ninety-Three Patients with Coffey I Ureterointestinal Anastomosis (Eighty-One in Patients with Cancer)*

Postoperative deaths	12
1, 2. Peritonitis	
3. Small bowel obstruction	
4, 5, 6. Congestive heart failure	
7, 8, 9. Carcinomatosis	
10, 11. Embolism	
12. Operation for perineal carcinoma	
Still alive	61
Longest survival	56 mos.

The early results of ureterointestinal anastomosis in the first 39 cases have been reported in some detail.[4] This series is now increased to 93 patients without appreciable variation from that report. The intraperitoneal Coffey 1 method was used exclusively, and the majority of patients had both ureters transplanted at the same operation. All but 8 operations were performed for the treatment, either curative or palliative, of cancer. The oldest patient was 82 and 6 were in their seventies. Twelve of the 93 patients died in the hospital between the time of operation and the time of discharge. Leakage at the site of anastomosis with resulting peritonitis caused the death of 2 patients. One patient died of small intestinal obstruction due to adhesions in the operative area. These 3 postoperative deaths are the only ones due to complications at the operative site or in the urinary or gastrointestinal tracts. Of the remaining 9 postoperative deaths, 3 patients died of congestive cardiac failure, 2 of embolism, 3 of carcinomatosis and 1 of the effects of a radical operation on a recurrent urethral carcinoma. Thirty-two of these patients, including the 12 just mentioned, are known now to be dead. Sixty-one have survived from one to fifty-six months. Temporary (two to six weeks) nephrostomy was performed on 3 patients postoperatively, but in all 3 instances prompt healing occurred on removal of the tubes, with no further diversion of the urine becoming necessary. One other patient is carrying nephrostomy tubes during her convalescence from cystectomy, but this case is so recent that the outcome cannot be accurately gaged. One patient subsequently required a nephrectomy, but he lived nearly two years with carcinomatosis after the removal of the kidney. One patient has had one ureter successfully implanted into the bowel a second time. Three patients have had one or both ureters transplanted from the bowel to the skin because of poor renal function. No doubt the transfer of the ureters from the bowel to the skin will become a necessity again as the series becomes larger, and perhaps in this series as time passes. However, the present pyelographic and blood chemical evidence does not suggest that the percentage incidence of diversion subsequent to ureterointestinal transplantation will materially increase. It should be pointed out that the possibility of transferring the ureters from the bowel to the skin is not entirely disadvantageous, since valuable although partial rectification of one type of failure after bowel implantation may be thus accomplished. Briefly, of the 81 patients discharged from the hospital, 1 has had a subsequent nephrectomy, 1 has subsequently had a second implantation of one ureter into the bowel, 3 have had one or both ureters transferred to the skin and 1 recent patient has had bilateral nephrostomies. The majority of the patients had an uncomplicated postoperative course and subsequently manifested no clinical evidence of renal disease. Most patients void every three to four hours in the day and twice at night with excellent control. Obviously these are more nearly normal and comfortable than those with ureterocutaneous anastomoses. Both transplant groups are too recent to allow an accurate estimation of comparative longevity,[5] especially as the vast majority of late deaths in both groups have been due to cancer rather than renal failure. Only 1 patient with ureterointestinal transplants appears to have died of renal failure thus far. This situation shows a significant difference from the radiation-treated group, in which a fairly high percentage died not of carcinomatosis but of urinary obstruction and infection. Paradoxically, the improvement consists in a higher percentage dying of cancer!

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[3] Stevens, A. R., and Marshall, V. F.: Reimplantation of the Ureter into the Bladder, Surg., Gynec. & Obst. **77**: 585-594, 1943.

[4] Marshall, V. F., and Gardner, J. S.: An Evaluation of the Coffey I Method for Uretero-Intestinal Anastomosis, Surg., Gynec. & Obst. **81**: 559-574, 1945.

Table 6.—*Data on Seventy-Two Total Cystectomies for Neoplasm (Two for Recurrent Papillomatosis)*

Postoperative deaths	2
1. Paralysis from metastasis	
2 Pulmonary collapse	
Still alive	48
Longest survivals:	
Grade 3	68 mos
Adenocarcinoma	66 mos.
Grade 3	60 mos
Lowest possible number of 5 year successful results	3

Total cystectomy, like the other operations, has been performed both for palliation and cure. Seventy-seven such procedures have been carried out, but only 72 were done for neoplastic disease. Two of the 72 patients were operated on for multiple recurrences of histologically benign papillomas. The remaining 70 operations were performed for histologically-proved cancer. Two postoperative deaths occurred: 1 due to pulmonary collapse immediately after operative intervention on a patient with chronic bronchitis and 1 due to paralysis resulting from the collapse of a cervical vertebra due to metastases. Thus in total cystectomy 2 of the 72 patients with tumor and 2 of the 70 with cancer died. The longest survivals have been sixty-eight, sixty-six and sixty months, all by patients without evidence of cancer and still living. The original slides of these 3 patients have been reviewed; 2 were found to indicate grade 3 carcinoma, and 1 was an obviously malignant adenocarcinoma. Twenty-eight of the 70 cancer patients have survived a year or more, and 9 over two years. As far as is known 48 of these 70 patients are living and 22 are dead. Six of the 22 dead apparently died without cancer (with cardiac disease and so on), although this figure cannot be considered highly accurate. In spite of the fact that most patients were recently treated (45 of the 48 living patients were operated on less than five years ago), the immediate death at this time of all the patients having undergone total cystectomy would result in a five year successful result rate of 4.3 per cent. This, then, is the smallest possible rate of success for this group and, especially in consideration of the other factors previously mentioned, compares well with the 0 per cent obtained in untreated cases and the 6 per cent obtained by radiation methods.

My colleagues and I hope that we have improved our methods. In the beginning, cystectomies were done by the suprapubic route only, but in at least 1 instance there was a recurrence in a small bit of prostate which had been left. We now prefer perineoabdominal cystectomy, believing that we feel more certain of obtaining adequate margin by this procedure and that dependent drainage is a considerable asset in the postoperative course of the patient. However, the Belt approach to the prostate was used by one operator, who severely damaged 1 anal sphincter and weakened 2 others, so that these patients must wear pads to prevent urinary soiling which was not present before the cystectomy. None of the patients without the Belt approach has had poor anal control of urine and feces, so that we strongly favor the classic Young perineal approach with the exception that the dissection is purposely carried quite anteriorly, since injury to the external urethral sphincter in these cases is of no consequence and by so doing the anal sphincter is undisturbed. The perineal approach has not thus far led to a perforation of the rectum, while 1 such accident did occur in a difficult suprapubic prostatocystectomy. This preoperatively heavily-radiated, fulgurated and resected patient died four years after cystectomy without evidence of cancer, but at times he thought gas, though not feces, came out of a tiny sinus at the bottom of the deeply-depressed, heavy suprapubic scarring. In 3 instances the entire cystectomy was successfully performed via the vagina. At least 11 operations were performed on a purely palliative basis or as a heroic measure. The average survival of these 11 patients was 15.2 months, with 3 living

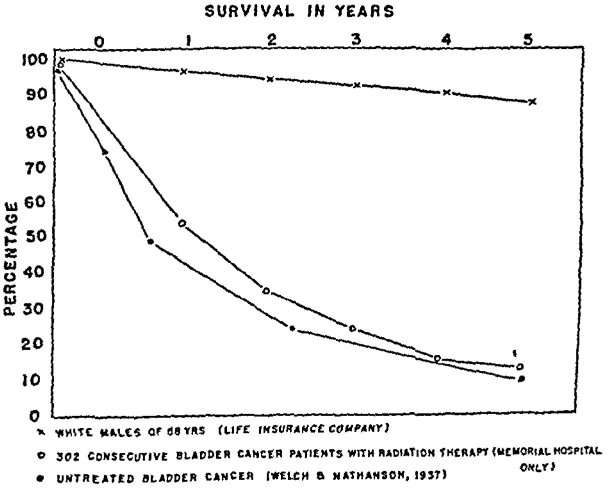

Chart 2—Comparison of survival rates.

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5. Stevens, A. R.: Longevity Following Uretero Intestinal Anastomosis, J. Urol **46:** 57-66, 1941.

over three years and 1 living four years. Three of the 11 are still alive. Three times cystectomy seemed the only method to prevent exsanguination. The symptomatic relief obtained from cystectomy is impossible to gage closely, but certainly it was impressive in many cases. The relief from urinary diversion alone was often great.

Unfortunately a really accurate comparison of the various groups of patients here reported is impossible. In a radiation series all but moribund patients may be treated, but in a surgical series the local status in the genitourinary tract as well as the general condition of the patient makes some selection necessary even in palliative cases. However, we have been agreeably surprised at what some of these patients can stand surgically. For instance, 1 of these patients had a coronary occlusion just after incision, and the operation was deferred for six weeks. At the end of this time a bilateral ureterointestinal transplantation and later a perineoabdominal cystectomy were successfully carried out. In the tabulation of a radiation series, more can be attributed to the natural course of the disease than in a surgical series, in which a poor result following operative intervention will stand out, at least chronologically, to suggest that the surgical procedure itself has been the cause of the unsuccessful outcome, even though this is not actually true. However, the average survival figures suggest that surgery plays a small role in shortening the life expectancy of the whole group of cancer patients—if, indeed, the average is shortened rather than increased. The patients being treated by radiation can within wide limits be radiated almost indefinitely at one portal or another, whereas a failure after urinary diversion and cystectomy leaves little to be done surgically.

It is difficult to obtain series of each general method of treatment which represent the same degree of perfection in each particular method, as well as during the same progress in the associated fields of medicine. The nearest approach to an accurate comparison probably would be the result of a large series of vesical cancer admissions during a time in which radiation was apparently at its best and the personnel enthusiastic, compared to a similar series during a time of high surgical efficiency and enthusiasm. The method of compiling comparable series by a rigid alternation of cases would be valuable but since surgical and radiation technics do not necessarily make parallel or proportional chronologic improvement, one series might receive the best therapy for that type of treatment whereas the other might fall far short of showing the best its method had to offer. Also, the enthusiasm and efficiency of personnel cannot be so clearly estimated and relied on when two methods are being tried simultaneously as they can when a decision has been made to treat the overwhelming majority of patients by one method. It is necessary to be enthusiastic to make such a decision. It is not assured that the present strong tendency toward surgical intervention will produce decidedly better results than those with radiation therapy, but it is most unlikely that the results will be worse. Certainly, results will be better than those obtained without treatment.

This investigation does not indicate that radiation therapy should be totally discarded, if for no other reason than that cures have been obtained by its use. Also some palliation, mainly in late metastatic cases, has accrued. In some instances it probably is advantageous to use both methods of treatment, particularly after the obvious failure of one. This study seems to indicate that basing the main reliance in the treatment of cancer of the bladder on surgical methods will result, at the least, in a small increase in five year successful results, a moderate improvement in average survival and a really significant amount of palliation as compared with the results obtained by radiation methods.

THE SURGICAL TREATMENT OF CARCINOMA OF THE BLADDER

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One reads and hears many different opinions in regard to the treatment of carcinoma of the bladder. This is due in part to the variety of characteristics which malignant lesions in the bladder may present; hence the numerous problems which are created from the point of view of treatment. More reports of well controlled series of cases in which treatment is by various available methods and the patients are followed for an adequate length of time would help to clarify present opinions. Because of the many therapeutic approaches available, ranging from external irradiation or cystoscopic procedures to more extensive suprapubic operations, one is always confronted with the decision as to how radical the initial form of treatment should be. In reaching this decision it would seem that the chance of ultimate survival should be given equal consideration with the immediate risk of treatment. It should also be kept in mind that the best chance to cure cancer anywhere in the body always is the first chance. The seriousness of a given carcinoma of the bladder, the risk of one form of treatment as compared with another and the ultimate result that may be expected will be variously estimated. These are some of the reasons which make for difference of opinion in regard to indications for treatment.

This discussion is presented not with the misguided impression that it solves all the problems related to the treatment of vesical neoplasm but only for the purpose of recording the experience of one group and expressing a few personal opinions. In general it is my belief that a too conservative opinion exists regarding the treatment of vesical neoplasm. Cancer in other parts of the body is treated by extensive measures, even though the lesion when first discovered is only several centimeters in size. It seems reasonable that similar measures should be employed in treating cancer of the bladder. The use of roentgen therapy will not be discussed, as in my practice this is never the treatment of choice but is utilized only when other methods are impractical of application.

TRANSURETHRAL VERSUS SUPRAPUBIC SURGERY

One of the first decisions that must be made before the institution of treatment for a given patient who has a vesical neoplasm is whether a transurethral or a suprapubic approach is preferable. The small, noninfiltrating, low grade and well differentiated lesions

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Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

are best suited to transurethral treatment. As one's experience with transurethral measures grows, somewhat larger lesions may be treated in this manner. The inherent limitations of this approach, however, always will circumscribe what can be accomplished by this method, and it has been the observation of my colleagues and me that even experienced cystoscopists frequently tend to underestimate the extent to which a vesical neoplasm may involve the wall of the bladder. This is due not necessarily to error on the part of the cystoscopist but to the fact that invasion of the vesical wall by carcinoma may occur without visible evidence on the mucosal surface of the bladder. The depth and extent of invasion in the vesical wall can be determined by the cystoscopist only by indirect and somewhat inferential methods. For this reason it seems safer to err on the side of favoring suprapubic exploration in questionable or borderline types of cases rather than transurethral measures, which time may prove to be inadequate. The details of transurethral treatment will not be discussed.

Table 1.—*Malignant Lesions of the Bladder: Suprapubic and Transurethral Procedures, 1940-1945 Inclusive*

Procedure	Operations	% of Total	Hospital Mortality Rate, %
Suprapubic	211	27.3	6.6
Transurethral	562	72.7	1.1
Total	773	100.0	2.6

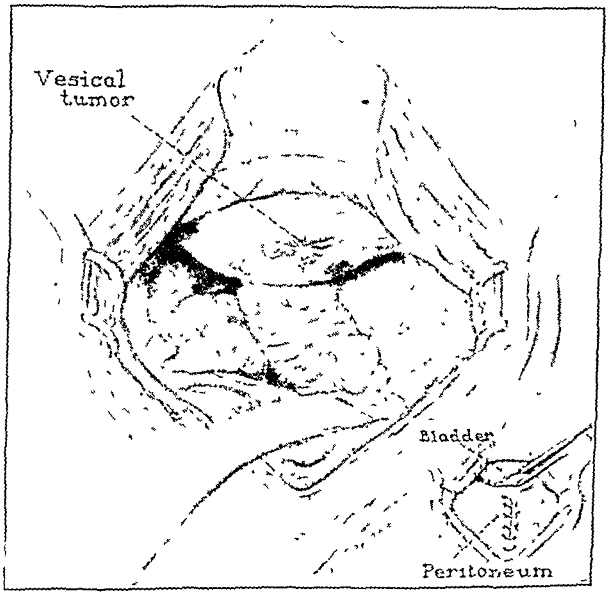
The relative incidence with which transurethral and suprapubic procedures have been employed as the initial form of treatment in one clinic during the past six years is shown in table 1. I am not certain that this represents the desirable distribution. There has been a tendency gradually to use suprapubic procedures more frequently. Obviously the operative mortality rate of suprapubic treatment is higher than that after transurethral measures. It should be kept in mind, however, that in the type of case in which suprapubic operation is used the prognosis is invariably less favorable than in the one in which transurethral measures are used. Thus in the group of cases shown in table 1, of those in which transurethral measures were employed 85.1 per cent of the lesions were grade 1 or 2 (Broders' method) and only 14.9 per cent were grade 3 or 4. In contrast, in those cases in which the suprapubic approach was used only 37 per cent of the lesions were grade 1 or 2 whereas 63 per cent were grade 3 or 4. In deciding on the therapeutic approach, one must always consider not only the immediate mortality rate of a given procedure but also the chance it affords for ultimate survival of the patient.

Of the many details which should be considered in deciding on the most desirable form of treatment for an individual patient who has carcinoma of the bladder, the following might be mentioned: the size, location and grade of the lesion; whether it is pedunculated or infiltrating; whether the lesion is single or multiple; the presence or absence of involvement of one or both ureteral orifices; the status of renal function; the existence of serious renal infection, and the age and general condition of the patient. Obviously all these factors are subject to individual variations of interpretation, a fact which may be responsible for divided opinion in regard to the treatment of choice for an individual patient. The experience and capabilities of the surgeon who treats the patient also must be taken into account. In general, all except the smallest infiltrating lesions are managed best, in my opinion, by the suprapubic approach.

Along the same line of thought, transurethral procedures which, in the mind of the one who employs them, appear to be of questionable adequacy should be discouraged. A temporizing attitude in the treatment of cancer is fundamentally wrong. Fairly frequently one operates suprapubically for recurrent cancer of the bladder, which actually is a persistence of cancer after inadequate transurethral treatment. The chance of ultimate cure under these circumstances is less favorable than if the lesion had been treated originally by suprapubic measures. It is appreciated that not all suprapubic operations for cancer of the bladder will result in complete removal or destruction of the growth. However, in general a better opportunity to accomplish this is afforded by suprapubic than by transurethral procedures.

THE SUPRAPUBIC APPROACH

I am convinced that in any case in which a suprapubic operation is performed for vesical neoplasm intraperitoneal exploration should precede any direct attack on the bladder, as advocated many years ago by Dr. C. H. Mayo. The peritoneum should be opened through a low midline incision, and exploration should include the liver and periaortic and regional lymph nodes as well as the bladder (see the accompanying illustration). Without information obtained by this preliminary exploration, which is comparable to that performed in the treatment of cancer in other parts of the body, one does not know the local extent of the growth or whether regional extension or distant metastasis has occurred. Without this knowledge it is impossible to select the type of surgical procedure best suited to the individual patient and to know whether



Transperitoneal abdominal exploration is performed as a preliminary step in the surgical treatment of vesical neoplasm. The peritoneum is closed prior to direct attack on the lesion.

the procedure performed will offer a chance of cure or merely palliation. It seems to me that the importance of intraperitoneal exploration as a preliminary step to any suprapubic operation for vesical neoplasm has been inadequately stressed. In addition to affording information on the extension of the malignant lesion beyond the bladder, such examination is of distinct help in determining from the size, location in the bladder and local extent of the growth the best surgical procedure for a given lesion. Thus, although one's preoperative opinion may have been that total cystectomy would be necessary to eliminate the growth completely and the patient was prepared preoperatively accordingly, one may discover on preliminary exploration that segmental resection will suffice to accomplish the desired result. The extent of perivesical extension and involvement of the peritoneum over the posterior wall of the bladder can be determined with much greater satisfaction by transperitoneal exploration than by any other method.

After this exploration is concluded the peritoneum is closed, and this line of closure is protected with a large moist pack before any local operation is performed on the bladder. So far as I have been able to determine, the surgical risk is not altered in any way by preliminary intraperitoneal exploration.

METHODS OF SUPRAPUBIC TREATMENT

Many different forms of suprapubic treatment have been devised and employed for the treatment of cancer of the bladder. The three procedures which have been utilized most frequently in my experience have been segmental resection; excision and fulguration, with or without simultaneous implantation of radon,[1] and total cystectomy. Table 2 shows the relative frequency with which these different procedures have been employed during the past six years and the mortality rate associated with each type of operation. During this time the use of segmental resection has remained about the same; however, fulguration with or without the simultaneous implantation of radon has been used less frequently and total cystectomy has been used more frequently in the latter part of the period than in the former.

Segmental Resection.—Segmental resection of the bladder for carcinoma is a highly satisfactory procedure in a selected group of cases. It is best suited for a growth which is well removed from either ureterovesical orifice, which is situated high in the bladder, either in the dome or on one of the walls, and which is within reasonable limits of size. It is employed usually in treating an infiltrative type of growth. A growth situated in the vicinity of a ureteral orifice can be removed by segmental resection and the ureter reimplanted into the bladder; however, my colleagues and I prefer to employ this procedure only in the exceptional case.

Technical procedures involved in performing segmental resection are not difficult, provided the lesion does not extend down to the base of the bladder. One should always excise the lesion completely with what appears to be normal mucosa for a distance of at least 2 cm. on all sides of the growth. At times there may be intramural extension from the growth which is not detectable by the appearance of the surrounding mucosa. The electrosurgical unit may be found helpful in performing segmental resection of the bladder. Needless to say, all local extension and any involved portion of the peritoneum should be removed in one piece with the primary lesion. It has been our practice to close the bladder with two rows of chromic catgut, the inner one of which passes through the mucosa. In almost all cases a straight suprapubic catheter is left in the bladder.

Suprapubic Fulguration With or Without Implantation of Radon.—Suprapubic excision and fulguration seldom is a procedure of choice in treating a vesical neoplasm. This method is reserved for lesions which involve the base of the bladder, including one or both ureteral orifices. In other words, it is employed for a lesion for which total cystectomy usually would be advocated but for some reason is not performed. Such reasons may include poor general condition of the patient, refusal of total cystectomy by the patient or questionable ultimate result which might be obtained, even though the bladder were removed completely.

TABLE 2.—*Malignant Lesions of the Bladder: Incidence and Mortality in Certain Types of Suprapubic Operations, 1940-1945 Inclusive*

Type of Operation	Total Patients	% of Total	Hospital Deaths No.	Hospital Deaths %
Exploration alone *	21	10.0	0	...
Segmental resection	64	30.3	3	4.7
Fulguration with or without implantation of radon	30	14.2	3	10.0
Total cystectomy and bilateral ureterosigmoidostomy †	60	28.4	6	10.0
Total cystectomy with nephrostomy and so forth	5	2.4	0	...
Other suprapubic operations	31	14.7	0	...
Total	211	100.0	12	5.7

* Represents cases in which the lesion was too far advanced to permit any surgical procedure.

† All cases are included in which total cystectomy was either planned or accomplished. Three cases are included in which death followed bilateral ureterosigmoidostomy performed as an initial stage to cystectomy.

After preliminary abdominal exploration, the peritoneum is closed and the bladder is opened through the dome. The location and extent of the growth then are ascertained from the mucosal side of the bladder. By use of the cutting current and loop electrode, all or as much of the growth as possible now is excised. This is an important step prior to fulguration, as by far the bulk of the neoplasm is removed in this manner. In some cases the entire thickness of the vesical wall may be excised in certain regions. Subsequently the entire base and edges of the crater created by the excision are thoroughly fulgurated. One should never stint the extent of the fulguration, regardless of the area of the bladder involved. Here again one should always fulgurate the vesical wall for a distance of several centimeters surrounding the apparent mucosal boundaries of the growth. If one or both ureteral orifices are in an involved area, one always endeavors to identify the ureter as it is cut across by the electric loop and before it is fulgurated. A ureteral catheter of appropriate size then is passed to the corresponding renal pelvis, allowed to remain in place and brought out externally through the urethra or the suprapubic incision. In certain cases neither the ureteral orifice nor the intramural portion of the ureter will be detected, and one or both of these structures will be fulgurated. Through the kindness of nature urine seems to drain from the ureter into the bladder even under these circumstances, although the surgeon never experiences the same satisfaction with his work at the conclusion of the operation. In what percentage of such cases a stricture may develop at the ureterovesical junction in later years, I do not know.

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[1] Although the distinction is not therapeutically important, in some instances radium instead of radon actually was used.

Decision as to the use of radon in association with electroexcision and fulguration is based on the observations in each individual case. If the surgeon believes that the growth has been dealt with satisfactorily from a local point of view and that no tumor remains which has not been removed or fulgurated, radon is not employed. On the other hand if certain questionable areas remain, insertion of an adequate amount (as nearly as can be determined) of radon is desirable.

Total Cystectomy.—It is my opinion that total cystectomy is a procedure which has not yet been fully appreciated and properly evaluated in the treatment of carcinoma of the bladder. In the past it has carried a high initial mortality rate or has been followed by late results which were not wholly satisfactory. As a result this procedure has not been held in high regard. These facts have been due to many factors, most of which can be eliminated today.

In former years patients were not always prepared properly for the operation. The procedure was used as a last resort in treating extensive, high grade or recurrent lesions, usually without preliminary transperitoneal exploration. Without doubt many of these patients were doomed because of extravesical extension of the lesion which existed but was unappreciated at the time of cystectomy. Urethral transplantation and cystectomy constitute a formidable procedure, which requires a certain amount of experience before it can be performed with a reasonable risk, just as with gastric resection, pneumonectomy or other surgical operations of similar magnitude. With experience, however, a mortality rate comparable to that associated with other major surgical procedures should be attained. The introduction of newer forms of treatment to combat infection has been a material aid in lowering the risk of this as well as other operations. As the operative mortality rate is reduced, as patients are properly selected and as it becomes appreciated that adequate renal function can be maintained for a prolonged period of years after bilateral ureterosigmoidostomy, total cystectomy should assume a position of growing importance in the treatment of vesical neoplasm. In my experience total cystectomy is being employed with increasing frequency. This statement is made despite the fact that many have adopted a defeatist attitude toward this operation. It is true that a certain number of patients experience ureteral obstruction, renal infection and serious interference with renal function after ureterosigmoidostomy. Such developments are considered to be due to technical errors at the time of operation in almost every case, and as one's experience with performing ureterosigmoidostomy increases, these undesirable sequelae to the operation should occur less frequently.

Indications: The indications for total cystectomy are not as clearcut as one would like, but this is equally true of most forms of treatment for vesical neoplasm. Today probably few surgeons would agree completely on any dogmatic list of indications. At the present time, provided the general condition of the patient permits, my colleagues and I consider that the following types of malignant lesions in the bladder justify exploration with the view to total cystectomy: (1) an extensive low grade lesion which involves most of the bladder, (2) a low grade lesion which involves numerous and diversified regions in the bladder, (3) repeatedly recurring low grade lesions, (4) a high grade infiltrating lesion which to the best of one's knowledge can be removed completely by total cystectomy but probably not by any less extensive procedure and (5) any vesical neoplasm which involves portions of the bladder, such as the vesical neck and ureterovesical orifices, which cannot be removed completely without seriously affecting vesical function. Ureteral transplantation and total cystectomy are not performed preferably on the patient who has a recurrent high grade lesion: the ultimate prognosis for any procedure is poor; the patient should have had a more radical form of treatment when his lesion was first detected.

Technic: Total cystectomy obviously presupposes diversion of the flow of urine either to the skin or to the bowel. It is my opinion that transplantation of the ureters to the bowel is far superior, from the patient's point of view, to cutaneous transplantation and, furthermore, that the former can be accomplished in a large majority of cases with reasonable risk and justifiable expectations of satisfactory preservation of renal function over a prolonged period. In former years it was considered unsafe to transplant the dilated ureter into the bowel. It is now known from experience that in the adult, ureters dilated to a diameter of approximately 1 cm. can be transplanted into the bowel with relative safety, provided there is not too much thickening of the ureteral wall. In cases of this type it may be advisable to use an indwelling soft rubber catheter of an appropriate size at the time the anastomosis is established.

Whether extraperitoneal or transperitoneal ureterosigmoidostomy is performed may be simply a matter of the individual surgeon's preference. In former years my colleagues and I used the extraperitoneal approach. We now feel that we can perform the operation transperitoneally with no increased risk. The latter procedure is easier technically and affords superior exposure and alinement of the anastomosis. Satisfactory results can be obtained by an exceedingly simple type of operation, and for many reasons it seems desirable to keep the technical aspects of the procedure as simple as possible.

How many stages should be utilized in accomplishing ureteral transplantation and complete removal of the bladder for carcinoma is a currently controversial subject. In many fields of surgery staged procedures are used much less frequently, and rightly so, than in former years. Previously it was my custom to perform bilateral extraperitoneal ureterosigmoidostomy at the original operation and several weeks later to remove the bladder. During the last few years my colleagues, Dr. Counseller and Dr. Ferris, have been performing the whole operation at one stage with favorable results. Through a low midline transperitoneal incision the ureters are transplanted and the bladder is removed. I have had the opportunity to try this in a limited number of cases during recent months and have been impressed with the desirability of this one stage procedure.

In brief, the following procedure is now employed: The patient is hospitalized for a minimum of four days of preoperative preparation. During this time a nonresidue diet with vitamin supplements is given, and 4 Gm. of succinylsulfathiazole every three hours for six doses, then 2 Gm. four times a day, is administered. The bowel is cleaned with cathartics the first three days. Rectal irrigations are given twice daily until the day before operation. In the evening and morning before operation the rectum is aspirated and paregoric is administered.

Inhalation anesthesia is employed. After exploration through a low midline incision bilateral ureterosigmoidostomy is performed after a simple modified Coffey I technic. A maximum of three or four stitches is used to accomplish the transplantation, including the stitch which leads the ureter into the bowel. Every effort is made to obtain an anastomosis without tension, angulation or compression of the ureter at any point. The ureter extends into the bowel at least 1 cm. The bowel is fixed in the desired position with several interrupted stitches. Catheters are employed only in the exceptional case in which grossly enlarged ureters are encountered. After transplantation of the ureters, the peritoneum is dissected free from the bladder and closed by suture and the bladder is removed. If the patient is male the prostate and seminal vesicles always are removed with the bladder. In addition to ordinary suprapubic drainage, one end of a long Penrose type drain is passed out of the urethra and the other end is brought out of the incision suprapubically. A large rectal tube is inserted and left in place, usually for seven to ten days postoperatively.

Postoperative administration of fluids is started by mouth approximately forty-eight hours after operation, followed by a liquid and then a soft nonresidue diet. A diet of average residue is not given until the rectal tube is removed. Prophylactic chemotherapy is given for a few days after operation. Other postoperative measures are similar to those employed after any operation of similar magnitude.

COMMENT

It is my feeling that in general a too conservative attitude has prevailed regarding the treatment of vesical neoplasm. Small cancers elsewhere in the body uniformly are treated by radical measures. This is true of the breast, stomach, intestine and uterus, and it seems logical to believe that similar measures should be employed in the management of cancer of the bladder. The reported incidence of recurrence after various conservative forms of treatment for the relatively small and low grade lesions, which should offer the best prognosis if properly treated, attests the need for adequate measures at the time the growth first is discovered. This statement is not intended by any means to imply that total cystectomy should be employed in all cases, as this is far from my opinion. It does mean, however, that complete removal or destruction of the tumor should be the primary concern and that the immediate advantages of a conservative method of approach should not weigh too heavily in deciding on the most desirable form of treatment for a given patient.

There still is need for a comprehensive study of end results obtained in the treatment of vesical neoplasm, wherein various forms of treatment are correlated with the many variables which result when cancer develops in the bladder. Thus, results obtained after individual methods of management should be studied in relation with the characteristics of the tumor treated, such as grade, degree of infiltration, size, multiplicity and location in the bladder. Only by more accurate evaluation of results will indications for treatment become more clearcut and better understood. Probably it will be several years before a satisfactory study can be made of ultimate results after total cystectomy performed for vesical neoplasm.

SUMMARY

Many factors must be considered in deciding on the most desirable type of treatment for a patient who has carcinoma of the bladder. These include the size, grade and location of the lesion, the degree of infiltration, whether the lesion is single or multiple, whether the ureterovesical orifice is involved on one or both sides, the status of renal function, the age and general condition of the patient and the risk and prospect of cure afforded by various available procedures. It should be remembered that even the most capable cystoscopist is subject to the inherent limitations of all transurethral procedures in treating a vesical carcinoma through the cystoscope. It is thought that in general the treatment of vesical neoplasm has been too conservative in type. External irradiation is not considered a primary treatment of choice.

The principal suprapubic procedures employed in the eradication of vesical neoplasm are electroexcision and fulguration, with or without the simultaneous implantation of radon, segmental resection (in rare cases local excision) and total cystectomy. Segmental resection seems satisfactory for a limited number of properly situated growths. Total cystectomy is in the process of being reevaluated and it is thought that its field of usefulness is broader than has been appreciated in the past. Bilateral ureterosigmoidostomy, which can be performed in most cases of vesical neoplasm, is considered the desirable form of diversion of the urinary flow in association with total cystectomy.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JEWETT; MC DONALD, FILIP AND WILLIAMS; MARSHALL AND PRIESTLEY

DR. FRANK HINMAN, San Francisco: It is remarkable that these four papers—all of them excellent—are as much in agreement as they are. The problem of tumors of the bladder is largely one of differential diagnosis and selection of treatment. The problem is changing, however, from what it was a number of years ago. Ten years ago it was estimated that probably 90 per cent of all tumors of the bladder were papillomatous. Of malignant tumors of the bladder 80 per cent are in people over 65 years of age and 90 per cent in those over 50. From the years 1930 to 1940, the number of people over 65 in the United States increased by 35 per cent. The significance of this is that the incidence of cancer of the bladder is increasing. In differential diagnosis one must consider the proper application of four different methods of treatment: (1) fulguration; (2) irradiation; (3) surgical resection of the local growth, and (4) radical cystectomy. The early papillomas and a number of infiltrating papillomas can be cured, but there are types of infiltrating tumors which cannot be cured by diathermy. The differential point to decide in making the examination is what the treatment will be. Will the physician depend on diathermy or at once adopt some radical procedure? Radium or roentgen radiation may be used. Tumors so located as to be resectable can be successfully treated by this method. There are cases, however, in which neither diathermy nor resection can be used, and for them the treatment 's total cystectomy with transplantation of the ureters. The important thing in differential diagnosis is to be able to make this decision early. There are many cases of total cystectomy that are not successful because of the procrastination and delay in subjecting such patients to this radical procedure. If the physican could decide that the only hope for these patients was a total cystectomy and a ureteral transplantation, he probably would perform the operation earlier and save more of these patients than he does. In the fulguration treatment, it is important to have regular periods of reexamination. It has been my custom to have the patient back a month after the first fulguration and then possibly destroy any recurrence. If there is no recurrence they return in two months, then three months, then every three months for a period of two years and then at six month intervals for another two or three years. The patient is usually followed for at least three years after the period of last recurrence. There is no doubt that thorough fulguration and deep diathermy cures many papillomatous tumors. It will not cure the sessile flat infiltrating tumors. These tumors have to be cured by either radium therapy or surgical resection. My experience with irradiation has been like that of the speakers—terribly disappointing. Many of these patients have suffered a year or more with excruciating burns of the bladder. There is not much that can be done to relieve them. Vesical tumors—practically all of them—are radioresistant. The majority of urologists rely on the other three methods—fulguration, wide resection when possible and as a last resort either palliation or radical cystectomy with transplantation of the ureters.

Dr. Oswald S. Lowsley, New York: The scholarly presentation of Dr. Hugh Jewett indicates the results obtained in the clinic, which was always predominantly surgical although other methods were utilized. Dr. Marshall has presented statistics, some of which are from the Memorial Hospital, where emphasis has been placed on radiation but surgical procedures have also been done. Dr. Marshall says that radiation can cure cancer but does so in only a small percentage of cases, and the general results are only a little bit better than those noted in untreated cases as far as life expectancy is concerned. This is a most important observation, coming from the world's greatest center of enthusiasm for radiation. Dr. Jewett has called attention to the four causes of failure in any method of treatment. With those observations I heartily agree, but I feel that sometimes operation, either cystectomy or even transplantation of ureters to the bowel in hopeless cases, is advisable for the relief of pain, because it is the duty of the physicians not only to "heal the sick but to relieve human suffering." The best results in my experience have been obtained by suprapubic thorough resection of vesical tumors, large or small, with a wide cuff of normal bladder wall. One may have to transplant the ureter to another part of the bladder. My first operation of this sort was done in 1918, and this patient is hale and hearty today and so grateful that he presents the research fund with $5,000 annually. This resection should be done regardless of the grade of the tumor if it is accessible and the patient's condition warrants the operation, because I have had several cases of grade 1 tumor in which the patients have come back months later with grade 3 or 4 tumors. Following the removal of any tumor of the bladder it is my custom to utilize the Kirwin treatment, which consists of bathing the operative site with a solution of carbolic acid 50 per cent in glycerin for three minutes, followed by alcohol. This prevents implants most effectively. I heartily agree with Harold McDonald that these patients should be followed, and with regular cystoscopic examination. I believe in fulgurating small papillomatous tumors. I have one patient, an old lady, who comes back to see me once every three months. It is seldom that I do not find a pea-sized tumor to fulgurate. I have fulgurated more than a hundred tumors, but to operate on this woman would be silly because the tumors are small. This is certainly the best thing to do in this particular case. Let me add my voice to those who recommend that all physicians urge their patients to undergo a thorough urologic examination when blood, either microscopic or macroscopic, is discovered in the urine. Painless hematuria should be considered a most serious symptom, to be viewed with alarm until its source is discovered. Only in this way will there ever be an opportunity to cure cancer of the bladder, or of any other organ of the genitourinary tract, by operative intervention.

Dr. Lloyd G. Lewis, Washington, D. C.: Urologists have been extremely conservative in the treatment of cancer by surgical means. Yet one should not rush into a radical procedure such as total cystectomy unless one is sure that the operation is indicated. I recommend endoscopic treatment of grade 1 tumors and approve of total cystectomy for extensive infiltrating tumors without evidence of metastasis. There is, between these two types, a group of tumors, grades 1 and 2, which tend to recur. I have used total cystectomy for multiple recurrent tumors. Dr. Kirwin has used carbolic acid treatment. We have considered adapting radium therapy to meet this problem. The lethal tumor dose must be determined and administered. The dose for cancer of the bladder ranges from 8,000 to 12,000 r. Implantation of radon or radium needles means "hot spots" and inadequate total dosage. Roentgen rays produce extensive damage to skin and bowel. The principle we propose is not new; it is similar to the radium pack. A 25 mg. capsule of radium is placed in the drainage tube of the Foley catheter, and the balloon is inflated to 35 cc. so that the radium lies at the center of the sphere with a radius of 2 cm. At operation, cystostomy is performed and the tumor is resected or fulgurated. Radiation at point source is 100 per cent, at 1 cm. 60 per cent, at 2 cm. approximately 25 per cent and at 3 cm. about 9 per cent. Because 90 per cent of the tumors occur in the prostatic portion of the bladder, irradiation of the tumor-bearing area and the area of recurrence is accomplished. This method is not satisfactory for deeply infiltrating tumors, but it seems ideal for superficial tumors and for prophylactic irradiation to prevent recurrence. We have used this method in 8 cases; the first patient, a boy of 19 with multiple grade 2 tumors filling the bladder, has had no recurrence one year following radiation; 2 female patients with small grade 3 infiltrating tumors have had no recurrence at eight and nine months, respectively. The other cases are too recent for appraisal. Adequate radiation will kill vesical cancer cells; however with adequate dosage there must be radium-induced cystitis, which clears in six or eight months. Radium may contribute to the handling of tumors which are not susceptible to transurethral surgery alone and in which one is doubtful of the necessity for carrying out cystectomy. I believe that a radium balloon catheter with adequate drainage facility can be made so that cystostomy will not be necessary.

Dr. Roger W. Barnes, Los Angeles: I would like to ask Dr. Jewett whether it is possible in his B group of tumors, those which have infiltrated the bladder musculature but have not extended entirely through, to determine the amount of this infiltration by taking one or two biopsy specimens? Isn't it usual that one area of these tumors is infiltrated much more deeply than another area? Tumors of the bladder which had transurethral resection and fulguration alone were compared with those which had a combination of resection and radon implantation. In grade 1 malignancy and papilloma radon seeds were not used. In grade 2 and grade 3 malignancy the length of life of patients who had the combined resection and implantation of radon seeds was a little longer for each grade than that of the group which had resection and fulguration only. In other groups there was an extension of life in the cases in which both the transurethral resection and fulguration and radon were used over those in which there was transurethral resection and fulguration only.

Dr. Gilbert J. Thomas, Beverly Hills, Calif.: The members of the American Urological Association have expended a large sum of money for the maintenance of a registry so that all tumors of the bladder seen by urologists may be graded and studied. This study has been a group project for a great many years I was never satisfied that the conclusions obtained from this study of vesical tumors was accurate and that the treatment applied was adequate Many of the bits of tumors that have been sent in to the laboratory at the Army Medical Museum have not been accurate specimens removed from that portion of the tumor in which urologists are most interested Dr. Jewett has suggested that bits of muscle fibers should be part of every biopsy specimen obtained, as these reveal that the specimen came from the wall of the bladder and not from the top of the tumor The methods suggested by the essayists make possible an accurate microscopic diagnosis of the presence and extent of the condition Dr Jewett has alluded to this method of diagnosis of the character of the tumor Dr Priestley explores the abdomen when a tumor of the bladder is present He searches for and determines the extent of local spread or metastasis Urologists were shunted onto a sidetrack during their treatment of tumors of the urinary bladder with the advent of the transurethral resection Many undiagnosed tumors of the bladder have been resected and fulgurated transurethrally when segmental resection should have been practiced or a complete cystectomy performed More patients should be subjected to early cystectomy, which would follow complete diagnosis and preoperative care which includes the correction of nutritional deficiency, replacement of blood and fluid losses and disinfection of the urinary tract and of the lower bowel, together with the selection of a proper anesthetic or a combination of anesthetics This disease should be attacked as boldly as it is by the rectal or stomach surgeons If the suggestions that have been made today are followed one can make an accurate diagnosis of the condition present and can plan a method of attack aimed at the cure of the patient When a suprapubic exploration is made and reveals the presence of cancer of the bladder, without metastasis, the surgeon should be prepared to do (at this time) a cystectomy or resection or any other surgical treatment the condition requires One has not cured a papillomatous tumor of the bladder which recurs, so I am wondering why there should be a method of grading the degree of malignancy of these tumors Since recurrences occur frequently, why not employ more radical methods of treatment that are aimed at permanent cure?

Dr Hugh J Jewett, Baltimore Dr Barnes has asked how one detects by biopsy the depth of infiltration of a tumor which presumably has invaded the muscularis I didn't mean to imply that one could The biopsy is used, first, to establish the diagnosis in questionable cases and second, to establish the presence or absence of any infiltration One knows from a properly taken biopsy whether infiltration has occurred If the biopsy includes muscle fibers, one knows at once whether the tumor has reached the muscle The most valuable method of determining preoperatively the depth of infiltration is the bimanual examination I don't wish to suggest at this time the most appropriate treatment for tumors in each of the three stages of infiltration What I do mean to say however, is that there is a considerable difference in the curability of tumors of the urinary bladder, and this depends to a great extent on how deeply they are situated in the wall of the bladder By learning to distinguish between superficially and deeply infiltrating tumors the urologist will know at the end of a period of time which treatment has been best for those particular tumors

Dr Harold P McDonald, Atlanta, Ga As has been pointed out so ably, it is admittedly difficult at times to determine whether or not open transurethral surgical methods should be applied in the treatment of tumors of the bladder When this has been determined it is important, as Dr Thomas mentioned, to be sure that the procedure is thoroughly carried out In removing the tumor by transurethral means it is important to remove the tumor down to its base and at least half through the muscularis of the bladder It is often found that the base of the tumor is malignant whereas the outer portion is not Dr Lewis's suggestion regarding the use of a bag in the administration of radium might in my opinion be helpful in lessening recurrences

THE CUTANEOUS LESIONS IN ACUTE MENINGOCOCCEMIA

A Clinical and Pathologic Study

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The presence of a cutaneous rash has always been recognized as one of the earliest and most reliable clinical signs in meningococcemia, a fact that has led clinicians in the past to employ such titles as malignant purpuric fever, petechial fever, black fever and spotted fever for these infections. The purpose of this paper is to discuss the cutaneous manifestations of meningococcic infection and to comment on their pathogenesis in relation to the histologic observations in specimens of skin of persons who have had meningococcemia. This study is based on 25 cases taken from the autopsy files of the Peter Bent Brigham, Boston Children's and Boston City hospitals, in which the patients exhibited lesions of the skin during the course of the disease and died as the result of acute meningococcic infection

HISTORY

The first epidemic of meningococcemia reported in North America occurred in Medfield, Mass[1] in 1806, eighty-one years prior to Weichselbaum's discovery of the causative organism, Neisseria intracellularis In 1894 Voeleker[2] described a case of acute fulminating meningococcemia in a patient who presented purpuric cutaneous lesions and at autopsy was found to have bilateral adrenal hemorrhages—the so-called Waterhouse-Friderichsen syndrome (epidemic cerebrospinal meningitis) In 1901 E. Graham Little[3] collected a group of similar cases and identified them as a distinct clinical entity. His report preceded Waterhouse's[4] by ten years and Friderichsen's[5] by seventeen In 1898 Gwyn[6] proved the existence of meningococcemia by recovering the meningococcus through culture of the blood of a patient. In 1906 Andrews[7] supported Gwyn's observations by demonstrating this organism in smears of the peripheral blood of a patient with acute meningococcemia In 1916 Netter and Salanier[8] noted the presence of meningococci in a smear obtained by abrading the purpuric lesions of the skin In the same year Benda[9] and also Pick[10] reported finding meningococci in specimens of skin removed for histologic study

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Read before the Section on Dermatology and Syphilology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946

From the Departments of Pathology of the Harvard Medical School and the Peter Bent Brigham Hospital, the Mallory Institute of Pathology, Boston City Hospital, and the Dermatological Service of the Massachusetts General Hospital

[1] Danielson, L, and Mann, E The History of a Singular and Very Mortal Disease Which Lately Made Its Appearance in Medfield, Med & Agric Reg **1:** 65 1806

[2] Voeleker, A F Pathological Report, Middlesex Hosp Rep **12:** 279, 1894

[3] Little, E G Case of Purpura, Ending Fatally, Associated with Hemorrhage into the Suprarenal Capsules, Brit J Dermat **13:** 445 1901

[4] Waterhouse, R Case of Suprarenal Apoplexy, Lancet **1:** 577, 1911

[5] Friderichsen, C Nebennierenapoplexie bei kleinen Kindern, Jahrb f Kinderh **87:** 109, 1918

[6] Gwyn, N B A Case of General Infection by the Diplococcus Intracellularis of Weichselbaum, Bull Johns Hopkins Hosp **10:** 112 1899

[7] Andrews, F W A Case of Acute Meningococcal Septicemia, Lancet **1:** 1172, 1906

[8] Netter, A, and Salanier, M The Presence of Meningococci in the Purpuric Elements of Meningococcal Infection, Brit J Child Dis **14**· 101, 1917

[9] Benda C Mikroskopische Befunde in der Haut bei Petechialer Meningokokken Meningitis Berl klin Wchnschr **53:** 449 1916

[10] Pick L Histologische und histologisch bacteriologische Befunde beim petechialen exanthem der epidemischen Genickstarre, Deutsche med Wchnschr **42:** 994, 1916

from patients who had died of meningococcemia. Also in 1916, von Drigalski[11] found meningococci in smears of fluid obtained from herpetic vesicles in patients with this disease. One year later Netter, Salanier and Blanchier[12] successfully cultured the meningococcus from material obtained by incising purpuric lesions. In 1931 McLean and Caffey[13] cultured meningococci from bullae that had been raised over purpuric areas by gentle friction.

CLINICAL DATA

Herrick[14] defined three chronologic stages of invasion by meningococci. He believed that after primary localization in the nasopharynx the meningococcus entered the blood stream and gave rise to meningococcemia. This stage of bacteremia, similar to the spirochetemia of early syphilis, is common to all types of meningeal infections. Concomitantly with the stage of bacteremia, or at various intervals thereafter, the meningococci metastasized to the skin, eyes, joints, heart, adrenals or meninges and produced various clinical syndromes.

The number of cases of meningococcic infection exhibiting cutaneous lesions cannot be determined with accuracy, since many of the lesions are asymptomatic, inconspicuous and fleeting in character and are easily overlooked. In Meyer's[15] series of sporadic cases with acute illness, 61 per cent exhibited a cutaneous eruption. In similar groups of patients, Smithburn[16] and his co-workers noted lesions of the skin in 68 per cent and Strong[17] in 82 per cent. Daniels, Solomon, and Jaquette[18] described cutaneous lesions in all the cases that came under their observation during an epidemic. The greater incidence of rashes noted during epidemics is probably due to an increased consciousness of the problems at that time.

The onset and course of the disease in the present series of cases varied widely. The most frequent prodromal symptoms were pharyngitis, laryngitis and conjunctivitis, followed by fever, chills, headache and arthralgia. However, the disease may be ushered in by convulsions or the patient may manifest symptoms of shock.

Irrespective of the type of onset, the most constant sign was the appearance of lesions of the skin. The cutaneous patterns were similar to those described by other authors and included erythematous macules, papules, nodules, vesicles and petechial and purpuric lesions. In the majority of cases a combination of lesions was usually found, since most patients exhibited more than one type of lesion during the course of the disease. These lesions varied in size, shape, number and location. The earliest lesions were ill defined erythematous macules ranging in size from a few millimeters to 10 mm. or more, and some simulated the rose spots of typhoid fever. These were situated over the lower extremities and trunk. Papules, some of which had a central punctum or linear hemorrhage, did not fade on pressure and resembled flea bites, were also observed. In some cases erythema nodosum-like lesions appeared on the lower extremities and were indistinguishable from the type encountered in other diseases.

Hemorrhagic lesions, both petechial and purpuric, were seen in a majority of these cases. The petechiae measured 8 to 35 mm. in diameter, were irregular in outline, were tender to touch and did not fade on pressure. Many coalesced to form larger ovoid or stellate purpuric lesions, which were light purple to black and ranged in size from 5 or 6 cm. to extravasations covering an entire segment of the body. Infrequently the purpuric lesions were surmounted by vesicles and pustules. In none of the present cases was purpura found alone, but in every case in which it occurred it was associated with petechiae.

The course and extent of the eruption were as variable as the lesions themselves. Usually the cutaneous eruption was most prominent on the extremities, but regions of the body subjected to pressure, such as the shoulder, elbows and pelvis, and the region over the deltoid areas subjected to friction were also frequent sites. Petechiae favor the joints, particularly the small joints of the hands, wrists, and ankles, and purpura the extremities and back. The face, palms and soles were only occasionally involved. The lesions usually became generalized, although in a few cases the initial lesions remained localized. Often it was possible to trace the evolution of the eruption, beginning with erythematous maculopapules and progressing to the more commonly observed petechial and purpuric lesions. In 8 of 25 cases a maculopapular rash preceded the petechial lesions.

The lesions usually appeared within twelve to thirty-six hours after the onset of the disease, but in a few cases they were fully developed within a few hours. The course of the eruption was influenced by the type of lesion, the type of therapy and the severity of the infection. The maculopapular lesions may fade in a few days, irrespective of therapy, and usually do so twelve to twenty-four hours after the use of penicillin or sulfonamide compounds. These drugs do not appear to influence the course of the hemorrhagic element of this disease. Petechial and purpuric lesions, which involute slowly over periods of days to weeks in patients who survive, leave a residual light brown pigmentation.

Attention should be called to necrosis and sloughing of purpuric lesions and gangrene of the extremities, which occurred in 2 patients who recovered from acute meningococcemia. In the first of these, irregular bluish black eschars formed over the site of a severe purpuric lesion on the lower extremity. In the second, necrosis of the skin of the toes and later of the entire toes occurred, so that amputation was necessary. Healing of these lesions was extremely slow, the patients requiring months of hospitalization.

The meningococci were typed in 13 of the 25 cases studied. N. intracellularis of type I strain was found in 12 cases and type II in 1 case. Osborne, Arnone and Lythcott[19] stated that pathogenic strains are types I, II and IIa. Korns[20] was of the belief that most patients with clinical cases of the disease harbor type I organisms and that those of carriers belong to type II, especially when the carriers are not intimately associated with patients with active infections. Branham[21] stated that type I organisms are responsible for most epidemic cases and are identified most frequently in the acute fulminating form of the disease. Type I is the organism most commonly present in the beginning of an epidemic; type II is most prevalent during an epidemic.

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[11] Von Drigalski: Beobachtungen bei Genickstarre, Deutsche med. Wchnschr. **31**: 983, 1905.

[12] Netter, A.; Salanier, M., and Blanchier, M.: Two Fresh Cases of Meningococcal Infection with Presence of the Meningococcus in the Purpuric Eruptions: Cultivation of [illegible] he Serum of a Vesicle in One of the Cases; [illegible] f Meningococci Differing from the Typical Men [illegible] Dis. **14**: 264, 1917.

[13] McLean, S., and Caffey, J.: Endemic Purpuric Meningococcus Bacteremia in Early Life: The Diagnostic Value of Smears from the Purpuric Lesions, Am. J. Dis. Child. **42**: 1053 (Nov.) 1931.

[14] Herrick, W. W.: Extrameningeal Meningococcus Infections, Arch. Int. Med. **23**: 409 (April) 1919.

[15] Meyer, R. R.: Meningococcal Meningitis: Report of Thirty-Three Cases with No Deaths, New England J. Med. **230**: 452, 1944.

[16] Smithburn, K. C.; Kempf, G. F.; Zerfas, L. G., and Gilman, L. H.: Meningococcic Meningitis, J. A. M. A. **95**: 776 (Sept. 13) 1930.

[17] Strong, P. S.: The Recognition of Meningococcus Infection, Am. J. M. Sc. **206**: 561, 1943.

[18] Daniels, W. B.; Solomon, S., and Jaquette, W. A.: Meningococcic Infection in Soldiers, J. A. M. A. **123**: 1 (Sept. 4) 1943.

[19] Osborne, J.; Arnone, W. H., and Lythcott, G. I.: Meningitis and Meningococcemia in Childhood: A Statistical Study of Seventy-Two Cases, New England J. Med. **231**: 868, 1944.

[20] Korns, R. F.: Meningococcus Infection, New York State J. Med. **43**: 2069, 1943.

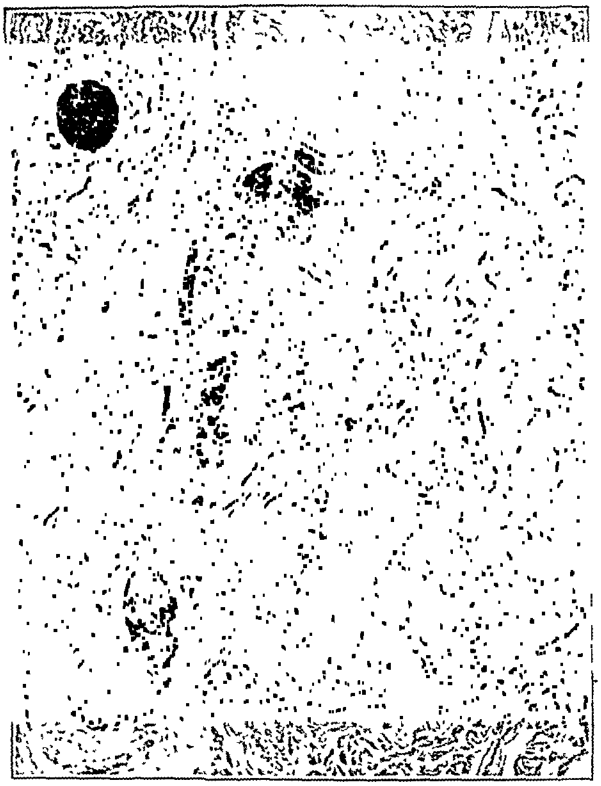

Fig. 1.—The vessels are engorged and packed with red blood cells. In the center of the section diapedesis has resulted in perivascular hemorrhage (low magnification).

It is of interest to note that in 4 cases in which the platelets were observed, they were diminished in 2 cases in which purpuric lesions were pronounced, whereas they were normal in 2 cases in which these lesions were absent. In 1 of the 2 cases in which the platelets were reduced, the clotting times of capillary and venous blood were prolonged, and the clot retention time was increased.

PATHOLOGY OF THE CUTANEOUS LESIONS

The fundamental pathologic lesion in the skin in meningococcemia is diffuse vascular damage. The most constant observation in all our specimens removed for histologic study was diffuse dilatation and engorgement of blood vessels throughout the depth of the cutaneous lesions (fig. 1). This was true irrespective of the type of clinical lesion or of the age of the lesion. This widespread vascular change was not restricted to the skin but was found throughout the serous surfaces and other organs of the body. Study of the smaller blood vessels and capillaries showed endothelial changes. There was decided swelling of endothelial cells, often to such a degree that the continuity of the lining endothelium was broken. These frayed and desquamating lining cells, either singly or in groups, were found partially dilated and protruding into the lumens of the vessels and were frequently seen to be lying free in the lumens. Meningococci could be identified in endothelial cells (figs. 2 and 3) even with routine stains, such as eosin-methylene blue and hematoxylin eosin. These organisms could be demonstrated particularly well with bacterial stains, such as the MacCallum-Goodpasture modification of the Wright stain.

Corroborative evidence of the endothelial damage and subsequent necrosis of the vessel wall was the early appearance of diapedesis of red blood cells, with the formation of small perivascular hemorrhage and larger lakes of red cells. Coincident with this process, or rapidly following it, was the appearance of polymorphonuclear leukocytes lying free in the lumen and infiltrating the areas of endothelial damage. Meningococci could be demonstrated in the cytoplasm of many of these leukocytes. In many vessels, particularly those in which endothelial damage was more pronounced, leukocytes were found throughout the vessels and in the perivascular spaces. In the older lesions many of these were pyknotic or disintegrated. It would appear that these lesions were progressive, in that the bacteria released by the disintegrating phagocytic leukocytes in time attracted more leukocytes. Edema in these sites was well defined, and meningococci were found free in the tissue spaces. In the older lesions a few lymphocytes and débris-containing macrophages were present

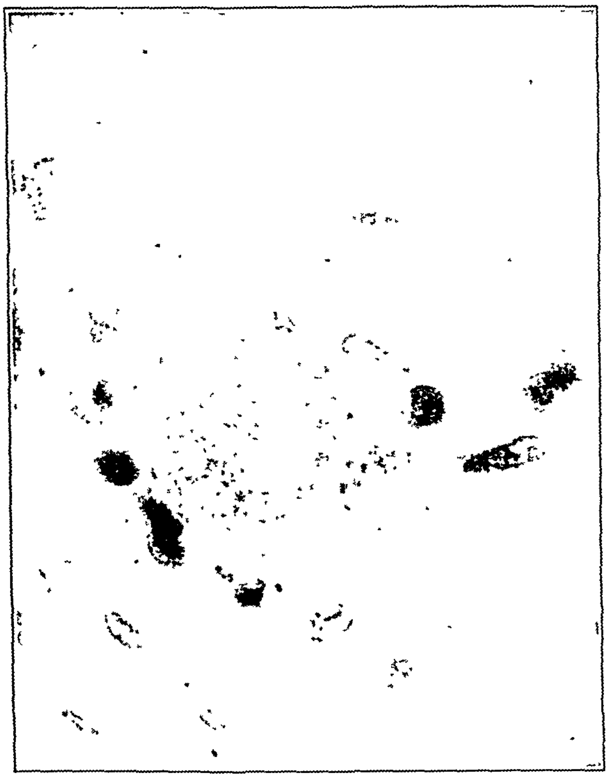

Fig. 2.—Meningococci are visible in the cytoplasm of endothelial cells (oil immersion).

Platelet thrombi were seen in many vessels. These were most prominent in vessels deep in the cutis or in the subcutis, although the superficial capillaries directly beneath the epidermis were involved in a lesser degree. The earliest thrombi were found in vessels in which the endothelium had been damaged and early leukocytic infiltration had taken place. Here fibrin strands, in whose meshes were contained platelets and leukocytes, had attached themselves to the damaged vessel wall and partially occluded the vessel (figs. 4 and 5).

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[21] Branham, S. E.: Meningococcus Meningitis, J. Pediat. 18:217, 1941.

Elsewhere thrombi completely occluded vessels, and all gradations were often seen in the same sections, suggesting that not all the lesions were equal in age. Organization was demonstrated in a few such thrombi. It should be emphasized that these thrombi were made up for the most part of platelets, red blood cells and fibrin and that they frequently contained meningococci.

Striking changes were present in the sweat glands, which were pale-staining and edematous. The individual cells of the acini were swollen and pale, and their cytoplasm was vacuolated. A few clumped nuclei were often all that remained of completely destroyed sweat glands. These changes were sometimes accompanied by an exudate, which consisted principally of polymorphonuclear leukocytes and contained meningococci. The blood vessels accompanying these glands showed the changes already described, and almost invariably a thrombosed blood vessel could be demonstrated in close proximity to and directly beneath a group of these damaged sweat glands (fig. 6).

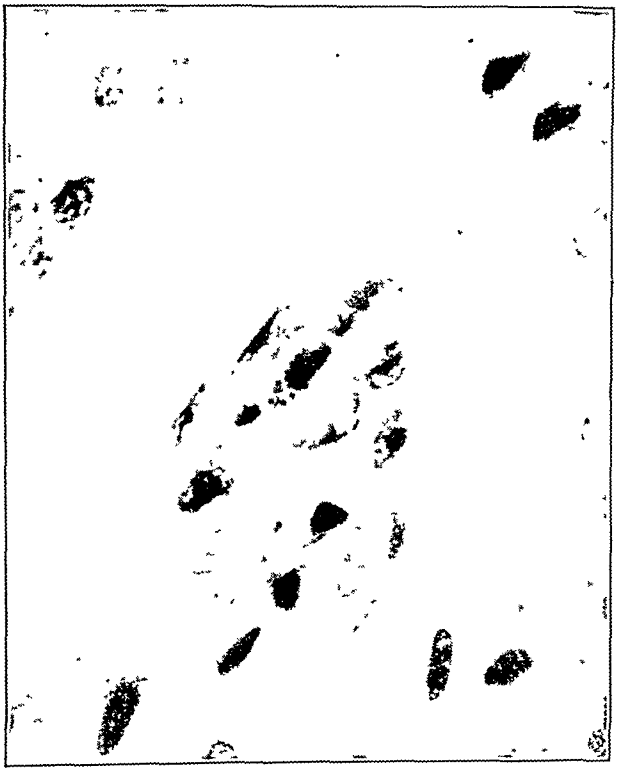

Fig 3 —Meningococci are visible in the cytoplasm of endothelial cells

The erector pili muscles and cutaneous nerves accompanying the arteries and veins were vacuolated, and their interstices were invaded by polymorphonuclear leukocytes. In the subcutaneous fat, focal areas of fibrinous necrosis with numerous phagocytic cells were present.

When vesicles occurred they were subepidermal and unilocular and contained serous and fibrin strands, with little or no inflammatory reaction.

The epidermis was normal in contour and in the arrangement and number of cell layers. Occasionally extensive edema was present in the cutis, and in these sections the collagen fibrils were pale-staining and the rete pegs were obliterated.

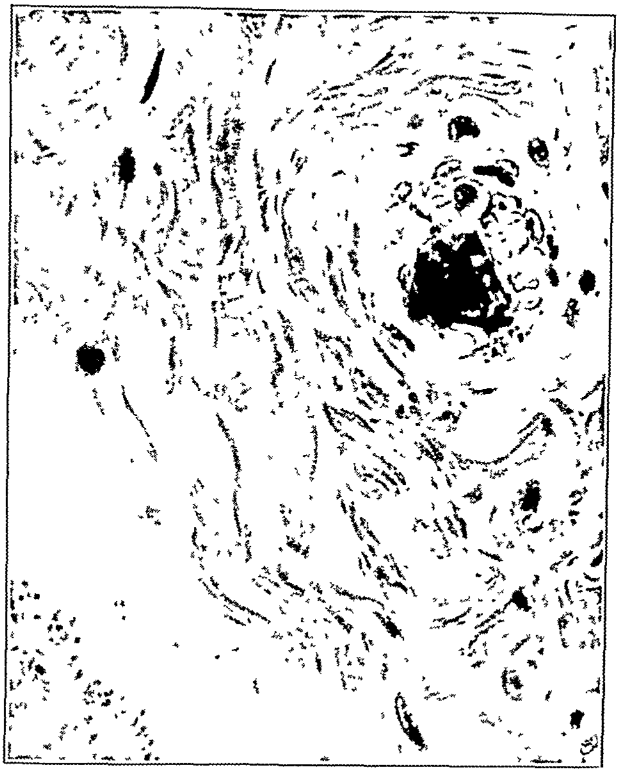

Fig 4 —Thrombus is attached to the endothelial wall of a superficial capillary (high magnification).

COMMENT

From the preceding observations it is evident that the lesions of the skin can all be explained on the basis of vascular damage resulting from the presence of meningococci. The sequence of events in the pathogenesis of the lesions is the localization of the meningococci in the endothelium followed by endothelial damage and inflammation of the vessel walls, with resultant necrosis and thrombosis These changes, by permitting the extravasation of red cells, account for the hemorrhagic cutaneous lesions

Thrombus formation in the cutaneous vessels of patients who have a rash in association with acute meningococcemia has not been sufficiently emphasized. In all cases studied in which the skin manifestations were severe, thrombi were a striking and invariable observation. They were composed largely of platelets that were attracted to the damaged endothelial lining. It appears that in the formation of these thrombi the platelets are drained from the circulating blood more rapidly than they are replaced, so that a thrombocytopenia results. This in turn accentuates the hemorrhagic tendency and aids in the formation of the purpuric lesions. In 2 cases in which purpura was a striking feature, the blood platelets were greatly reduced. Thrombocytopenia is known to occur in many of the severe febrile illnesses, such as septicemia, typhoid fever, typhus fever, scarlet fever and miliary tuberculosis, and it is not unlikely that the fever is also a factor in the reduction of the platelets in this group of cases. In cases not included in this series, thrombocytopenia has been observed both with and without cutaneous manifestations but was always severer in the cases in which such lesions were present. Support for this is given by the fact that in 2 of the foregoing cases in which purpuric lesions did not occur the platelets were stated to be normal. Pratt-Thomas[22] reported moderate reduction in the platelets in 2 cases, and Cosgriff[23] also thought that the purpuric lesions were associated with a thrombocytopenia. However, Pratt-Thomas[22] and Weisberg[24] have reported cases with purpuric lesions in which the platelets were said to be normal in number.

The changes in the sweat glands can be explained on the basis of ischemic necrosis due to interference with the blood supply, since a thrombosed vessel was seen in proximity to the glands in the majority of our sections.

The late complication of gangrene of the skin and extremities is probably also the result of vascular thrombi. In each of the 2 cases which we observed, necrosis of the skin and extremities appeared to progress after the stage of bacteremia had been controlled by sulfadiazine and penicillin therapy. The distribution pattern and progression of these lesions can best be explained on the basis of continued propagation of the thrombi. Physiologic disturbances such as dehydration, loss of vascular tone and blood vessel stasis brought about by the infection would promote the continued propagation of the thrombi already present. These cutaneous complications will undoubtedly become more frequent as more patients survive following the early administration of chemotherapeutic agents, and recognition of the underlying pathologic process will be of aid in planning local therapy.

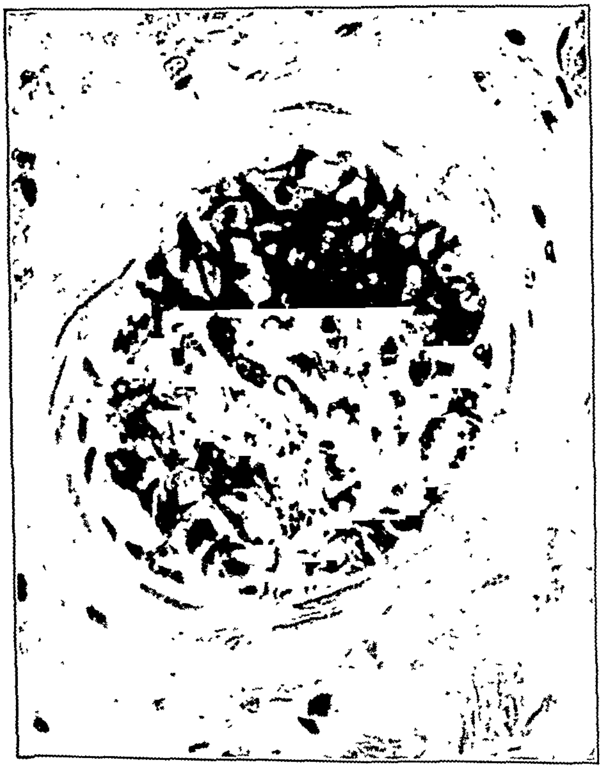

Fig. 5.—Thrombus in a larger vessel composed of platelets and fibrin, has entirely occluded the lumen of the vessel (high magnification).

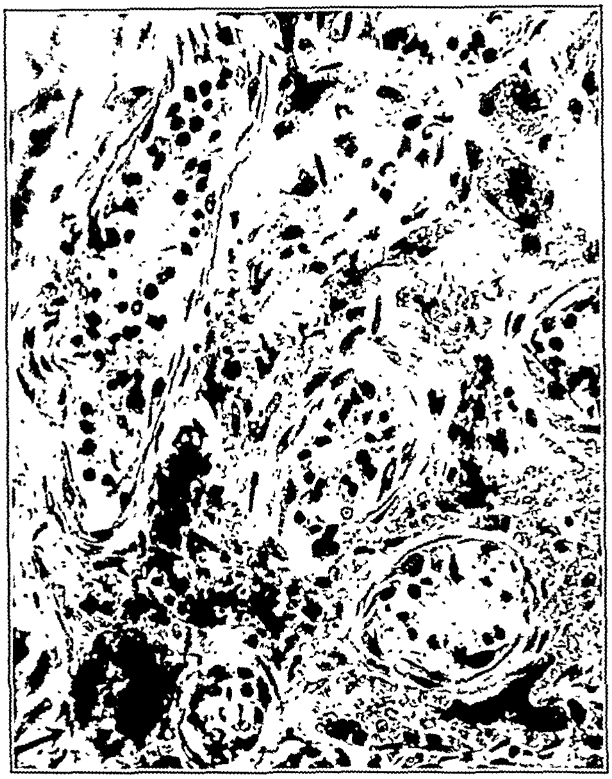

Fig. 6.—Vacuolization of the cytoplasm with pyknosis and clumping of the nuclei has distorted the sweat gland acini. Note thrombosed vessels beneath the group of sweat glands (high magnification).

In the present series vascular lesions were not restricted to the skin. Petechiae and hemorrhagic manifestations were found over the serous surfaces and in the mediastinum, epicardium, endocardium, lungs, liver, kidneys, adrenals, intestines and spleen. The vascular lesions were similar to those in the skin. In other words, the cutaneous lesions are but one manifestation of a generalized disease process.

It has been repeatedly emphasized in the literature that it is possible to demonstrate meningococci in smears of purpuric lesions that have been abraded. This was true in 4 cases in the present series in which this was attempted. Bernhard and Jordan,[25] using this method, found meningococci in 27 of 40 cases, while cultures from these lesions that were read after eighteen hours of incubation were reported to be positive in 35 instances.

In all cases in which sections of skin were available for study in this series it was possible to identify meningococci. In view of the ease with which these organisms were identified and the characteristic histologic picture of the cutaneous lesions, it is surprising that biopsy as a diagnostic adjunct has not gained more widespread recognition. Only two biopsy studies have been reported.[26]

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22. Pratt-Thomas, H. R.; Kelley, W. H., and Gazes, P. C.: Fulminating Meningococcemia, South. M. J. **38**: 229, 1945.
23. Cosgriff, C. W.: Waterhouse-Frederichsen Syndrome: Observations on Associated Adrenal Insufficiency and Report of Four Cases, Ann. Int. Med. **21**: 187, 1944.
24. Weisberg, A.: Meningococcemia with Four Case Reports, Mil. Surgeon **97**: 478, 1945.
25. Bernhard, W. G., and Jordan, A. C.: Purpuric Lesions in Meningococcic Infections, J. Lab. & Clin. Med. **29**: 273, 1944.
26. Renault, J., and Cain, K.: Preuves histologiques et bactériologiques de l'orgine septicémique du purpura de la méningite cérébro-spinale, Ann. de méd. **7**: 114, 1920. Harrison, F. F., and Abernathy, T. J.: Chronic Meningococcemia: Report of Two Cases, Both Associated with Nephritis, Clin. Misc., Mary I. Bassett Hosp. **1**: 3, 1934.

SUMMARY

1. The cutaneous lesions of meningococcemia are the results of vascular damage, which consists of endothelial damage, inflammation of the vessel wall, necrosis and thrombosis. The role of the thrombic vascular lesions is discussed in its relation to clinical cutaneous complications.

2. The histologic picture of the cutaneous lesions in acute meningococcemia and the presence of meningococci are characteristic and specific observations.

ABSTRACT OF DISCUSSION

Dr. Maurice J. Costello, New York: I believe that the cutaneous manifestations are the most striking and important features of meningococcemia. While the eruption usually appears during the first week of the disease, it may appear at any time, may not manifest itself at all or may appear only with each rise of temperature, to fade within twelve to twenty-four hours when the temperature returns to normal. The lesions are polymorphous, beginning as maculopapules, and at times may be of only one type. About a dozen different types of lesions occur. I would like to emphasize several: (1) the erythema nodosum-like lesions such as those occurring in rheumatic fever and in certain eruptions due to drugs; (2) the petechial puncta interspersed with large hemorrhagic blotches, occasionally associated with subconjunctival and mucosal hemorrhages (with this manifestion there may be bilateral adrenal hemorrhage, dyspnea, collapse and death within twenty-four hours); (3) the lesions which resemble "flea bites" containing a central hemorrhagic punctum surrounded by a faint erythematous zone. They are produced by small septic vascular thrombi. These lesions resemble those seen in Rocky Mountain spotted fever, and because of the somewhat similar constitutional symptoms of fever, headache and general irritability this latter disease must be considered in the differential diagnosis of meningococcemia. (4) Dr. Appelbaum, our meningitis expert at Willard Parker Hospital in New York, has called attention to the most distinctive lesion, an irregularly round hemorrhage with a gunmetal-colored center composed of pus cells (*Am. J. M. Sc.* **193**:96 [Jan.] 1937). (5) Another lesion is necrotic, depressed beneath the surface of the skin and bears a superficial resemblance to the papulonecrotic tuberculid in the stage of necrosis. Direct smears from purpuric lesions in meningococcemia offer a quick, easy, accurate method of bacteriologic diagnosis. The variety and frequency of the cutaneous lesions in meningococcemia are ample proof of the ectodermal tropism of the meningococcus.

Dr. Hiram Newton, San Diego, Calif.: In the winter of 1942 at San Diego Naval Hospital there was an epidemic of meningitis in which the cutaneous lesions described by Dr. Hill occurred in a high percentage of cases. A thing that struck me as surprising and caught me off guard was the fact that such lesions can occur and meningococcic septicemia can occur without any meningeal symptoms. I had in my ward 2 such cases which were identical in appearance. There would occur a chill, a high fever and then petechial lesions, which would fade in about three days, to occur again about the time the man was ready to be sent to duty. It fell to Dr. Sam Shelburn, of Dallas, Texas, to suggest a possibility of the infection being a meningococcic septicemia without a concurrent meningitis. Sulfonamide drugs cleared the lesions completely.

Dr. H. J. Templeton, Oakland, Calif.: Dr. Hill's paper recalls to my mind a fine, healthy high school boy who went to a dance one evening, apparently well. The next morning he was slightly ill, and some cutaneous lesions appeared on the body, apparently petechiae from the description of the attending physician. When I saw him in the afternoon, he had massive hemorrhage into practically all of his skin, along with epistaxis, hematemesis, hematuria and melena. In twenty-four hours from the time of onset he was dead from meningitis, and the meningococcus was isolated from the spinal fluid. At that time penicillin or sulfonamide therapy were not available. That shows the ultimate in the degree to which these cutaneous lesions can progress. Since then I have seen, I think, 2 cases of this Waterhouse-Friderichsen syndrome in the Alameda county institutions.

Dr. William R. Hill Jr., Boston: Our paper discusses the acute form of meningococcemia, of which Herrick has said, "No disease so swiftly slays." The case to which Dr. Newton has referred represents the chronic form of meningococcemia which, according to the literature, was observed in epidemic form in the armed services. Such cases are seldom seen in civilian life.

OBSTETRIC ACTIVITIES IN ILLINOIS HOSPITALS DURING 1945

CHARLES NEWBERGER, M.D.
Chicago

In Illinois licensure by the State Department of Public Health is required by statute of all hospitals giving maternity service. To qualify for a maternity license the hospital must comply with a number of regulations established by the Division of Maternal and Child Hygiene in conjunction with medical and hospital advisory groups. Among the requirements for licensure are those dealing with segregation of the obstetric unit, adequate physical arrangement, trained personnel, essential equipment, approved technics and acceptable records. Included in the item of records is the requirement of submission to the Division of Maternal and Child Hygiene of a monthly report which shows the number of mothers and infants cared for, the type of delivery, the operative procedures employed, the incidence and types of complications encountered, the frequency of abortions and ectopic gestations and the number and causes of stillbirths and neonatal and maternal deaths. These reports are given careful study, and annually the data are tabulated for each hospital, for each county and for each group of hospitals with a comparable number of births. Shortly after the end of each calendar year, the department sends each hospital a copy of its individual tabulation together with that of its birth group and the entire state average. Many hospitals have come to use these data as the basis of staff discussion and medical audit. The combined data offer a comprehensive view of the obstetric activities in all the hospitals of the state and present informative and instructive material to those interested in the obstetric specialty.[1]

During 1945, 232 hospitals in Illinois reported 126,309 births. Of these, 62 Chicago hospitals had 57,361 and 170 hospitals in the rest of the state 68,948 births. In view of the fact that Chicago listed 26.7 per cent of all hospitals and 45.4 per cent of the total births, and also because of its rank as an important medical center, tabulations are presented for Chicago, for the state outside of Chicago (designated as "downstate"), and for the total state of Illinois.

Table 1 shows the grouping of the hospitals according to the number of births.

Table 2 shows the number of patients receiving obstetric care and the number of spontaneous and operative deliveries. Included in this table are operative procedures other than those for purpose of the

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Read before the Section on Obstetrics and Gynecology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

From the Illinois Department of Public Health, Roland R. Cross, M.D., Director; Division of Maternal and Child Hygiene, Henrietta Herbolsheimer, M.D., Chief.

[1] Newberger, C.: Illinois M. J. **87**:136, 1945; Am. J. Obst. & Gynec. **51**:372, 1946.

delivery of the infant, which may have been employed antenatally, intranatally or postnatally.

Although the average incidence for operative deliveries in all Illinois hospitals is 28.5 per cent, in the individual hospitals the ranges are from 3.3 per cent among 213 births to 85.0 per cent among 1,031 births.

The various types of operative deliveries are shown in table 3. As noted in the summaries of previous years, the hospitals in Chicago have a higher operative incidence than the downstate hospitals and a lower percentage of mid and high forceps and of breech extraction and show a decided preference for the low cervical over the classical cesarean section.

The wide range of percentage in identical procedures in individual hospitals is striking. The range in forceps deliveries is from 1.7 per cent in 651 deliveries to 77.2 per cent in 1,021. The cesarean section rate of 3.6 per cent for the state varies in the hospitals from 0.0 per cent in 330 deliveries to 11.3 per cent in 986. For the most part, the high rate for cesarean sections is particularly noted in the smaller hospitals. In one such institution, where only 34 mothers were cared for, there were 26 spontaneous and 8 operative deliveries, all of which were sections, giving this hospital a rate for the abdominal delivery of 23.5 per cent, the highest in the state. Other small hospitals and their section rates are: 4 in 23 deliveries—17.4 per cent; 3 in 28—10.7 per cent; 11 in 117—9.4 per cent; 18 in 176—10.2 per cent; 17 in 187—9.1 per cent, and 36 in 238—15.1 per cent.

TABLE 1.—*Illinois Hospitals Grouped According to Number of Births*

Hospitals	Chicago		Downstate		Total State	
	No. of Hospitals	No. of Births	No. of Hospitals	No. of Births	No. of Hospitals	No. of Births
With less than 50 births..	1	15	19	570	20	585
With 50 to 149 births...	3	266	28	2,837	31	3,103
With 150 to 349 births...	9	2,198	52	12,289	61	14,487
With 350 to 499 births...	6	2,532	18	7,339	24	9,871
With 500 to 999 births...	22	17,149	41	28,084	63	45,233
With 1,000 or more births	21	35,201	12	17,829	33	53,030
	62	57,361	170	68,948	232	126,309

TABLE 2.—*Number of Mothers Cared For, and of Operative Obstetric Procedures in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Mothers cared for........	56,801	100.0	68,215	100.0	125,016	100.0
Spontaneous deliveries.	39,178	69.0	50,232	73.6	89,410	71.5
Operative deliveries.....	17,623	31.0	17,983	26.4	35,606	28.5
Operative procedures for purposes other than delivery of infant.........	2,227	4.0	1,954	2.9	4,181	3.3
Total operations.........	19,850	35.0	19,937	29.3	39,787	31.8

Procedures of an operative character for purposes other than the delivery of the infant are shown in table 4. Notable here is the fact that there is more frequent resort to blood transfusion in the Chicago hospitals than in the downstate area.

The significant triad of obstetric hazards, infection, toxemia and hemorrhage, is recorded in 9.8 per cent of all patients. The standard of morbidity is that of the American Committee on Maternal Welfare: a temperature of 100.4 F. (38 C.) or more occurring on any two of the first ten days post partum, exclusive of the first twenty-four hours. Toxemia is considered under three subheads: nonconvulsive patients with edema, hypertension and albuminuria; patients with convulsions, and patients with such other conditions as hyperemesis, or with only a single manifestation of toxic import. The loss of 500 cc. or more of blood is the criterion for determining hemorrhage. In addition to these three inherent maternal factors, there are the dangers of diseases of the cardiovascular, gastrointestinal, glandular and nervous systems. Table 5 gives the reported incidence of all complications.

TABLE 3.—*Operative Procedures for Delivery of the Infant in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries
Operative deliveries........	17,623	31.0	17,983	26.4	35,606	28.5
Forceps (total)............	14,474	25.5	13,860	20.3	28,334	22.7
Low......................	13,536	23.8	12,093	17.7	25,629	20.5
Mid......................	852	1.5	1,429	2.1	2,281	1.8
High.....................	86	0.2	338	0.5	424	0.3
Cesarean section (total)...	2,177	3.8	2,362	3.5	4,539	3.6
Low cervical............	1,391	2.4	726	1.1	2,117	1.7
Classical................	681	1.2	1,598	2.3	2,279	1.8
Porro and other.........	105	0.2	38	0.1	143	0.1
Breech extraction.........	683	1.2	1,490	2.2	2,173	1.7
Version and extraction....	247	0.4	255	0.4	502	0.4
Destructive...............	42	0.1	14	...	56	...

It is noted that the reported state averages for infection, toxemia and hemorrhage are 4.8 per cent, 2.8 per cent and 2.2 per cent respectively. In scrutinizing the individual hospital reports, however, one must conclude that there is evident lack of accuracy in reporting these complications. A hospital report for one month which showed 212 deliveries with an operative incidence of 35.0 per cent and a maternal death from sepsis reported "no" morbidity. A stillbirth or neonatal death may be attributed to maternal eclampsia or placenta previa, and yet no toxemia or hemorrhage is reported. To obtain a more dependable figure on the relative frequency of complications, an analysis was made of the experience of a representative group of hospitals whose reports reflected painstaking care and reliability. In this group with well over 8,000 deliveries, the percentages were: 8.4 for infection, 6.2 for toxemia and 4.6 for hemorrhage.

TABLE 4.—*Operative Procedures in Illinois Hospitals for Purposes Other than the Delivery of the Infant*

	Chicago		Downstate		Total State	
	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries
Total procedures.............	2,227	4.0	1,954	2.9	4,181	3.3
Mechanical induction.........	200	0.4	117	0.2	317	0.3
Manual removal of placenta.	455	0.8	343	0.5	798	0.6
Uterine packing..............	262	0.5	623	0.9	885	0.7
Transfusion..................	1,310	2.3	871	1.3	2,181	1.7

In taking stock of the casualties associated with human reproduction due recognition is given to the occurrence of abortions and extrauterine pregnancies. The frequency of these untoward accidents as reported by the hospitals is shown in table 6.

Here, also, as in the matter of reporting complications, there is an unfortunate lapse in dependable information, as evidenced by a record of 4,478 obstetric patients in one hospital with the admission of only 8 ectopic gestations and none of abortion, and another of 1,928 mothers with 7 abortions and no ectopic gestations. Again, reference was made to the group of representative hospitals with more accurate reporting, which revealed that abortion had a ratio to births of 1 to 6, and ectopic pregnancy had a ratio of 1 to 71.

Table 5.—*Incidence and Types of Complications in Illinois Hospitals, 1945*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Total complications	5,672	10.0	6,917	10.1	12,589	10.1
Infection (total)	2,410	4.2	3,647	5.3	6,057	4.8
Genital	1,548	2.7	1,666	2.4	3,214	2.6
Extragenital	416	0.7	1,006	1.5	1,422	1.1
Genital and extragenital	116	0.2	248	0.4	364	0.3
Undetermined	330	0.6	727	1.1	1,057	0.8
Toxemia (total)	1,866	3.3	1,615	2.4	3,481	2.8
Preeclampsia	1,348	2.4	900	1.3	2,248	1.8
Eclampsia	108	0.2	182	0.3	290	0.2
Other toxemias	410	0.7	533	0.8	943	0.8
Hemorrhage (total)	1,292	2.3	1,484	2.2	2,776	2.2
Before delivery	316	0.6	287	0.4	603	0.5
After delivery	765	1.3	1,145	1.7	1,910	1.5
Before and after delivery	211	0.4	52	0.1	263	0.2
Nonobstetric conditions	104	0.2	171	0.3	275	0.2

In considering the data relative to the infants, information is asked not only of the total number of births, but also the number liveborn, the prematurely born, those who were injured at birth, the stillbirths and the neonatal deaths. The form for reporting this information is now under revision, and it is planned to include questions dealing with congenital malformations, syphilis and diseases of the eye, the skin and the gastrointestinal tract. The basis for determining prematurity is a birth weight under 5½ pounds (2,500 Gm.). Table 7 gives the total number of infants born, the live births, the premature and infants injured at birth.

Table 6.—*Frequency of Abortion and Ectopic Gestation in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Ratio to Births	Number	Ratio to Births	Number	Ratio to Births
Abortions	1,009	1:57	3,089	1:22	4,098	1:31
Ectopic gestations	90	1:637	231	1:298	321	1:393

Table 7.—*Number of Births, Liveborn, Premature and Infants Injured at Birth, in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Total infants born	57,361	100.0	68,948	100.0	126,309	100.0
Liveborn babies	56,177	97.9	67,648	98.1	123,825	98.0
Prematurely born	2,478	4.3	3,613	5.2	6,091	4.8
Injured at birth	192	0.3	163	0.2	355	0.3

It is noted that 98.0 per cent of all infants were liveborn and that 0.3 per cent were injured during birth. The 4.8 per cent for premature births corresponds with figures obtained in previous surveys.

Of prime importance in this yearly analysis is the study of maternal and infant losses. Table 8 shows that the maternal mortality rate was 1.79 per thousand live births, the stillbirth rate was 20.06 per thousand live births and the neonatal death rate was 21.30 per thousand live births.

Worthy of mention is the fact that there were no maternal deaths in 24 Chicago hospitals caring for 21,033 mothers and in 94 downstate hospitals with 26,549 mothers, making a total of 118 hospitals in the state which gave obstetric care to 47,582 mothers. In tragic contrast is the record of one downstate hospital where out of 464 mothers who gave birth to 450 living infants, 8 mothers died, giving this institution a rate of 17.8 per thousand live births, or nearly ten times the average rate for all the hospitals in the state. In the list of hospitals with no maternal loss are 13 of the group which delivered 1,000 or more infants; it includes 1 hospital outside of Chicago with 1,935 patients, and 2 in Chicago with 2,003 and 3,434 mothers, respectively.

Table 8.—*Maternal and Infant Mortality in Illinois Hospitals, 1945*

	Chicago		Downstate		Total State	
	Number	Rate *	Number	Rate *	Number	Rate *
Stillbirths	1,184	21.08	1,300	19.23	2,484	20.06
Neonatal deaths	1,122	19.97	1,515	22.40	2,637	21.30
Maternal deaths	102	1.82	120	1.77	222	1.79

* The rates are per thousand live births

Table 9.—*Causes of Maternal Deaths and Their Frequency in Illinois Hospitals*

International List No	Cause	Chicago		Downstate		Total State	
		Number	Percentage	Number	Percentage	Number	Percentage
140 and 141	Abortion	15	14.7	21	17.5	36	16.2
142	Ectopic	8	7.8	9	7.5	17	7.6
143 and 146	Hemorrhage	18	17.7	17	14.2	35	15.8
144 and 148	Toxemia	21	20.6	28	23.3	49	22.1
145 and 149	Other diseases and acc	13	12.7	17	14.2	30	13.5
147	Infection	21	20.6	22	18.3	43	19.4
150	Unspecified	6	5.9	6	5.0	12	5.4
	Total	102	100.0	120	100.0	222	100.0

The causes of maternal deaths and their frequency, given in table 9, show that toxemia was the primary factor in 22.1 per cent, infection in 19.4 per cent and hemorrhage in 15.8 per cent. If consideration be given to those deaths attributed to abortion and ectopic gestation, where bleeding was of primary concern, hemorrhage would probably be the leading cause of maternal mortality.

Of the 102 counties in the state, 29 have no hospitals licensed for maternity service, 26 counties each have only 1 licensed maternity hospital, 46 have from 2 to 7 hospitals, and Cook County, which includes the city of Chicago, has 76 hospitals for obstetric care. Summaries were prepared of the obstetric activities in each of the 73 counties which have maternity hospital facilities. A visualization of the data relating to fetal and maternal mortality by counties is afforded by the maps of the state shown in figures 1, 2 and 3. As in previous years these figures show that the northern and central areas of the state have lower mortality rates than the counties in the southern section. An interesting fact is shown in figure 3, which points to a total of 29 counties giving care to 10,534 mothers with no maternal mortality.

SUMMARY

A statistical analysis is presented of the care given to 125,016 obstetric patients in the 232 hospitals of Illinois during 1945.

Operative intervention occurred in 31.8 per cent of all mothers. The rate for forceps delivery was 22.7 per cent, and the rate for cesarean section was 3.6 per cent.

Complications were reported in 10.1 per cent of the mothers, with genital infection, preeclampsia and postpartum hemorrhage as the leading conditions. A study of the more carefully prepared hospital records indicates that morbidity was present in 8.4 per cent, toxemia in 6.2 per cent and hemorrhage in 4.6 per cent, a total of 19.2 per cent of the mothers. Transfusion was given in 1.7 per cent.

Abortion and ectopic gestation are reported to bear a ratio to the total births of 1 to 31 and 1 to 393 respectively. Again, through selection of more accurate reporting these ratios were found to be 1 to 6 for abortions, and 1 to 71 for extrauterine pregnancies.

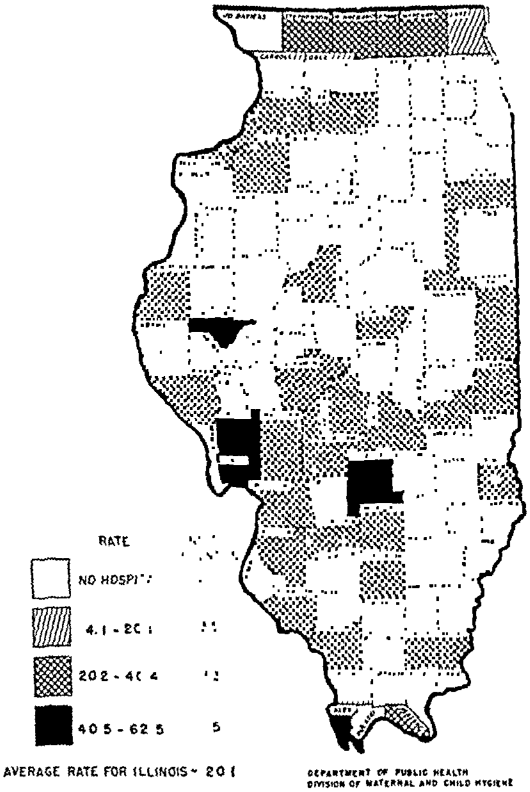
JO DAVIESS
CARROLL
OGLE
RATE
NO HOSPI
4.1 - 20.1
20.2 - 40.4
40.5 - 62.5
5
AVERAGE RATE FOR ILLINOIS - 20.1
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF MATERNAL AND CHILD HYGIENE

Fig. 1.—Stillbirths in hospitals per thousand live births, Illinois, 1945.

Of the 126,309 infants delivered in the hospitals, 98.0 per cent were living, 4.8 per cent were prematurely born and 0.3 per cent were injured at birth.

The stillbirth rate was 20.06 per thousand live births, the neonatal death rate was 21.30 per thousand live births and the maternal mortality rate was 1.79 per thousand live births. There was no maternal death among 47,582 mothers delivered in 118 hospitals.

Of 222 maternal deaths, 49 (22.1 per cent) were due to toxemia, 43 (19.4 per cent) were due to infection and 35 (15.8 per cent) were due to hemorrhage. Abortion was responsible for 36 (16.2 per cent) of the deaths and ectopic gestation for 17 (7.6 per cent). In view of the fact that nearly all of the ectopic deaths and a notable proportion of the deaths attributed to abortion were due to bleeding, hemorrhage takes first

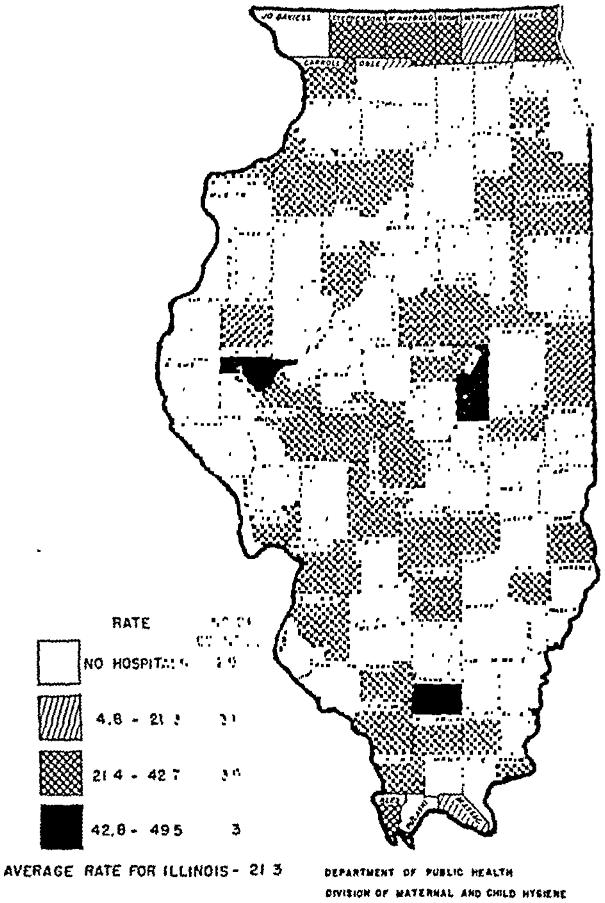
JO DAVIESS
CARROLL
OGLE
RATE
NO HOSPITALS
4.8 - 21.3
21.4 - 42.7
42.8 - 49.5
3
AVERAGE RATE FOR ILLINOIS - 21.3
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF MATERNAL AND CHILD HYGIENE

Fig. 2.—Neonatal deaths in hospitals per thousand live births, Illinois, 1945.

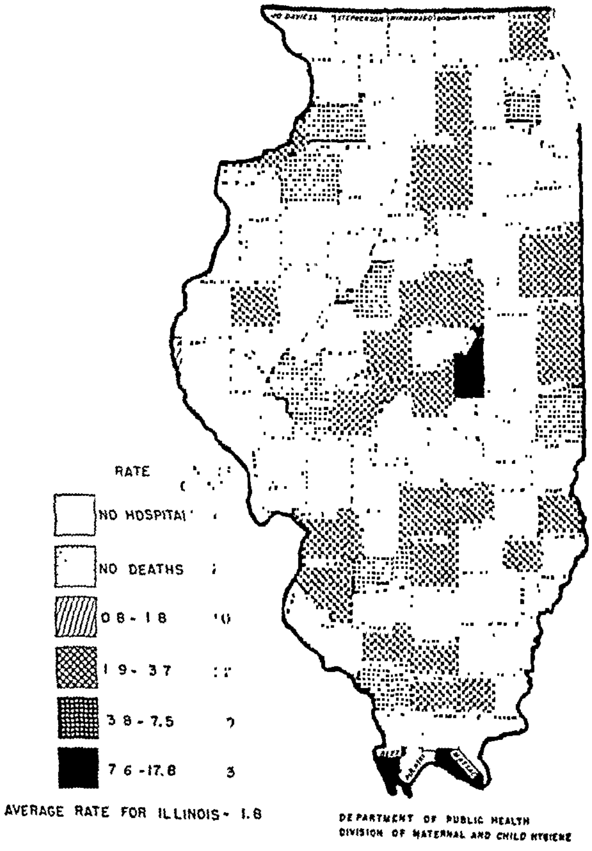
JO DAVIESS
RATE
NO HOSPITAL
NO DEATHS
0.8 - 1.8
1.9 - 3.7
3.8 - 7.5
7
7.6 - 17.8
3
AVERAGE RATE FOR ILLINOIS - 1.8
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF MATERNAL AND CHILD HYGIENE

Fig. 3.—Maternal deaths in hospitals per thousand live births, Illinois, 1945.

place as a cause of maternal mortality in Illinois hospitals during 1945. Other and unspecified conditions are given as the cause in 42 (18.9 per cent) of the deaths.

It is justifiable to stress again the value of critical examination by the hospital staffs of the information made available to them. Reemphasis may well be made that such studies should lead to improvement in trends of obstetric practice, to stricter observance of sound indications for interference, to lowering unduly high operative rates in some institutions, to less frequent resort to cesarean section in others, to more ready use of blood or plasma for prophylaxis or for treatment and to greater awareness of the importance of complete and accurate medical records. Such procedures should result in a decrease of obstetric complications, earlier recognition and more adequate treatment when abnormalities arise and a further reduction of mortality rates, making childbirth safer for the mother and her infant.

5038 Drexel Boulevard.

ABSTRACT OF DISCUSSION

Dr. Robert D. Mussey, Rochester, Minn.: Dr. Newberger's paper on the obstetric activities in Illinois hospitals during 1945 gives evidence of careful study of the data and thoughtful preparation. The monthly reports from maternity hospitals, from which his data were obtained, are one of the excellent requirements of the Illinois State Department of Public Health for licensure of all hospitals giving maternity service. The author points out that the records of certain hospitals appear to be more reliable than those of others. For example, the statewide incidence of puerperal infection, toxemia and hemorrhage was 4.8, 2.8 and 2.3 per cent of live births respectively. This incidence is amazingly low when it is compared with 8.4 per cent for infection, 6.2 per cent for toxemia and 4.6 per cent for hemorrhage, which are the figures from "a representative group of hospitals in Illinois whose reports reflected painstaking care and reliability." Table 8 shows a figure of 20.06 stillbirths, 21.30 neonatal deaths and 1.79 maternal deaths per thousand live births. Could the method of collecting and reporting of data by individual hospitals have influenced the accuracy of these figures? It can be claimed that the figure for these deaths cannot be in error. In this connection I shall mention a statewide study of maternal mortality which was carried out for the period from July 1, 1941 through June 30, 1942 in Minnesota. This study was a cooperative enterprise of the Minnesota State Medical Association and the Minnesota State Department of Health. One hundred and five maternal deaths were reported officially for this period. Records, however, were obtained of 112 maternal deaths. In 7 instances, the information that the death was connected with pregnancy was obtained only by matching the birth and death certificates for the period. The maternal death rate of Minnesota for the last six months of 1941 and the first six months of 1942 was roughly 2.0 per thousand live births. If the 7 additional improperly or carelessly reported maternal deaths had been included in the vital statistics, the death rate for that period would have been approximately 2.13 per thousand live births. Largely through the efforts of the late Dr. A. J. Skeel, of Cleveland, the efficient Hospital Obstetric Society of Ohio was organized about 1933. The hospitals comprising this society adopted a plan of organization of the obstetric staffs. The authority for consultation and the administration of maternal care in each member hospital was placed in the hands of a recognized head of the obstetric staff. Standards of maternal care and rules for consultation in complicated cases were set up, and staff conferences were held at which all maternal deaths were discussed. With the backing of this society the "Ohio Plan" has been a potent factor in improving maternal care in Ohio. Vital statistics show how many pregnant women die as compared to the number of living babies born during a given period of time. Dr. Skeel stated that when this formula is applied to the individual hospital it may show a false picture of the actual maternity efficiency of the hospital. From the standpoint of maternity efficiency it would be more accurate to estimate the maternal death rate among women who come to a hospital and are delivered there of a fetus of viable age; this is the delivery or obstetric mortality rate of the institution. For example, in 1931 the obstetric or delivery mortality rate in the city of Cleveland was 5.5 per thousand live births while the total maternal death rate, including all those who had live births, still births, abortions and ectopic pregnancies, was 11.1 per thousand live births. Dr. Newberger's paper is an excellent review of the obstetric activities in Illinois hospitals in 1945. The over-all record is good, but the data show a decided variance in the incidence of operative procedures, in the maternal death rate and in the data obtained from various hospitals. This implies the need for efficient organization of the obstetric staff in all hospitals accepting maternity cases and the need for more care and accuracy in keeping maternity records and in the review of such records by the obstetric staff of the hospital. I agree heartily with the recommendations submitted by the essayist.

Dr. A. E. Kanter, Chicago, Ill.: A question which often arises is: Of what value are statistics? Because statistics can be made to stand for about anything the writer wants them to. But knowing Dr. Newberger and his efficient and reliable method of analyzing statistics, we can certainly accept these as being important. Downstate shows a greater variance in morbidity, mortality and surgical procedures than does the city of Chicago. The reason for this is probably that in Chicago there is a monthly review of all mortality cases, where the operators or physicians involved are invited to a general meeting. Members of all the staffs of the hospitals may be present, and each case is taken up on the merit of the treatment; if there is an opinion that probably the treatment was not of the proper nature, a finding by this committee is sent to the physicians and to the hospitals involved. Men would be a little less likely to introduce surgical procedures when they are not indicated. Constructive criticism helps a great deal in cutting down the number of loose indications for particular treatments. From the viewpoint of teaching, the fact that the mortality and morbidity are greatest in toxemia, infection and hemorrhage, shows that the emphasis in teaching must be placed on these subjects, i. e., on the correction or prophylaxis or treatment of toxemias, hemorrhage and infection. The findings in the southern part of the state are improving primarily because a greater number of men are getting valuable training in obstetrics who settle in the smaller communities. Their efforts, plus the consultants, increase the interest of the general practitioners in obstetrics from the view point of better care and better results. They are certainly producing that result, because there is little difference between the upstate and the downstate statistics, with the exception of a few hospitals where there is little obstetric practice and probably little supervision. If this type of study is done in every state and if the hospitals will take their statistics and study them, there will be still greater improvement in the three greatest scourges in obstetrics.

Dr. Charles Newberger, Chicago: The unreliability of the data submitted by the hospitals, commented on by Dr. Mussey, was stressed in the paper. We know only too well that, unfortunately, physicians and hospital personnel generally are somewhat lax in insisting on better records. This is particularly true with reference to obstetric complications. As to the mortality: We have adopted the system whereby the hospital reports are checked with the Division of Vital Statistics, and in that fashion I believe that we have an accurate recording of the incidence of stillbirths, neonatal deaths and deaths of mothers. Dr. Kanter mentioned the Maternal Welfare Committee of Cook County. This committee studies maternal mortality of Chicago and is doing splendid work. We have talked for some time of the wisdom of instituting investigation of maternal deaths on a statewide basis. We hope that some day this will come about, and I am certain that when it does the losses of mothers and babies are going to be considerably reduced. It is essential for any individual physician to give thought occasionally to the results that he has in his professional practice. It is wise for groups of doctors on hospital staffs to do likewise. The purpose of this particular presentation was to do a similar job on evaluating and taking stock or inventory of obstetric activities and results on a statewide basis.

ABDOMINOPERINEAL PROCTOSIGMOIDECTOMY FOR RECTAL CANCER

The Management of Associated Vesical Dysfunction

HARRY E. BACON, M.D.
and
LOWRAIN E. McCREA, M.D.
Philadelphia

Abdominoperineal proctosigmoidectomy for rectal cancer is a surgical procedure that is frequently followed by complications. A survey of the various complications has revealed a series of important factors which have aided materially in the postoperative management of these patients.

These complications do not differ greatly from other types of resections on the lower bowel. During the five year eight month period ending May 1946, 480 patients with cancer of the anus, rectum and pelvic colon were examined. Of this number 440 were operated on, a rate of operability of 91.6 per cent. Resection by various methods was performed in 390 instances, a rate of resectability of 81.2 per cent. In 251 patients the technic of abdominoperineal proctosigmoidectomy was performed with 15 deaths, a mortality rate of 5.9 per cent. The rates of survival estimated on 81 patients who were followed were 58.6 per cent for three years and 50.2 per cent for five years.[1] These statistics were obtained in cases in which operative intervention was performed for palliation as well as for cure. Preservation of the sphincter musculature has offered continence estimated as 95 per cent of normal. Impotence after proctosigmoidectomy was noted as 55.5 per cent in cases in which the sphincter musculature was incised anteriorly,[2] whereas without division of the musculature the incidence of impotence was 8.3 per cent. The low incidence can be attributed to the avoidance of inadvertent trauma to the perineal structures. It is in contrast to the percentage of impotence after the Miles type of resection, which is estimated at 95 per cent.[3]

Vesical dysfunction subsequent to abdominoperineal proctosigmoidectomy for carcinoma of the rectum or sigmoid cannot be considered an incidental complication. As the surgical procedure is of relatively recent introduction, it is obvious that only a few investigators have been able to portray their observations on the occurrence or the management of this serious complication. It is conceded universally that this postoperative urinary complication to the procedure constitutes one of the major problems of management.

Those patients on whom resection has been performed return to normal living and to normal habits if the bladder can be made to function correctly. Paralytic atony of the bladder does not occur in every instance in which proctosigmoidectomy is performed, but when it does occur the vesical dysfunction portrayed by these patients is typical. There is complete urinary retention. If the retention is permitted to continue untreated and uncontrolled, dribbling of overflow develops, infection intervenes and urosepsis may occur. The urinary retention following the procedure unquestionably is due to the trauma or more often to severance of the sympathetic and parasympathetic nerve fibers (fig. 1). These fibers constitute the inferior hypogastric or pelvic plexus and innervate the internal vesical sphincter and the detrusor urinae muscle. By the removal of this plexus there is an interruption of the efferent and afferent stimuli to and from the bladder. According to Hill, Barnes and Courville[4] the nature and extent of injury to the nerve elements may vary considerably. The bladder deprived of stimulation by the interruption of the spinal arc becomes a hapless reservoir (fig. 2). Acute urinary retention with associated vesical distention occurs. The bladder musculature, suddenly relieved of all stimulating nerve impulses, rapidly becomes atonic. The walls become thin; massive diverticulation occurs; and the viscus becomes a functionless, thin-walled, irregularly shaped, dilated, noncontractable reservoir laden with infection. It is for the restoration of a normally functioning bladder that a concerted attempt has been and is being made.

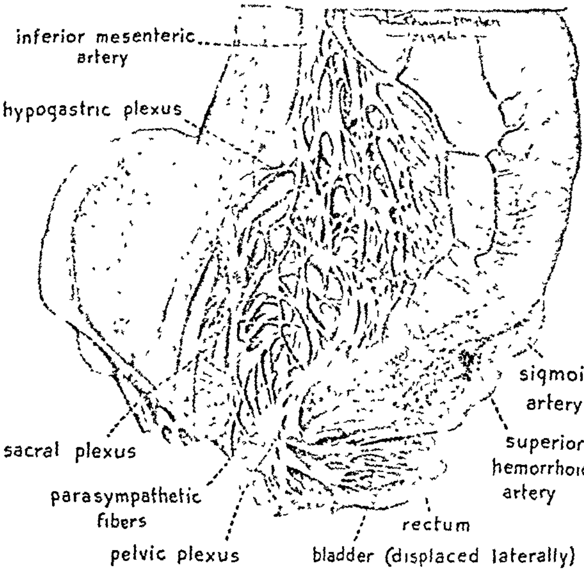

Fig. 1.—A dissection is shown of the pelvis and the ramifications of the sympathetic and parasympathetic nerves entering into the formation of the pelvic plexus.

In an investigation of the problem of vesical dysfunction after proctosigmoidectomy the departments of urology and proctology have cooperated.

Our conclusions were based on an unselected series of 251 persons on whom abdominoperineal proctosigmoidectomy was performed. In this group there were 15 deaths from causes unrelated to the urinary tract. Postoperative follow-up of 251 patients was considered. In 7 of these 251 persons vesical atony developed following the operative procedure. Of these 7 patients 5 are living and well, have returned to normal existence and urinate naturally. The sixth case is too recent to permit accurate interpretation. The seventh patient committed suicide thirteen months after the operation. An immediate psychosis developed and he continued throughout the remainder of his life to exhibit ideas

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Professor and head of Department of Proctology (Dr. Bacon), professor and head of Department of Urology (Dr. McCrea), Temple University Medical School and Hospital.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

[1] Bacon, H. E.: Abdominoperineal Proctosigmoidectomy for Cancer of Rectum, Am. J. Surg. **71:** 728, 1946.

[2] Bacon, H. E.: Evolution of Sphincter Muscle Preservation and Reestablishment of Continuity in the Operative Treatment of Rectal and Sigmoidal Cancer, Surg., Gynec. & Obst. **81:** 113, 1945.

[3] Jones, T. E.: Complications of One-Stage Abdominoperineal Resection of Rectum, J. A. M. A. **120:** 104 (Sept. 12) 1942.

[4] Hill, M. R.; Barnes, R. W., and Courville, C. B.: Vesical Dysfunction Following Abdominoperineal Resection, J. A. M. A. **109:** 1184 (Oct. 9) 1937.

of persecution. The atonic condition of his bladder continued from the time of operation until his self-inflicted death.

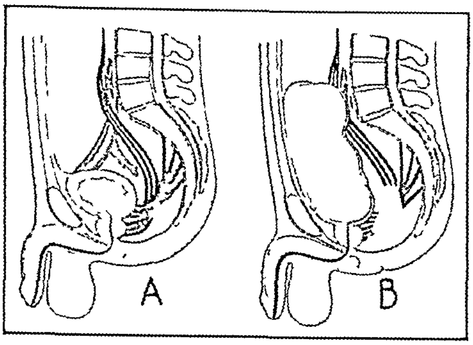

Fig 2—Schematic drawing showing the reaction of the bladder before and after removal of the pelvic plexus Following division of the nerves, the bladder becomes atonic and greatly dilated *A*, normal relationship of bladder and nerves; *B*, atonic bladder after division of the nerves

The changes in the bladder after abdominoperineal proctosigmoidectomy are occasionally dramatic. The acute urinary retention that immediately follows the surgical procedure is usually complete, although some persons may void small quantities at frequent intervals but exhibit massive amounts of residual urine. In other patients overflow incontinence may develop quickly after surgical intervention.

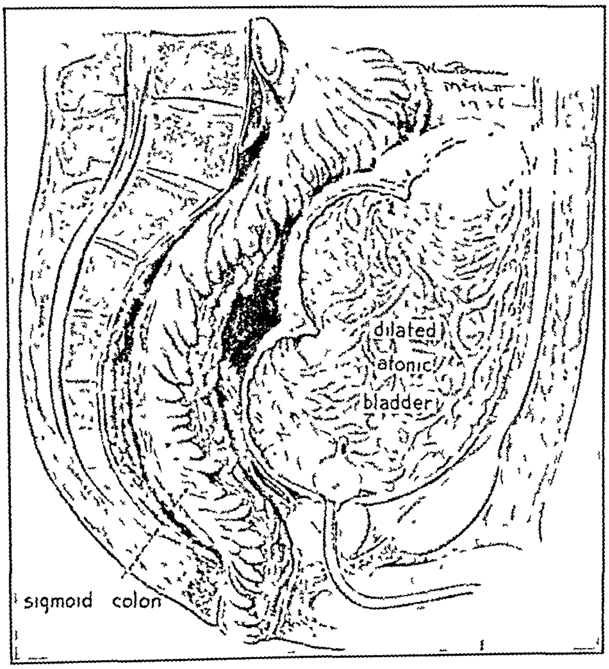

Fig. 3—The greatly dilated and atonic bladder following operation is shown The detrusor urinae cannot contract and the bladder must be continuously emptied by catheter. The rectum has been resected and the sigmoid colon has been brought down to empty externally.

An atonic state of the bladder quickly develops after surgical interference with the nerves and nerve plexus.[5] Diverticulation of the bladder rapidly occurs following the inception of an atonic state. The diverticula do not have the narrow orifices that are usually seen but are rather large outpouchings of the bladder wall. The bladder becomes irregular in contour, has a greatly increased capacity and remains an inert reservoir lined with mucous membrane (fig. 3). A state of chronic urinary retention ensues if the acute retention is not relieved continuously. Thus, two factors are constant if relief of chronic retention is not accomplished, namely, overflow incontinence and diverticulation of the bladder. Infection is invariably a factor in chronic retention. The greatest predisposing factor to infection in the urinary tract is stasis of the urinary flow, regardless of its cause. Stasis is evident in the presence of residual urine. The ischemia of the vesical mucosa during retention is another factor which fosters infection. The normal vesical mucosa is known to be extremely resistant to infection, but when it is subjected to continued ischemia its protective properties disappear and permit infection to occur.

During the surgical procedure of abdominoperineal proctosigmoidectomy, definite injury to the sympathetic and to the parasympathetic nerves occurs (fig. 4). The extremely important inferior hypogastric or pelvic plexus is subjected to injury. This plexus contains both types of nerve fibers and normally lies beneath the peritoneum on either side of the ampulla of the rectum. The internal vesical sphincter subsequent to the operation is unable to function and remains in a state of contraction because of an apparent predominant sympathetic influence; the detrusor urinae is unable to contract because of the loss of parasympathetic innervation (figs. 5 and 6). Due to the loss of innervation it has not been considered necessary to perform a transurethral resection to establish normal urination. It is to the apparent nerve imbalance that the management of vesical dysfunction subsequent to proctosigmoidectomy is directed.

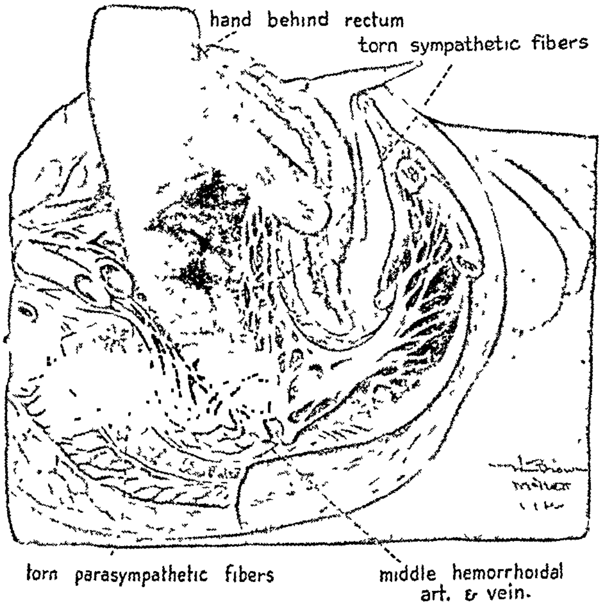

Fig 4—The sympathetic and parasympathetic nerve fibers forming the pelvic plexus are inadvertently torn by the surgeon while freeing the attachments of the sigmoid and the rectum

INFECTION OF THE URINARY TRACT

Infection of the bladder is a factor that should always be subjected to the most rigid control. In a survey of 58 cases in which urine was taken for culture before operation, a negative report was returned for 18. Of these, in 15 cases samples of urine were demonstrated by culture to have remained sterile throughout the period of operation and postoperative convalescence. It was surprising to learn that in 40 cases (of the total of 58 cases, or 68.9 per cent) the original culture revealed a positive growth.[6] The bacteriologic findings of these cultures was not unusual. Streptococci were observed in 10, staphylococci in 9, Escherichia coli in 6, Bacillus pyocyaneus in 2, Proteus vulgaris in 1 and fungi in 2. The remaining 10 cultures revealed a mixed growth. There were only 3 instances in which the culture was primarily negative and became positive postoperatively. In these 3 instances the infecting organism was Staphylococcus albus. In spite of the number of positive cultures none of the patients required specific treatment for relief of symptoms. It is believed that phthalylsulfathiazole (Sulfathalidine) which is routinely administered during the preoperative management for bowel surgery is an important factor in the control of infection of the urinary tract. Poth and Ross [7] have demonstrated sterile urine in three to nine days after the oral administration of the drug.

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[5] McCrea, L. E.: Vesical Dysfunction in Anorectal Disease, Urol & Cutan. Rev. 47:211, 1943.

MANAGEMENT OF VESICAL DYSFUNCTION

Beyond question, the best method of preserving the musculature of the bladder and preventing vesical atony is to maintain a bladder at rest. The rest should be complete and should be maintained until the bladder has regained its ability to function normally. An indwelling catheter properly introduced is preferred to cystotomy drainage in maintaining a bladder at rest. Vesical atony should be anticipated in every instance in which abdominoperineal proctosigmoidectomy is done, and steps should be taken to control such vesical dysfunction before it ever occurs. The routine for e preoperative and postoperative management that has een found satisfactory is as follows:

Preoperative.—A urine culture is taken at the time ystoscopy and cystometry is done. Cystoscopy is of onsiderable aid in determining vesical involvement by he carcinomatous mass. Cystometry preoperatively ys a foundation for further observance and management of vesical activity. Although the great majority f patients have shown a normal cystometrogram, a certain percentage have revealed a hypotonia before operative intervention. It has been surprising to learn that those patients who exhibit vesical hypotonia preoperatively have been found to have an infiltrating lesion at or in the immediate vicinity of the ampulla of the rectum, the site of the pelvic plexus. To maintain a bladder at rest a catheter is inserted into the bladder immediately before the operation.

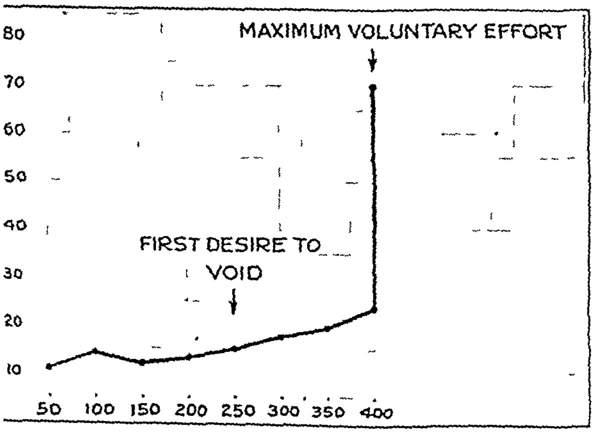

Fig 5.—Normal cystometrogram There is a gradual rise of pressure o a point varying between 20 and 30 cm with a fill of 400 cc. of solution The first desire to void occurs usually with 250 cc. of fill. A maximum voluntary pressure of 70 cm. is usual

Postoperative.—Irrigation of the bladder by means of solution of boric acid is performed twice a day. Urine cultures are taken on the fourth and tenth postoperative days at the time cystometry is done. Cystometry permits an accurate interpretation of the patient's ability to void. If the patient is capable of exerting voluntary pressure of 70 cm. on the tenth day, the catheter is removed and the patient is instructed to void. If the patient voids, a catheter is reinserted immediately and the presence or absence of residual urine is ascertained. If more than 60 cc. of residual urine is present the catheter is permitted to remain in situ until the bladder is capable of more complete emptying. If the patient is unable to void, Syntropan (200 mg.) is administered orally three times a day to decrease the tone of the smooth muscle of the internal vesical sphincter. Repeated cystometric readings are subsequently taken to determine the functional ability of the detrusor urinae. The Syntropan is continuously administered until normal voiding occurs. In not a single instance, except in 1 patient who exhibited evidence of psychosis, has there been failure to resume normal urination.

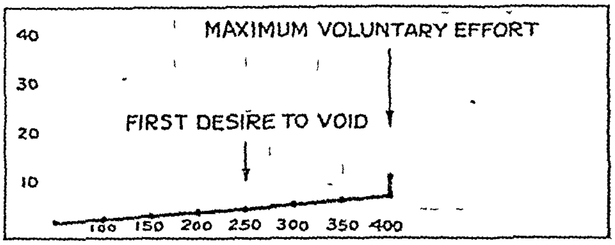

Fig 6.—Hypotonic cystometrogram This is a typical curve following proctosigmoidectomy when vesical atony occurs There is a gradual rise to 10 cm or below with 400 cc. fill The first desire to void may vary greatly or may not be experienced by the patient The maximum voluntary effort is slight Urination is impossible, as the detrusor urinae cannot contract because of the lack of innervation

SUMMARY

1. A résumé of the management of vesical dysfunction in 244 patients with rectal carcinoma who were subjected to proctosigmoidectomy has been presented.

2. Paralytic atony of the bladder with retention of urine occurs frequently after resection of the rectum for carcinoma unless measures are constantly taken to prevent it.

3. Vesical dysfunction following proctosigmoidectomy is due to trauma or the inadvertent removal of the inferior hypogastric or pelvic plexus. For this reason transurethral resection has not been performed in a single instance.

4. There were 7 instances in 244 cases in which normal micturition was impossible at the time of discharge from the hospital. Of these 7 cases, 5 returned to normal voiding and are without residual urine. One became insane and committed suicide thirteen months after operation. One case is too recent to evaluate.

5. The best possible procedure to maintain normal musculature is to maintain a bladder at rest. This may be accomplished by continuous drainage with a catheter.

6. Urinary retention may be transitory or may be present for days, weeks or even months. Urinary retention may be permanent if paralytic vesical atony occurs.

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[6] McCrea, L. E. Management of Vesical Dysfunction in Anorectal Disease, paper read before the forty fifth annual meeting of the American Proctologic Society, San Francisco, June 30, 1946

[7] Poth, E. J., and Ross, C A · Clinical Use of Phthalylsulfathiazole, J. Lab & Clin. Med **29**:785, 1944.

7. Positive urine cultures do not always denote cystitis, but a constant guard against cystitis should be maintained. It is believed that phthalylsulfathiazole (Sulfathalidine) administered routinely in preparation for bowel surgery exerts a bacteriostatic effect on organisms found in the urinary tract.

8. The oral administration of 200 mg. of Syntropan for its effect on decreasing the tone of the smooth muscle of the internal sphincter has been found to aid in reestablishing normal urination when the tone of the detrusor urinae is normal.

9. The existence of a collateral sympathetic nerve supply is considered as a possibility in creating the nerve imbalance which is so evident following surgical intervention.

10. To May 6, 1947, 140 consecutive resections have been performed without a death.

ABSTRACT OF DISCUSSION

Dr. Curtice Rosser, Dallas, Texas: We are no nearer to agreement concerning the mechanism of this complication. Dr. Bacon is convinced that injury of the nerve supply is entirely responsible, agreeing with Dr. T. E. Jones. Yet Coller and his associates and more recently Marshall, reporting from the New York Memorial Hospital, have stated that endoscopic examinations and cystograms disprove the neurogenic theory. Marshall believes that widespread and bilateral denervation would be required to bring about long continued dysfunction. Marshall and his associates found that the percentage of patients with severe urinary difficulty (8 per cent lasting over three months) was approximately the same whether combined abdominoperineal or posterior resection only was done. They concluded that the dysuria is due to a sag of the bladder, bladder neck and prostate resulting from the dissection at the base of the bladder and removal of the support of the rectosigmoid colon, with consequent alteration of the arrangement of the urethra and external sphincter of the bladder. One of their patients was completely relieved by surgical elevation and fixation of the bladder. I have reviewed a consecutive series of 100 cases, terminating last March 1, in which different technics were used. There were 92 cases of abdominoperineal resection, 3 in two stages, 6 of a one stage anterior resection, as described by Rankin, and 2 of perineal resection following colostomy. Forty-three per cent of the patients were women, and it is noteworthy that while temporary dysuria occurred in a number of the women, in none did it continue for a long period, which agrees with my previous experience. It was found that voiding in the upright position with the torso bent forward was a helpful device for these patients. Excluding these 43 women and the 5 patients who died as a direct result of the surgical procedure, 52 male patients remained. Of this group 6, or 11.5 per cent, had dysuria which continued more than three months. One of these men, whose ureter had been severed, was cured by ureteral repair. Another, whose prostate had been a matter of concern for ten years before he submitted to surgical intervention, still defends its integrity from the urologist. One patient had his prostate removed three years after his rectal resection, at the age of 75. The third had an unmistakable "cord bladder" of neurogenic origin, which was relieved but not cured by resection of the median lobe. In the only patient with definite urinary incontinence, the symptoms persisted until his death from local recurrence some months later. One patient had a transurethral resection in the hope of relieving pain, which later was found to be due to recurrence involving the bladder. The last patient, an elderly man, was entirely relieved by prostatectomy. Since the presence of an indwelling catheter for long periods is not without danger, it is urged that after the first removal of the catheter the presence of residual urine be checked for several days, using a firm small coudé catheter to avoid injury and this procedure be continued until the bladder demonstrates its ability to completely expel its contents.

Dr. Roger W. Barnes, Los Angeles: The large series of cases on which their conclusions are based make the paper of Drs. Bacon and McCrea most valuable. It is surprising that in so few of their patients did there develop a vesical hypotonus following abdominoperineal proctosigmoidectomy—only 7 of 244, an incidence of 2 per cent. In answer to a questionnaire sent by Dr. Malcolm Hill in 1937, more than half of 59 leading proctologists reported that over 50 per cent of their patients had vesical dysfunction after this operation, and 32 of the 59 who answered the questionnaire stated that two thirds or more of their patients had disturbances of the bladder. It is probable, therefore, that most surgeons have a higher incidence of this complication than is reported by Drs. Bacon and McCrea. Some surgeons have advanced the theory that nerve injury is not the cause of vesical dysfunction following abdominoperineal proctosigmoidectomy. A study of the postoperative bladder in these patients, however, reveals all the characteristics of the neurogenic bladder—a rounded deformity of the dome in the cystograms, a hypotonic curve by cystometric study, as Dr. McCrea has shown, and relaxed posterior lip of the bladder neck as seen through the cystoscope. The management of the bladder in these instances is important, and the use of the indwelling catheter as described by Drs. Bacon and McCrea is to be recommended. Their evaluation of the tone of the bladder by cystometric study to determine the proper time for removal of the catheter is an innovation and adds to the accuracy with which these patients can be treated.

Dr. Lowrain E. McCrea, Philadelphia: I wish to thank Drs. Rosser and Barnes for their comments. We agree that the cause of vesical atony is a rather controversial subject. We also agree that a great many of the patients on whom proctosigmoidectomy is performed are in the prostatic age and that a certain percentage of them have prostatic hypertrophy or obstruction of the vesical neck in varying degrees. There is no argument at all in the management of these cases. If a man has a prostatic obstruction there is only one answer—to take it out. The method of procedure for the prostatic removal is that of individual choice as governed by each patient. We believe that a bladder having obstructive factors shows increased vesical dysfunction following such an operation as proctosigmoidectomy because of the lack of normal nerve influence. The cases of vesical dysfunction which we have considered are only those in which the patients presented a normal cystometrogram before operative intervention, were without obstructive uropathy, were subjected to abdominoperineal proctosigmoidectomy and showed decided alteration of the cystometric curve immediately after the surgical operation. The alteration of the cystometrogram and the vesical dysfunction continued over a period of weeks and in some instances several months. Undoubtedly there is considerable damage to the innervation to the bladder during such a procedure as proctosigmoidectomy. The innervation of the bladder and lower part of the pelvis is not thoroughly understood, and considerable interference with the inferior hypogastric or pelvic plexus occurs in the operating room, with subsequent alteration of the function of the bladder in some instances.

Effect of Flies on Milk Production.*—In order to find out* how much the farmer really benefits by controlling flies on range cattle, the Department of Agriculture cooperated in a large scale test with the state people in Kansas. A similar test was made in Florida on dairy cattle. They found that in the range herd where the flies were controlled with DDT the weight gain during the summer averaged 50 pounds more, per animal, than in a similar herd where no spraying was done to control the flies. In the Florida experiment with the dairy cows we found that the cows gave 10 to 15 per cent more milk when the flies were controlled. About $50,000 was spent in these experiments on DDT. There's already a profit of $10,000,000, with a possibility of reaching at least $100,000,000 every year.—Lambert, W. V.: Research Yields Billions, *Science News Letter*, April 12, 1947.

Clinical Notes, Suggestions and New Instruments

INTRAOCULAR PENICILLIN IN SEVERE INTRAOCULAR INFECTION

Report of Case

LOUIS R. HAAS, M.D.
Pittsburg, Kan.

Recently there have been a number of reports on the use of penicillin in endophthalmitis and panophthalmitis. The results obtained by its use in this case, however, were so dramatic and so surprising that they are worthy of being reported.

The patient, a boy aged 10, was chopping wood when he was struck with a piece of wood just nasally and below the center of the left cornea. Twenty-four hours later he consulted his family physician, who referred him to me. Thus the accident had happened about thirty-six hours before I saw the patient.

Examination of the left eye revealed a decidedly injected, chemotic eye, with a perforation about 2 mm. long just temporally and below the center of the left cornea. The wound was ragged, and there was a yellow infiltrate in the cornea completely surrounding the wound. The lower half of the anterior chamber was filled with a hypopyon. There was a gelatinous membrane across the upper part of the pupil, which was all of the pupil that could be seen. The aqueous humor above the hypopyon was gelatinous and filled with shreds. The iris was greatly congested and appeared to be plastered against the anterior lens capsule with a plastic exudate. The fundus could not be seen.

The lids were edematous, and saving the sight of the eye, which was extremely painful, seemed to be impossible. The patient was admitted to the hospital. He was given 3,000 units of tetanus antitoxin. Penicillin was given intramuscularly every three hours, 20,000 units. The aqueous humor was allowed to escape by depressing the lips of the wound with a probe, and the anterior chamber was filled with a solution of penicillin, 500 units to the cubic centimeter, using an ordinary hypodermic syringe and needle through the wound. This procedure was carried out at 6 p. m. Atropine was instilled into the eye. The application of hot compresses and penicillin ointment every three hours was ordered to be continued until the next morning. At this time the hypopyon had disappeared, but the iris was plastered against the lens, the pupil was covered with a plastic exudate and the aqueous humor, which was full of shreds, appeared gelatinous. The chemosis and injection had subsided little if any. The pupil had been dilated but little. A 10 per cent solution of neo-synephrine hydrochloride was added to the atropine instillations, three times a day. Again, the anterior chamber was evacuated by depressing the lips of the wound with a probe, and the aqueous humor was again replaced with a solution of penicillin. Hot compresses were continued. That evening there was definite recession of the chemosis and injection, the edges of the wound were much cleaner and the pupil was well dilatated. There was some pigment and exudate adherent to the pupillary area of the anterior capsule, and a long fibrinous string of exudate was attached to the cornea at the area of the wound. A blunt forceps which was inserted through the wound grasped and removed this string of exudate. Some aqueous humor was lost. The remaining aqueous was again evacuated, and penicillin was injected. The instillation of atropine was now reduced to once a day, and the application of hot compresses was continued. The following morning, except for a dilatated pupil and a slight amount of pigmented exudate clinging to the center of the anterior lens capsule, the eye was to all appearances a perfectly normal one with a clean puncture wound and little ciliary injection. The chemosis was gone. Again the anterior chamber was evacuated, and penicillin was injected.

This time, however, it is probable that too much solution was put in, as the patient had great pain for an hour after its injection. The eye, which from then on appeared normal except for a normally healing scar of the cornea and an ever decreasing exudate on the anterior capsule, was watched carefully for one month. The patient was dismissed from the hospital three days after his admission; he continued to use penicillin ointment and hot compresses three or four times a day at home. The eye was kept covered for a week.

One month later the eye exhibited a small corneal scar just up to the edge of the undilated pupil, and the patient's vision, uncorrected, was 20/20 in the right eye and 20/25 in the left eye. After the instillation of atropine his vision required the following correction: right eye-25x15, left eye-25-25x155. With this correction, the patient's vision was 20/15 in either eye. There remained a few spots of pigment where the iris had been adherent to the lens, which were visible only under magnification.

The evacuation of the chamber and the injection of penicillin were done while the patient was in bed, under tetracaine hydrochloride anesthesia. Unfortunately cultures were not made, so the causative organism is not known. I feel confident that this eye would certainly have been lost if penicillin had not been available. And if such a result can be obtained in a traumatized eye, there is no reason to suppose that the same result could not be hoped for in treatment of infection following surgical intervention, provided the organism is sensitive to penicillin.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.
Austin Smith, M.D., *Secretary.*

DRUGS FOR OBESITY

The control of obesity is difficult because patients usually demand treatment that would produce miraculous changes in appearance almost overnight and refuse to abide by a scientific reduction of diet necessary for the average case. The overweight are therefore easy prey for the distributors of questionable preparations offered as specific antiobesity drugs. Years ago such preparations were characterized by flamboyant claims for curative properties. Today, because of the activities of federal agencies concerned with the control of drug manufacture, labeling and advertising, the claims are worded more cautiously but the implications frequently remain the same. Too often some physicians are duped into recommending some medicament that is offered with more enthusiasm than scientific support.

From time to time the Council on Pharmacy and Chemistry, the Bureau of Investigation and The Journal have drawn attention to the more objectionable preparations. Frequently the substances have contained essentially stimulants, hormones such as thyroid, laxatives or a mixture of these drugs. In spite of the teaching of the best informed physicians and of the vigilance of the American Medical Association and other agencies, preparations of this class continue to be exploited.

The Council on Pharmacy and Chemistry has accepted for inclusion in N. N. R. amphetamine and amphetamine sulfate with certain well defined uses (see New and Nonofficial Remedies, 1946, p. 279). It has not accepted mixtures of amphetamine and other potent agents. Such potent drugs must be administered according to the needs of the patient and cannot be offered in a fixed formula with the belief that the majority of patients will benefit from fixed ratios. Nevertheless a firm by the name of Clark & Clark of Wenonah, N. J. has promoted such mixtures as amphetamine sulfate, thyroid, atropine sulfate and aloin. How reminiscent this practice is of the days of shotgun mixtures in pharmacy.

In the files of the Council is an interesting accumulation of advertising that has been offered from time to time on behalf of the Clark & Clark preparations Profetamine and Clarkotabs. According to an advertisement in the April 1946 issue of the *Bulletin of the Philadelphia Association of Retail Druggists* Profetamine Sulfate Tablets are a brand of racemic amphetamine sulfate. This advertisement bears the interesting eye-attracting headline "Accepted!" although an asterisk refers the reader to much smaller print which reveals that the preparation is "accepted by thousands of leading physicians throughout the country." In view of the significance of the word "accepted" in ethical advertising, one wonders concerning the motives of the writer of this advertisement when this word was included in the copy.

Clarkotabs, according to an advertising card having the mailing date Dec. 20, 1946, is "The Original Triple-Formula Obesity Preparation." The card bears in part the following revealing formulas:

Formula No. 1—Grey

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Atropine Sulfate	1/360 gr.
Aloin	¼ gr.

Formula No. 2—White

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Atropine Sulfate	1/360 gr.

Formula No. 3—Pink

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Phenobarbital	¼ gr.

As if this shotgun approach to the problem of obesity was not a sufficient insult to the intelligence of the medical profession, the advertisement previously referred to offers Profetamine Sulfate Tablets " as a supplement to Clarkotabs in certain stubborn obesity cases." The cases must certainly be stubborn if they would not respond, one way or another, to a mixture such as amphetamine and thyroid!

More recently "Clarkotabs" have been advertised to physicians and pharmacists under the name "Clarkotabs Modified," in which Formulas No. 1, No. 2 and No. 3 have apparently been "modified" by substituting n-methyl amphetamine hydrochloride for amphetamine sulfate. Presumably the modified tablets are available in either the colors of the old formulas—gray, white and pink—or an eye-dazzling new combination of green, blue and yellow. In the November-December 1946 issue of the *Bulletin of the Philadelphia Association of Retail Druggists* is a full page advertisement for Clarkotabs Modified, opposite which is another page-wide announcement to the effect that Clark & Clark has decided to use desoxyephedrine hydrochloride in its formula "instead of the probably less active or less desirable amphetamine sulfate." According to the firm, this change, "even though it is made in the interest of better and more precise therapeusis of obesity, will probably be of temporary duration because Clark & Clark has had under extensive clinical and toxicological study for quite some time a *new, different* and *more physiologic* amphetamine derivative than any hitherto available." This dramatic and what the firm probably considers awe-inspiring statement is concluded with the following note:

> The new amphetamine derivative shall also be available, plain, for use wherever a better and more physiologic amphetamine compound is indicated. Clark and Clark will keep you and the medical profession properly and promptly informed on any and all progress in this field.

If there are any members of the medical profession who are breathlessly awaiting a remarkable new contribution to therapeutics, they may take a few relieving inhalations, as confidential information reaching the Council suggests that the compound that is being investigated will never set the world on fire.

Some indication of the philosophy of the individuals who promoted such advertisements as the one in the November-December issue of the P. A. R. D. *Bulletin* is shown by the fact that n-methyl amphetamine and desoxyephedrine are actually chemical synonyms, which the firm did not bother to explain in its advertisement despite its concluding resolution that it will keep the medical profession "properly and promptly informed."

Clark & Clark indicate that its adoption of a change in formula was based on recommendations of its Department of Research and Clinical Investigation and on the work of Novelli and Tainter.[1] The latter observed in 1943 that dextro methyl benzedrine (desoxyephedrine) had less circulatory action and no less, or possibly greater, central stimulant action than amphetamine. Perhaps the firm wishes the reader to infer that its Research Department was righteously cautious in waiting three years to select desoxyephedrine to replace amphetamine in its formulas for obesity. One cannot help but wonder, however, concerning the significance of recent news of legal action brought against Clark & Clark by Smith, Kline & French Laboratories of Philadelphia for infringement of its patent on amphetamine sulfate. In the Feb. 17, 1947 issue of *Drug Topics* on page 47 is a full page notice sponsored by Smith, Kline & French Laboratories. This notice is headed "U. S. Supreme Court Denies Petition of Clark & Clark to Review Decision of U. S. Circuit Court of Appeals in the Amphetamine Sulfate Case" and reads in part "A permanent injunction prohibiting, until the patent expires, all further manufacture and sale of amphetamine sulfate in medicinal preparations, *which include obesity combinations*, has been issued against Clark & Clark, Charles L. Morris and Robert B. Morris trading as Professional Laboratories." (See end of this report.)

What originality Clark & Clark can claim for Clarkotabs is apparently that of mixing amphetamine with other potent drugs to depress the appetite and on foisting this kind of quackery on the physician and pharmacist rather than on the less informed public. No one can dispute the need for studying closely every patient to be treated for obesity and to prescribe treatment specifically for the individual. Such an unscientific combination of drugs as is represented by mixtures of amphetamine sulfate, thyroid, atropine sulfate, aloin and phenobarbital merits no more than casual comment. Amphetamine appears to suppress the appetite, while thyroid increases fat metabolism. But, as Freed[2] points out, "Thyroid therapy in most cases is of little value" and "often the dose approaches toxic levels." If thyroid is needed occasionally for those who show signs of thyroid deficiency, it should be prescribed to meet the needs of the individual case and not offered promiscuously. Atropine possibly may render the food unpalatable by drying secretions of the mouth, and aloin could be expected to produce cathartic action. Cathartics have long been employed in nostrums for obesity. If something is needed to offset the constipation that may follow prolonged amphetamine sulfate therapy and restriction of diet, more simple lubricants could be prescribed, again to suit the needs of the patient. The fallacy and dangers of overstimulating the body with thyroid and of using laxatives to aid in reduction are well known to the medical profession. Phenobarbital may have been included as a sedative to mask the unpleasant effects of this irrational mixture.

However, Clark & Clark can make few if any claims of originality for weight reduction mixtures. The advertising files of practically any active organization associated with protection of the health of the general population contain specimens of equally objectionable mixtures. For example, in the Council's files one may learn that the Western Research Laboratories of Denver has advertised to physicians a method of treatment for obesity involving the use of tablet combinations of thyroid and digitalis in varying proportions. These tablets were marketed as Thyrodig Tablets No. 1, No. 2 and No. 3, along with Herb Tablets of aloin, cascara and rhubarb compound. A circular entitled "Method of Treatment for Obesity" begins with the fascinating statements "Our treatment for Obesity consists of two types of medication, each in varying amounts, to suit the individual case. We give a gland tablet in the morning and an herb tablet at bedtime" and offers the advice "Six Points to be Remembered: 1. Recommend NO Diet or Exercise. 2. See your patient ONLY once per month. 3. Fill in the complete chart at each visit, using our symbols to designate the medication. 4. Give each new patient complete instructions as to what they may expect from the treatment. 5. Give plenty of the Herb tablet, most obese patients are constipated. 6. Get cash for the treatment, carry no charge accounts."

Another outfit, Morton Pharmaceuticals, Inc., of Memphis, Tenn., has circularized at least part of the medical profession with a form letter warning "F A T can be D-A-N-G-E-R-O-U-S," making reference to a report by Dr. Frederick K. Albrecht of the U. S. Public Health Service. Dr. Albrecht did not give permission for the use of his name. Such unauthorized use of names is to be deplored and the users severely censored. The type of therapy proposed by the Morton company, according to a circular reaching the Council office, consists of O-B-E-C Treatment, for which there are two types of tablets. O-B-E-C Tablets FORMULA A are claimed to contain dl-desoxyephedrine gr. 1/12, Thyroid, U. S. P. gr. 1, Atropine Sulfate gr. 1/350; O-B-E-C Tablets FORMULA B are claimed to contain Phenobarbital gr. ¼, Rochelle Salts gr. 5, Aloin, gr. ¼. Apparently Clark & Clark is not the only concern interested in promoting desoxyephedrine as a constituent of a mixture for the treatment of obesity.

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[1] Novelli, A. N., and Tainter, M. L.: The Stimulant Power of Secondary and Tertiary Phenyl-Isopropyl Amines, J. Pharmacol. & Exper. Therap. **77**: 324 (April) 1943.

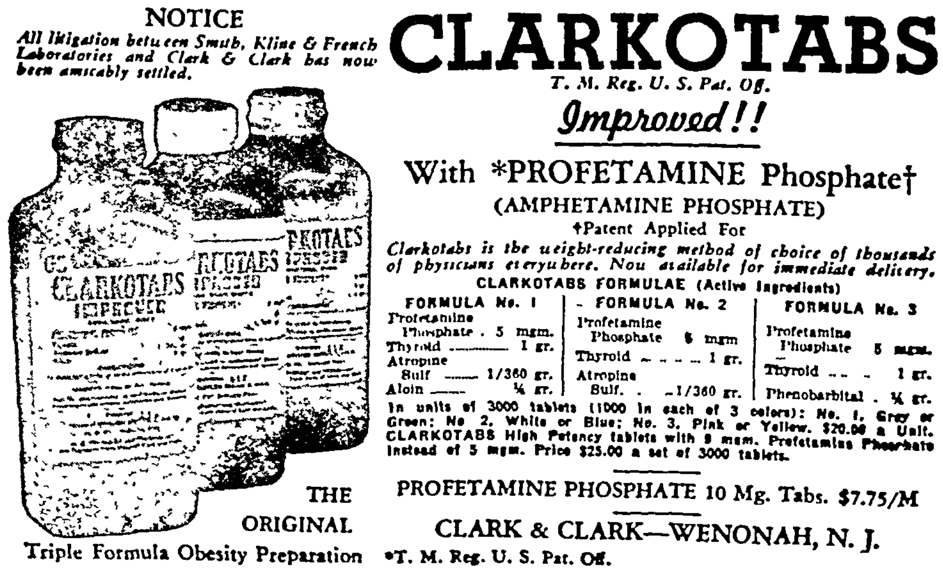
[2] Freed, S. Charles: Psychic Factors in the Development and Treatment of Obesity, J. A. M. A. **133**: 369 (Feb. 8) 1947.

Still another concoction for obesity is "Thyrop," marketed by the Cole Chemical Company. Each capsule is stated to contain "Thyroid Substance 1 gr., Pituitary (Whole) ⅛ gr., Ferrous Sulfate ¼ gr., Ext. Phytolacca ½ gr., Ext Apocynum ¼ gr., Sodium Bicarbonate 2½ gr., Potassium Bicarbonate 1¾ gr., Calcium Phosphate 1⅓ gr., Calcium Glycerophosphate ⅔ gr." This classic example of a "shotgun" mixture is advertised to physicians for "obesity of endogenous nature or when associated with depressed metabolic function," with a recommended average dosage of one to two capsules three or four times a day, thus representing a dose of from six to eight grains of thyroid daily. The inclusion of Phytolacca and Apocynum places the product fully in line with others of this class, the use of which has been so long and so many times condemned

From time to time the medical profession must expect to be deluged with advertising material that promises therapeutic miracles for treatment with a minimum of undesirable responses. Physicians should examine carefully every preparation that is extolled to them for use and when in doubt concerning the efficacy of a preparation seek information from authoritative sources. Therapeutics has progressed too far and there are too many truly worthwhile agents available for prescription to warrant any physician lending his cooperation to irrational therapeutics.

ADDENDUM

Since the above report was prepared, certain additional information has been published which throws further interesting light on the case of Clarkotabs vs. rational therapeutics. This information bears out the contention of the report that the chief, if not the only benefit of the company's change from amphetamine sulfate to amphetamine phosphate ("profetamine phosphate") was as an instrument of attacking or evading the amphetamine sulfate patent. Present published information indicates that this object is now being attained According to the subjoined postcard advertisement of Clark & Clark, "All litigation between Smith, Kline & French Laboratories and Clark & Clark has now been amicably settled" and Clark & Clark may market their Clarkotabs without fear of legal prosecution; but it will be noted on the card that the formulas are identical with those of the original Clarkotabs except that the phosphate is replacing the sulfate



NOTICE

All litigation between Smith, Kline & French Laboratories and Clark & Clark has now been amicably settled.

CLARKOTABS

T. M. Reg. U. S. Pat. Off.

Improved!!

With *PROFETAMINE Phosphate†

(AMPHETAMINE PHOSPHATE)

†Patent Applied For

Clarkotabs is the weight-reducing method of choice of thousands of physicians everywhere. Now available for immediate delivery.

CLARKOTABS FORMULAE (Active Ingredients)

FORMULA No. 1	FORMULA No. 2	FORMULA No. 3
Profetamine Phosphate . 5 mgm.	Profetamine Phosphate 5 mgm	Profetamine Phosphate 5 mgm.
Thyroid .... 1 gr.	Thyroid ..... 1 gr.	Thyroid ... 1 gr.
Atropine Sulf ...... 1/360 gr.	Atropine Sulf. . ..1/360 gr.	Phenobarbital . ¼ gr.
Aloin ..... ¼ gr.		

In units of 3000 tablets (1000 in each of 3 colors): No. 1, Grey or Green; No 2, White or Blue; No. 3, Pink or Yellow. $20.00 a Unit. CLARKOTABS High Potency tablets with 9 mgm. Profetamine Phosphate instead of 5 mgm. Price $25.00 a set of 3000 tablets.

PROFETAMINE PHOSPHATE 10 Mg. Tabs. $7.75/M

CLARK & CLARK—WENONAH, N. J.

*T. M. Reg. U. S. Pat. Off.

THE ORIGINAL

Triple Formula Obesity Preparation

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

PENICILLIN (See New and Nonofficial Remedies, 1946, p. 212).

The following additional dosage forms have been accepted:

Premo Pharmaceutical Laboratories, Inc., New York

Crystalline Penicillin Sodium: 20 cc. vials containing 100,000 units or 200,000 units.

Schenley Laboratories, Inc., Lawrenceburg, Ind.

Penicillin Sodium: 1,000,000 units in 100 cc. vials.

CRESATIN-Sulzberger (Meta-cresylacetate) (See New and Nonofficial Remedies, 1946, p. 113).

The following additional dosage form has been accepted:

Sharp & Dohme, Inc., Glenolden, Pa.

Cresatin Metacresylacetate (Sulzberger) Ointment: 7.1 Gm. tubes. Contains metacresylacetate 80 per cent, with benzoic acid and ethyl-cellulose.

CAROTENE (See New and Nonofficial Remedies, 1946, p. 613).

The following additional dosage form has been accepted:

Wyeth Incorporated, Philadelphia

Capsules Carotene Concentrate in Oil: Each capsule contains an amount of carotene equivalent to 5,000 U. S. P. units of vitamin A.

HOMATROPINE METHYLBROMIDE (See New and Nonofficial Remedies, 1946, p. 314).

The following dosage form has been accepted:

Endo Products, Inc., Richmond Hill, N. Y.

Mesopin Tablets: 2.5 mg.

THEOPHYLLINE ETHYLENEDIAMINE (See New and Nonofficial Remedies, 1946, p. 395).

The following dosage form has been accepted:

William H. Rorer, Inc., Philadelphia

Solution Theophylline Ethylenediamine: 0.24 Gm. in 10 cc. ampuls.

PERTUSSIS VACCINE AND ANTITOXIN COMBINED WITH DIPHTHERIA TOXOID.—Pertussin Endotoxoid Vaccine with Diphtheria Toxoid.—A suspension of pertussis vaccine in a solution of pertussis antitoxin, made from Hemophilus pertussis phase I organisms combined with diphtheria toxoid. The bacterial suspension is prepared after the technic of Kendrick and Eldering, the bacterial solution by the Strean method, and the diphtheria toxoid is standardized in accordance with the requirements of the National Institute of Health.

Actions and Uses.—For active immunization against pertussis and diphtheria. It is not intended for treatment or for the production of immunity once exposure has taken place.

Dosage.—See under Pertussis Vaccine and Antitoxin Combined and under Diphtheria Toxoid

Ayerst, McKenna & Harrison Ltd., New York

Pertussis Endotoxoid-Vaccine with Diphtheria Toxoid: 10 cc. vials. Each cubic centimeter contains 25 billions of H. pertussis organisms and antigen derived from approximately 25 billion H. pertussis organisms, together with one immunizing dose of diphtheria toxoid. Preserved with Merthiolate 1:10,000.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - : Eight dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JUNE 7, 1947

THE CENTENNIAL STAMP

On June 9 the third assistant postmaster general, Mr. Joseph Lawler, will present to the House of Delegates of the American Medical Association the stamp issued by the Post Office Department of the United States commemorating the work of the physician; it is issued as a part of the celebration of the birth of the American Medical Association one hundred years ago.

The stamp is a three cent stamp which reproduces the painting "The Doctor" by Sir Samuel Luke Fildes, R.A. The original study for this painting hangs in the Guthrie Clinic of the Robert Packer Hospital in Sayre, Pa. It was presented to the hospital by Mr. Allan P. Kirby. Through the kindness of the hospital this original study will be exhibited in the auditorium at the Centennial Celebration.

The large painting called "The Doctor" which hangs in the Tate Gallery in London was painted from this original study. The physician in the painting is Sir James Clark, F.R.S., K.C.B., who was a physician to the royal family in Great Britain and well known as a scientist and educator. He was also physician to Prince Leopold, later king of the Belgians. He published "De frigoris effectibus" in 1817 and a book entitled "Notes on Climate, Diseases, Hospitals and Medical Schools in France, Italy and Switzerland" in 1820. In 1835 he published his work entitled "Treatise on Pulmonary Consumption," and he also published a book in Italian entitled "Medical Education at Edinburgh." Sir James Clark was born in 1788 and was made a Knight Commander of the Bath in 1866. He died in 1870 at the age of 82.

The painter Sir Samuel Luke Fildes, R.A., chose to portray Sir James Clark not as physician to the Queen but at the bedside of a child of a rural family. He worked many months on this painting. Apparently he had the interior of the cottage shown in the painting reproduced in his own great studio, and walls, windows and even rafters were properly placed before he began to paint. The furniture was also actual furniture used in the studio as part of the model for this picture.

Great interest has attached to the issuing of the stamp. A special ceremony is to be held in New York with a broadcast on the radio. Several of the exhibitors at the annual session have arranged to supply physicians with envelops carrying the stamp as well as first day covers; some of the philatelic societies are also holding special ceremonies.

REDUCTION TIME OF BLOOD

The need for a simple, direct method for estimating the rate of utilization of oxygen by the tissues is obvious. A recent series of investigations[1] suggests an ingenious method based on the rate at which oxyhemoglobin is reduced in the tissues. Spectroscopy of light reflected from the skin will show the characteristic absorption bands of oxyhemoglobin. Also it has been shown[2] that venous compression and resulting hemostasis tend to obliterate the bands of oxyhemoglobin as it is changed to reduced hemoglobin. Under carefully controlled conditions, therefore, the rate of disappearance of the absorption bands of oxyhemoglobin might serve as an index to the rate of oxygen utilization of the skin or tissue examined and this perhaps in turn to the metabolic rate of the subject. Use was made of this principle for determining oxygen consumption by Vierordt[3] in 1878.

An ingenious device for occluding the blood vessels of the hand by an ordinary sphygmomanometer cuff and examining reflected light from the skin of the first interosseous space by a spectroscope has been described in detail.[4] The rate at which the absorption band at 577 millimicrons disappears is then carefully determined in duplicate by a stop watch. The mean reduction time for 317 normal resting subjects was found to be 37.7 seconds, the minimum and maximum values being 25 and 60 seconds respectively.

As the author suggests, the reduction time represents not solely the time required for the utilization of oxygen but also the time necessary to approximate capillary stasis and perhaps other factors. There was a close correlation between alveolar oxygen tension and the reduction time and a less definite but significant relation to systolic and diastolic blood pressures. Nervous disturbances and breath holding likewise were found to affect the value. Thus, as might be expected, factors influencing respiration and circulation affected the reduction time even under the carefully controlled conditions employed. Of greatest clinical interest, however, is the fact that there was a definite relationship (inverse) to the basal metabolic rate. Of the 71 subjects studied, those showing a low basal metabolic rate also showed a prolonged reduction time, whereas those having a metabolic rate in the higher normal range showed a shorter than average reduction time.

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[1] Ray, G. B.: Ray, L. H., and Johnson, J. R.: Am. J. Physiol. **147:** 630 (Dec.) 1946. Ray, G. B.; Johnson, J. R., and Ray, L. H., ibid. **147:** 636 (Dec.) 1946. Ray.[4]

[2] Edwards, E. A., and Duntley, S. Q.: Am. J. Anat. **65:** 1 (July) 1939.

[3] Vierordt, K.: Ztschr. f. Biol. **14:** 422, 1878.

[4] Ray, G. B.: Am. J. Physiol. **147:** 622 (Dec.) 1946.

As the Long Island workers state, the reduction time of oxyhemoglobin in the skin represents a complicated physiologic measurement. However, in view of the high degree of correlation with the basal metabolic rate, it appears possible that, with sufficient care in technic and intelligence in interpreting results, this novel procedure might prove of considerable value as a rapid, single method for approximating the rate of oxygen utilization in human subjects. Certainly the problem merits further careful study.

SEWAGE DISPOSAL FROM RAILWAY CONVEYANCES

Barringer[1] expressed concern in 1903 over the infection of the roadbeds of American railways through the discharges of typhoid patients traveling over the road while in the infective stage. He argued that "in the well drained but cool and moist soil under the ties and ballast of the modern railway roadbed, baptized day after day and year after year with the albuminous fluids of human excrement, the Bacillus typhosus, once planted in this natural culture medium, will live forever, revitalized at intervals by new infection, perhaps, but in the meantime facultative enough to meet seasonal and other changes." Maxcy[2] now reviews the evidence that has accumulated in a half century of experience since the hypothetical existence of this menace from railways was recognized. The study represents an extensive review of the epidemiologic experience with typhoid in relation to railway sanitation in this country and other countries, particularly Germany, Switzerland and England.

During the years 1906, 1907 and 1908 the United States Public Health Service conducted a detailed epidemiologic investigation. The maps show the Pennsylvania and the Baltimore and Ohio railroads entering and leaving the city from the northeast and northwest, with railroad yards and terminal facilities. Careful examination of these maps and tables indicated no apparent tendency for cases to be particularly numerous in the residential areas adjacent to the railways, yards and terminals in the District of Columbia during a period of years when typhoid was widely prevalent. Epidemiologic investigations of urban typhoid, with particular reference to the location of cases by place of residence, has failed to reveal any definite indication that the incidence of typhoid among persons living in proximity to railroads, terminals and yards is greater than among persons living under conditions otherwise similar but in other parts of the same community.

A report from the Industrial Department of the Metropolitan Life Insurance Company, which was analyzed by Louis I. Dublin, failed to reveal importance for typhoid as a cause of death in various occupational groups, among which are railway enginemen and trainmen and railway yard and track workers. White males engaged in these occupations did not suffer a greater proportionate mortality from this disease than did white males of equivalent ages engaged in other designated occupations.

The review of reports of water borne outbreaks of typhoid occurring prior to 1920 has failed to reveal an instance in which the contamination of the water supply could reasonably be attributed solely or principally to disposal of fecal wastes by railway trains directly into streams in the catchment area or into storage reservoirs, or indirectly into ground waters by flooding or seepage.

Information at present available does not establish the existence of a public health menace resulting from the method of disposal of fecal wastes employed by railways. This does not prove the absence of such a menace. The practice of disposal of fecal wastes along railway rights of way has in the past been a relatively unimportant route of dissemination of the pathogenic micro-organisms which cause the commonly recognized enteric infections. Scattered in this external environment, the chance that any pathogenic fecal micro-organisms will survive until effective contact with a new human host can be made is greatly reduced. Exposed to an external environment, and particularly to the effects of sunlight and drying, typhoid bacilli and other related organisms tend to die off with a rapidity varying with the particular species of micro-organism and the physical, chemical and biologic conditions.

Maxcy concludes that at times and in particular places the disposal of sewage from railway conveyances has been improper in relation to environment and persons and therefore constituted a nuisance. This has not created a hazard which can be measured in terms of increased incidence of enteric disease. The practice has been relatively unimportant in comparison with many other factors in the environment which are responsible for the maintenance and dissemination of enteric infection and disease under the conditions which have existed in the United States. There remains a possibility that there is a danger below this threshold of measurement. Even this theoretical possibility can be reduced to insignificance by technical improvements of disposal which are now well within the realm of practical achievement.

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[1] Barringer, P. B.: An Unappreciated Source of Typhoid Infection, M. Rec. **64**:971, 1903.

[2] Maxcy, K. F.: Department of Epidemiology, School of Hygiene and Public Health, Johns Hopkins University: An Inquiry Into the Public Health Hazard of Sewage Disposal from Railway Conveyances, Sanitation Research Project, Joint Committee on Railway Sanitation, Nov. 8, 1946.

Current Comment

MEDICAL SURVEY OF BITUMINOUS COAL INDUSTRY

In accordance with instructions received from the House of Delegates, the Council on Medical Service and the Council on Industrial Health have kept abreast of developments in the Bituminous Coal Mines Wage Agreement. The survey of health, housing and sanitation in the bituminous coal industry which was stipulated in that agreement has been completed; an abstract appears elsewhere in this issue (page 537). Dr. Walter B. Martin of Virginia, who has acted as chairman of a committee to study the situation, has made the following analysis of the medical survey report:

> The recently released medical survey of the bituminous coal industry is a valuable document. It gives a fair appraisal of the medical situation in the soft coal area. The findings in reference to housing, sanitation and recreational facilities would have their counterpart if a cross section of living conditions were studied in almost any part of the United States. It is of especial interest to note that the prepayment plan of providing medical care in coal mining areas is not considered inherently bad by the survey group. In many places this system has resulted in excellent quality of medical service. Failure in other instances has been due to the human element, particularly to a lack of cooperative effort in local areas on the part of the three groups especially concerned. This report serves to direct attention to existing deficiencies and is a challenge to the physicians of this country. Because of the technical nature of many of the problems involved, good medical leadership is necessary to correct these deficiencies. The shortage of physicians and other skilled personnel, together with the need for expanded physical plants, makes the present solution of some of these problems difficult. They can be solved eventually, however, by friendly cooperation between the miners, the operators and the physicians. Wherever possible, medical service for the miners should be integrated with that of the community.

Admiral Joel T. Boone, who conducted the survey, thus summarizes his observations:

> The Report of the Medical Survey of the Bituminous Coal Industry presents convincing evidence that the serious problem of improving the health of the miner, assuring him of better living conditions, enabling him to provide for his family through his own initiative and efforts, and making him a more responsive and responsible citizen of his community is a solvable problem IF labor, management and the medical profession cooperate and work conjointly with a united interest and sincere devotion to a common cause—the good of large numbers of people and a basic industry. Health is a common concern of all groups. Working together for its promotion can help immeasurably to weld the bonds of human interrelationship.

These statements accord with the established policy of the American Medical Association. No doubt there will be increasing opportunity to make these proposals practically effective.

HEARINGS ON THE TAFT-SMITH-BALL-DONNELL BILL

On May 21 Senator H. Alexander Smith of New Jersey, who is chairman of the Subcommittee on Health of the Committee on Labor and Public Welfare of the United States Senate, opened the hearings on the Taft-Smith-Ball-Donnell bill, known as Senate bill 545, which has been previously described in The Journal editorially and in reports from the Bureau of Legal Medicine and Legislation. On this occasion history repeated itself in reverse order. When the hearings were opened last year on the Wagner-Murray-Dingell bill, Senator Taft appeared and denounced the hearings as organized propaganda in behalf of socialized medicine. This time Senators Murray and Pepper appeared and apparently indulged in recriminations, insisting that the present hearings were propaganda against socialized medicine and that the advocates of the latter were not being given proper time for hearings. Nevertheless, President Truman had sent a message to the Congress a few days previously urging support for nationwide compulsory sickness insurance, and shortly thereafter Senate bill 1320 was introduced, representing the new version of the Wagner-Murray-Dingell bill, this time credited to Senators Murray, Wagner, Pepper, Chavez, Taylor and McGrath. The Journal will publish shortly an analysis of this measure and compare it with previous versions. Among the first to be heard in consideration of Senate bill 545 were Drs. R. L. Sensenich, chairman of the Board of Trustees of the American Medical Association, and E. J. McCormick, chairman of the Council on Medical Service. Condensations of their statements appear elsewhere in this issue (pages 533 and 534).

DIAGNOSIS OF CORONARY THROMBOSIS

Steincrohn[1] called attention in 1940 to a new observation said to be helpful in the diagnosis of coronary thrombosis, namely the rhythm and periodicity of the pain as the most characteristic feature of the syndrome. This periodicity holds true for indefinite attacks as well as for those in which the pain and shock are so prominent that the diagnosis is unquestioned. According to him the pain comes and goes in cycles. Morphine should not be withheld when the patient is first seen in an attack, since the pains will continue to recur and remain recognizable before the morphine exerts its full effect. Steincrohn found this pain syndrome invaluable in ruling out the presence of extracardiac anginas such as acute gallbladder disease, ruptured peptic ulcer, acute pancreatitis, intestinal obstruction, acute pneumothorax and pulmonary embolism or infarct. The cause for the recurring pains is not clear. Theoretically the symptom might be explained on the basis of the changing level of anoxemia, which is dependent on the adjustments which the cardiac circulation is called on to make in the first few hours following the immediate shock of the attack.

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[1] Steincrohn, P. J.: A New Observation Helpful in the Diagnosis of Coronary Thrombosis, Ann. Int. Med. 14: 495 (Sept.) 1940.

ORGANIZATION SECTION

HEARINGS ON S. 545—THE TAFT-SMITH-BALL-DONNELL BILL

Statement of Dr. R. L. Sensenich, Chairman of the Board of Trustees, Before the Hearing May 21, 1947 of the Subcommittee on Health of the Committee on Labor and Public Welfare of the United States Senate.

Dr. Sensenich described the American Medical Association as including 132,659 physicians who are members of the county and state medical societies. The policies of the American Medical Association are determined by the House of Delegates. The members of the House of Delegates, numbering 175, are elected by the respective houses of delegates of the individual states, which in turn are elected by the members of the county medical societies. The Association, thus, is democratic in its organization and in its functions.

He discussed the ten points of its national health program.

It must be recognized that each one of these ten avenues of approach to the problems of health maintenance and necessary treatment reaches directly into each community in the country and directly or indirectly to every individual in that community. The complexity of a problem involving so many factors obviously cannot be adequately dealt with by a single social measure. Likewise it must be admitted that each human being as a mental and physical unit is a more complex structure than any social system that could be devised. So much is dependent on the individual, his capacity, his education, his training, his sense of values and his opportunities that any efforts made in his behalf must take into consideration all of these qualifications.

No social or legal measure can cover this field by any process of compulsion without in the end destroying the very qualities we seek to stimulate and develop in the individual. No social legislation containing those compulsions can be enacted without infringing on the very basic qualities of American freedom. The only social measures compatible with the freedom of our American way of life is that providing opportunity to all and assistance where there is need. Administrators in high position will admit that governmental measures at the top, too far removed from the local community and the individual are, even with the best intent, clumsy and inadequate or restrictive in their final application.

So much is dependent on the education, the interest and the voluntary effort of the individual that elevation of standards and program must be accomplished by local stimulation of effort and cooperation of these individual units in the community. Legislation cannot accomplish those ends. No pattern can be established at the national level that can be practicably applied to the varying conditions in each local community; nor can national regulations deal adequately and fairly in the determination of local need or the application of proper local remedies.

It is therefore evident that effective approach to the problem will rest on the voluntary efforts awakened by stimulation of interest, and development of methods and assistance is demonstrated. It would seem that any legislation directed to this field would be largely concerned with providing financial assistance where need can be demonstrated and the setting up of safeguards to determine equable distribution of that assistance. Contributions from state or local levels should be required in proportion to financial ability. It will be necessary to leave to the local community the administration of local measures without introduction of bureaucratic controls or political interference. . . .

Senate bill 545, introduced by Senator Taft, Senator Smith, Senator Ball and Senator Donnell, more nearly approximates a legislative background for the development of a health program for the American people without destroying or restricting the objectives set forth in the broad national health program of the American Medical Association.

The House of Delegates of the American Medical Association has repeatedly taken action recommending the consolidation of the health activities of the federal government, exclusive of the armed forces and the Veterans Bureau, under a department of health, the head of that department to be a cabinet officer. It was further requested that the cabinet officer shall be a competently trained doctor of medicine experienced in executive administration.

The department of health should not be subservient to any charitable, conservatory or other governmental agency. The American Medical Association opposes the inclusion of the health activities of the nation in a department of health, education and security for the reason that an adequate national health program such as is now in process of development by the American Medical Association could not attain the high objectives sought if it was combined in a department of welfare and security. Evidence to this effect was presented in hearings before the Committee on Expenditures in the Executive Departments, United States Senate, Eightieth Congress. We have copies of the statement to that committee for inclusion in the record of these hearings, if you wish.

There is sufficient reason to maintain that the importance of the health activities is comparable to the importance of other departments and justifies the creation of a department of health of cabinet rank. However, there is equal reason to believe that a national health agency without cabinet rank could better serve the interest of the health of the nation than the inclusion of the health activities with welfare or security, headed by a nonmedical cabinet officer.

In this brief statement, it is impossible to discuss very completely the various features of Senate bill 545. However, certain provisions of the bill should be particularly pointed out, notably the bringing together of all the scattered health activities into a national health agency headed by an outstanding physician; the determination of actual medical needs by requiring state surveys financed from federal funds—this is a highly desirable feature; provisions of grants in aid to states also making some contribution for the extension of medical care to people unable to pay for it; the encouragement of voluntary prepayment plans; the provision for voluntary pay roll deductions of federal employees; periodic examinations of school children, and the provision for encouragement and grants in aid to certain types of research, properly directed.

These provisions of the bill should receive the approval of all those who are interested in a sensible approach to developing methods of extending aid rather than endeavoring to force on the public a preconceived political pattern. It is noteworthy that no effort is made to establish criteria at the national level by which eligibility to a low income classification shall be determined in each local community. Obviously, the section of the country and living costs in proportion to income will have material bearing on that matter.

The appropriation of funds for the support of research in the prevention and control of cancer should be dependent as to the needs for continuation on such cancer research as was formerly under the direction of the Public Health Service. However, the situation might be changed if, as has been proposed, a new committee should be appointed by the President to furnish a central point for coordination of all major cancer research programs. The proposed committee would not be for the purpose of restricting properly organized or equipped effort but rather to prevent the useless expenditures of funds beyond the capacity of facilities or available competent research personnel to carry on that work. Such a committee might well function under this national health agency and might require substantial funds. However, it might be determined that the cancer research conducted under the Public Health Service might be reasonably expanded; but whatever is done should be in proper proportion and well coordinated with other cancer research. Those who are familiar with the research now being conducted and the capacity for expansion have advised of the useless waste of funds if appropriations exceed the amounts that can properly be expanded.

As to the total amount to be authorized annually for a period of five years for the development of the plans for improved health service, it must be recognized that there are no criteria by which the exact amount necessary for this work can be definitely determined. Various figures have been offered along with other legislative proposals. These estimates are frequently predicated on very limited sampling and often suggest that they are influenced by unwarranted enthusiasm for their particular proposal, so widely do they differ from any other reasonable statistical source. The provisions of this bill seem to identify it as being a well planned and sensible approach to meet needs which the whole nation will recognize and approve as a necessary expenditure. The funds to be authorized under this legislation would obviously not be excessive and would vary as needs are determined or as local conditions make continuing aid to communities unnecessary. It is evident that the bill is not the promotion of a colossal plan of governmental regimentation at tremendous cost such as has been proposed.

Placing the responsibility for the administration of these plans at the community level tends to a more personalized community administration and a better integration of the activities under this plan with voluntary agencies and other local social developments. Especially is it important that the personal choice of physician be preserved and that nothing emanating from national government levels be permitted to interfere with these local and personal medical aspects.

The provision for payments to physicians in the areas in which there would be insufficient income from professional services to attract a competent physician will require careful study. The study of these situations may properly be coordinated with the studying and planning for the establishment of facilities as authorized under the Hill-Burton Law. Advisory councils designated by the governors of states may be helpful. Appointments to these positions should be made on the basis of competence and experience with sound medical guidance and not because of political preferences. Especially priorities given to certain areas in the development of facilities and establishment of plans probably will provoke more discussion than any other features of the administration of the act. However, if the personnel of the advisory council is carefully selected and has the respect and confidence of the public, this should not be unusually difficult. The advisory council has no authority other than advisory. The giving of some authority to the council might well be considered.

I do not wish to take the time of the committee in the presentation of technical data which would add nothing to the discussion and might tend to confuse rather than clarify the issues. The American Medical Association stands ready at any time to submit such detailed information as is available which the committee should desire or will provide more detailed reports of medical experience which might be helpful.

In summary, the bill seems to provide plans and means for the interweaving of government and voluntary social and health agencies in such a manner as to permit the broadest variation in response to local needs. The American Medical Association is interested in the whole field of health and is desirous of bringing to every individual the benefits of the highest quality of medical care. It would seem that this bill would provide the legislative basis for meeting the needs of the lower income groups without imposing a huge, expensive system of regimentation with its inevitable destruction of the quality of medical service. The medical profession will continue its efforts toward the development of its National Health Program and will oppose plans that are manifestly against the public interest.

Statement of Dr. Edward J. McCormick, Chairman of the Council on Medical Service

After stating his qualifications Dr. McCormick said:

The Council on Medical Service was created by the House of Delegates of the American Medical Association in 1943 to study and interpret existing and proposed programs pertaining to the economic, social or similar aspects of medical care, to suggest improvements in such programs and to inform the medical profession of its studies. In its task the Council has made every effort to be objective.

We have approached the problem of better health for the American people in proper perspective to the American way of living. Betterment of health is not a single problem. It is not merely a financial problem. It has many aspects and includes many fields of activity. Dr. McCormick traced the development of the A. M. A. National Health Program. He continued:

As physicians we are trained to study, to learn, to know. Improvements in diagnosis and treatment, in surgery, in drugs, are, as they have been for centuries, continually retested, rejected, restricted or extended according to their effect on the health of the people. So too in our Council's work we have instituted studies so that we may learn and know before interpreting or recommending. Our studies have included the voluntary prepayment medical care plans, the cooperative voluntary industrial or commercial carrier plans and compulsory insurance plans. They have also included studies of group practice, contract practice, private practice, clinic practice and other forms of medical organization. Much of the work has been directed to gathering data and general information.

Under title II, part A of Senate bill 545 is a provision for surveys of medical care. The bill authorizes $3,000,000 to assist states in making a statewide inventory of existing medical, hospital and surgical care preparatory to the formulation of a plan for extending such care as contemplated by part B. This is commendable, since it assumes that the first step is the determination of the needs.

Scientific medical care is rendered only by physicians, although often with the aid of nurses, hospital facilities and dentists. That provision in title II, part A, requiring representation of nongovernmental groups or agencies concerned with the provision of services as well as those representing the users is also commendable.

The medical profession has been charged with a desire to maintain a monopoly in medical care programs. Physicians do have a monopoly in the sense that they are the only persons licensed to practice medicine and to provide such services. However, in financing and in the administration of medical programs the medical profession has recognized the assistance that can be supplied by persons experienced in administration and finance. We do insist on the profession's control over medical problems, and in our "standards of acceptance" for voluntary prepayment medical care plans we say "The medical profession should assume responsibility for the medical services included in the benefits; the medical profession is qualified legally and by education to accept responsibility for the character of the medical services rendered."

Part B of the bill authorizes funds to assist the states in providing general health, hospital and medical services for families and individuals in the low income groups. One of the purposes for which these funds may be used is to "provide for the furnishing of such services to such families and individuals by means of payments (in the nature of premiums or partial premiums or reimbursement of expenses or otherwise) by the state, to any voluntary health, medical or hospital insurance fund or other fund, operated not for profit, in behalf of those families and individuals unable to pay the whole cost of such services or insurance therefor."

The American Medical Association favors this method for financing medical and hospital services for the low income groups, provided it is on a voluntary basis. We have many reasons for saying voluntary as opposed to compulsory and will not enter into a discussion of the point here.

Many agencies exist through which a voluntary medical service program can be channeled. The state medical associations and county medical societies have for many years assisted in providing for medical services for the low income groups. The experiences of these organizations with the Federal Emergency Relief Administration plans, the Farm Security Administration plans and local indigent medical care plans provide knowledge for administering such a program. All types, shapes and sizes of plans were given experimental trial during the depression years. More recently the Veterans Administration plans, while not for the medically indigent, have provided medical societies with an opportunity to learn more of the problems involved in administering a medical care program.

Medical societies are organized in every state, the District of Columbia and most of the counties in the United States. They include in their membership a majority of the practicing physicians. They are in a strategic position to determine local conditions, provide for local variances and assess the value and quality of the services. Their participation in programs also places on them an obligation to maintain a high standard of medical practice.

While the American Medical Association favors the method suggested in the bill for meeting the medical needs of low income groups, it questions the feasibility of a "statewide program" as mentioned in number 4 of part A, particularly if the program includes all medical services—unless this statewide program provides for local differences in need, in utilization and so on. This necessity for considering local conditions is brought out in a study of indigent care programs made by the Bureau of Medical Economics of the American Medical Association. This study points out that only twenty of the forty-eight states reported successful operation of a statewide program under the Federal Emergency Relief Administration. The report states "The observation already suggested is confirmed that no nationwide plan of supplying such a personal service as medical care can be satisfactory. To this may now be added the further observation that it is doubtful if statewide plans are practicable in a majority of the states. There are only twenty states in which the plan can be termed 'successful,' even with a liberal use of the word."

At present some thirty-eight statewide Veterans Administration home town medical care programs and ninety-one voluntary prepayment medical care plans are functioning. This seems to contradict the foregoing statements, but there is an explanation and it lies in the scope of services offered by the plans.

The Federal Emergency Relief Administration plans offered general medical care, including home and office calls, to recipients The Veterans Administration and most of the statewide prepayment plans are offering a limited program. Early experiments with plans, other than in Washington and Oregon, showed clearly that the general public preferred a medium priced, partial coverage plan just as experience of automobile collision insurance has shown that the car owners prefer a $25 or $50 deductible policy. As a result, prepayment plans have suited their policies to the needs and demands of the public. Those statewide prepayment plans which do offer a full coverage to subscribers, notably the Washington and Oregon plans, are so constituted as to provide for local—county or area—variations in people, customs, needs, fees and so on This is true also in the actual administration of many of the Veterans Administration programs previously mentioned In other words, needs vary in different localities, and plans are flexible to meet these local needs.

Prepayment medical care plans have been successful on both a statewide and a local basis They have also been successful with both the full coverage and the limited coverage programs. Most of the plans are so organized as to operate in any of the aforementioned categories. Where only local plans exist, they are usually so coordinated as to provide a statewide program

Through the surveys of medical care provided by the bill, decision might well be made, on a local basis, as to the all inclusiveness or comprehensiveness of any given program, this in turn might well be a determining factor as to whether or not there should be a statewide, a local or an area plan

Prepayment plans, as well as medical societies, have worked with governmental agencies in the provision of care for special categories and groups A number of the Veterans Administration programs already mentioned function directly through prepayment medical care plans In at least one state the medical services of the old age pensioners and other special groups are channeled through prepayment medical care plans The statutes under which many of the plans operate specifically provide that contracts be made with the various governmental and nongovernmental organizations and units for the provision of medical care either on the basis of contribution (that is, subscription rate or premium payment) or lump sum for all members of the group involved or on the basis of cost plus a fixed fee. The prepayment plans can cooperate under any or all types of these programs.

Much has been said to belittle the scope of the voluntary prepayment medical care plans, yet the growth in this movement has been phenomenal. In 1942 some fifteen voluntary prepayment medical care plans were listed as approved by medical societies and/or the Blue Cross At present, just a little over five years later, the Council's directory lists ninety-one plans. However, since the Oregon and Washington plans are usually counted as two statewide plans the quotable figure becomes sixty-four. Not only has the number of plans grown rapidly the past few years, but their expansion throughout the United States is even more encouraging The fifteen plans listed in 1942 were operating in ten states, while plans have now been organized in thirty-seven states and the District of Columbia and are in the process of organization in ten additional states.

The growth in the number of medical plans has paralleled that of Blue Cross plans. Slightly more than eight years have been required for the organization of sixty-four medical plans, while in the first eight years of Blue Cross sixty-nine plans developed

Again, as with enrolment, the medical plans expansion throughout the country is comparable to that of Blue Cross In the eight years of the medical plan movement, plans have been begun in thirty-five states which, when added to the early Washington and Oregon plans, make thirty-seven states

In thirteen of the thirty-seven states with plans more than one prepayment plan has developed The effect of local conditions on this development is particularly indicated by the twenty-three plans in the state of Washington, the eight plans in the state of West Virginia, the six plans in New York and the six plans in Oregon

Enrolment in the prepayment plans has increased rapidly in the past two years The reported enrolment Dec 31, 1944 was 1,500,000, Dec 31, 1945, 2,845,000, while on Dec 31, 1946 it was approximately 5,000,000 Since the big growth in the number of plans has taken place during the past two years, it is reasonable to assume that growth of enrolment is just beginning. Eighteen of the plans in operation a year or more on Dec 31, 1946 reported an increase of 100 per cent The highest increase was 1,110.9 per cent, with seven others reporting over 200 per cent Whereas we could point to only one really large plan a year ago, we can point today to five plans with more than 300,000 subscribers and six additional plans with over 100,000 subscribers

Three general types of plans prevail at present. These are cash, indemnity plans, service plans and combinations of the two forms Using sixty-four as the total number of plans now organized, the breakdown as to type is thirty-one indemnity, twenty-eight combination and six service. Any definite trend toward any specific form of plan is not yet apparent. During 1946 and the first part of 1947 twenty plans were organized Of these, seven were indemnity, eleven combination and two service Primarily the determination as to the type of plan rests on the needs and desires of the community in the area in which it is organized The people of our country, according to available evidence, recognize the desirability of prepayment plans for medical care. Many individual citizens still need to be convinced. This means education as to the amount of personal funds which the worker will transfer from nonessential services or goods to protection against the costs of illness. Actually the combination type of plan acts as a service plan for persons in the low income group, so that more than half of the organized plans do operate to protect those in the low income group from excessive charges.

Casual observation might suggest that those plans which offer full coverage are preferable; yet, realization of the tremendous number of problems involved in controlling the abuses on home and office demands for physicians (abuses which would be vastly increased in a compulsory plan) and realization, too, that most workers require help only for the serious illnesses makes evident the desirability that full coverage programs await further experience with plans involving less difficulties. Physicians who have had experience in the illogical and unnecessary demands that can be made on time by those who abuse the plans realize that any general program of this type would be impossible to establish with a good quality of medical care.

Combination plans, as was previously mentioned, are a protection for those in the low income groups against excessive charges These plans provide this protection through utilization of income limits to determine which subscribers are eligible to benefits without additional charges Those below the specified income limits receive the benefits in full; those above the specified income limits may be charged additionally Income limits in these plans vary from $1,500 for a single subscriber to $5,000 for a family. Although many variations are used, the most common seems to be $2,000 for a single subscriber and $3,000 for a family Actually, the importance to the population as a whole of this agreement on the part of physicians to furnish services to a particular income group for a specified fee is overemphasized. Overall studies of existing charges in relation to patients' incomes actually show that the income limit theory is closely adhered to by the profession even in their private practices Yet the idea of income limits does serve a purpose in protecting individuals against unscrupulous practitioners, and obviously it is the charge made by the unscrupulous physician that causes much of the furor concerning the exorbitant cost of medical service Any proposal must differentiate clearly between medical services as provided by physicians and the overall health services which include hospital care, drugs and medication, nonphysician and other services in discussion of this problem

"Basic issues everywhere," it has been said, 'fall into the same pattern, all turning on the contest between those who seek security even if they have to give up freedom and those who think that in the long run the security of the individual will only be possible if freedom is retained" Benjamin Franklin said "They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety" George Washington wrote "He who seeks security through surrender of liberty loses both"

The American people prefer not to be coerced You can reason them into performing in their own way almost any miracle—even winning two world wars. Skeptics have said that voluntary plans for medical care did not succeed in Europe and evolved inevitably into compulsory plans There appears to be some evidence that democracy also is disappearing in Europe.

We need not model our provision of health care for the American people on any failing technic based on European methods of dictatorship and compulsion, we can find a voluntary way compatible with true American democracy.

Just a few weeks ago Winston Churchill said "In my experience of large enterprises, it is often a mistake to try to settle everything at once." With suitable cooperation from a government that wishes to find an answer to a problem rather than to enslave a profession, a technic will evolve that will provide to every American a high quality of medical care

Public Relations

SEEKING SUCCESS IN MEDICAL PUBLIC RELATIONS

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The first step in the solution of any problem is an analysis of the problem itself, and one must therefore break down this problem of public relations into its component parts before one can begin to plan the program and the organization necessary for the accomplishment of one's objectives.

Public relations is not a pitched battle of propaganda between two determined and unyielding forces. Its results are no longer measured by the number of column inches of publicity appearing in newspapers. On the contrary, some of the finest accomplishments in the field of public relations consist of new solutions to old problems developed and refined in the crucible of self-respecting compromise and cooperation between persons with divergent views. Such results are usually achieved without benefit of newspaper headlines or the blare of human trumpets. As a consequence, it often happens that only the most discerning recognize an outstanding job of public relations when they see one.

This approach, incidentally, does not mean that one must be tepid in one's convictions; it means only that one must be open minded.

The public relations program of a medical society is a composite made up of the following parts:

1. Relations with the individual members of the society.
2. Relations with other medical organizations such as the specialty groups.
3. Relations with allied groups—dentists, hospital administrators, nurses, pharmacists—and with their respective organizations.
4. Relations with voluntary health agencies such as the Cancer Society, the Tuberculosis Association, and the Society for Crippled Children.
5. Relations with governmental agencies—the state departments of health, welfare, public assistance, public instruction and labor and industry, the governor's office, the state board of medical education and licensure, the state legislature and others.
6. Relations with organizations such as the Rotary and Kiwanis clubs, parent-teacher associations, community chests and women's clubs.
7. Relationship with recognized moulders of public opinion—newspaper editors, civic leaders, the clergy, school teachers.
8. Relations between physicians and their individual patients.
9. Relations with that elusive entity commonly referred to as the general public.

This list is not necessarily complete, but it is detailed enough to illustrate that the public relations of a medical society is by no means a simple problem.

In the development of medical public relations, one of the first questions which must be answered relates to the part to be played by the various organizations and individuals concerned. For example, what part of the public relations program of American medicine should be handled by the American Medical Association? By the National Physicians Committee? By the specialty groups? By state medical societies? By county medical societies? By other organizations? By individual doctors of medicine?

From a dollars and cents point of view, American medicine is a big business. The total value of the services rendered by the physicians of this country exceeds the gross income of any of the large corporations with the possible exception of General Motors.

There are no available figures on the total amount spent for public relations by the physicians of this country, but it is evident that this sum has currently reached huge proportions. Notice the difference, however, between the organization of the medical public relations program and that of a corporation such as General Motors. In the case of corporations, their public relations programs are practically always planned, directed, financed and controlled at the national level under the direction of one individual—usually a vice president. By contrast, medical public relations is a hodgepodge of effort that is generally well intentioned and sometimes well executed but almost never coordinated with similar endeavors on the part of other medical organizations.

The very nature of medical service itself makes centralized public relations for the profession both impossible and undesirable. This fact, however, must not retard our efforts at coordination because—without it—duplication and waste will flourish and important segments of the problem will be overlooked.

The American Medical Association is in the process of reorganizing its public relations program. I hope that one of its first objectives will be to determine what phases of the total problem should be handled by the Association itself, by the National Physicians Committee, by specialty groups like the American College of Surgeons and the American College of Physicians, by state and county medical societies and by private practitioners of medicine. This decision will not be easy, nor will the initial determination remain static. Constant vigilance will be needed to make certain that the gears mesh properly, because public relations problems are fluid and the technics necessary to cope with them must be flexible. Changes will have to be made from time to time. This is admittedly a tremendous task, but in my opinion it is a price which the American Medical Association must pay for the medical leadership of this nation. The alternative is chaos in medical public relations and unwarranted expense for the members of the profession who must pay the bill no matter who does the job or how it is done.

A similar problem confronts state and county medical societies. I understand that those in charge of public relations at the Association headquarters plan to provide state and county societies with counsel and aid in the development of state programs. Naturally this cannot be detailed or extensive, but certain patterns can be developed nationally and modified to fit the local landscape.

Every worth while article I have ever read on medical public relations has stressed the importance of the individual practitioner of medicine, but very few of them have explained just how and when and where an individual physician can do a good job of public relations. This must be spelled out in detail by state and county medical societies for their members.

Let us look at medicine's public relations problem from another angle. Public relations is not something apart from the general program of an organization. It cannot be wrapped up in a package and delivered. It is neither a cover for shortcomings nor a substitute for good works. It should not be turned over completely to a single committee or a single individual in the vain hope that, by the use of some magic formula, public reaction can be suddenly transformed. Good public relations, in fact, depends on good works. It cannot exist in a vacuum. Therefore public relations must be built on the program and the accomplishments of the organization.

Successful public relations is always built on a tripod. First there must be positive and constructive policies; second, effective action, and third, adequate interpretation. If any one of these three legs is weak or missing, the public relations program will topple.

Recently I heard a nationally known public relations consultant say that the trouble with physicians is that they are excellent resoluters and motion passers but poor workers at putting their programs across. It is easy, he said, to pass motions galore with no more effort than a full throated "aye," but it is something else again to put ideas on wheels and push them through to completion.

What, for example, are county and state medical societies doing to supply adequate health services and facilities to the rural areas of this country? What are they doing to attract physicians to such areas?

Rural health is only one small part of our problem. Organized medicine has, to be sure, acknowledged its responsibilities in this regard; but until we are able to show concrete results, our rural health program is public relations dynamite. Without results an unfriendly newspaper editor can make us look foolish. And there is little a public relations department can do about the situation until the third leg of the tripod—effective action—is made strong.

Public relations, above all else, must be honest. Reporters and editors are entitled to complete and truthful answers to every reasonable question whether the facts are favorable or unfavorable. Otherwise the confidence of the press is lost and so is one's public relations program.

I can visualize a conscientious employee of a state medical society working full time day after day for a year on the problem of rural health without scratching the surface. By the same token I cannot see how active leadership in this field or in any other field can be achieved by referring the problem to a committee composed of busy practitioners of medicine who must sacrifice a part of their livelihood every day they spend working on the problem unless such a committee is provided with competent assistance to follow through the vast amount of detail which must be handled if concrete results are to be accomplished.

That applies, of course, not only to the problem of rural health but also to every other problem in the solution of which a state medical society desires to exercise active leadership, whether it be sanitation, cancer control, industrial health, mental hygiene or the care of disabled veterans.

In the personnel of medical society committees there exists a remarkable pooling of the best medical talent available. Through their expert services, generously contributed, effective solutions to important health problems can be achieved which would be impossible for employees alone or individual members working separately to approach. Medical society committees are the workshops in which basic policies are forged into concrete programs. I salute the busy practitioners who bring to such committee endeavors a quality of service that could not be purchased at any price. But I think it is utterly unfair to expect that they can solve the important and complex problems referred to them without the assistance of paid employees.

In such a maelstrom of contending social forces as exists today it must be remembered above all else that—regardless of whether their decision is right or wrong—ultimately the voice of the people will prevail. Consequently, in matters of health it behooves organized medicine to guide the public to a sane conclusion. As the initial step in this direction, public confidence must be secured.

The medical profession, however, cannot hope to get very close to the soul of the heterogeneous American public by national or state activities alone. Together, these form an excellent foundation; but the superstructure must be built to fit into the local landscape.

Even the most casual reader of medical history must be impressed by the glorious achievements of the profession in its conquest of baffling scientific problems. He must be particularly thrilled when he discovers, on looking more closely, that the brilliance which shines through almost every page of the history of medicine is but the reflection of an unparalleled devotion to the duties of humanitarian service on the part of countless thousands of individual physicians.

Worth while progress in the field of medical public relations will be achieved once we have applied that traditional devotion to duty which characterized the attack on the scientific front to the problems of social philosophy and human relationships.

230 State Street.

Council on Medical Service

"A MEDICAL SURVEY OF THE BITUMINOUS-COAL INDUSTRY"

The National Bituminous Coal Mine (Krug-Lewis) Agreement of May 1946 provided that a comprehensive survey and study of the hospital and medical facilities, the medical treatment and the sanitary and housing conditions in the coal mining areas be made by the Coal Mines Administrator.

The House of Delegates charged the Council on Medical Service and the Council on Industrial Health with the task of keeping in touch with the situation. In accord with this instruction this report and analysis are presented on the "Medical Survey of the Bituminous-Coal Industry" recently released by Joel T. Boone, Rear Admiral (MC), U. S. Navy, director of the Medical Survey Group.

Fritjof Arestad, M.D., Associate Secretary of the Council on Medical Education and Hospitals, has prepared the analysis of that part of the report having to do with hospital facilities.

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OPENING STATEMENT

The report entitled "A Medical Survey of the Bituminous-Coal Industry" is unique in that it represents the first nationwide medical survey of an industry conducted under government auspices. The report itself consists of 244 pages plus a 66 page supplement on "the coal miner and his family." It is profusely illustrated with charts and with pictures depicting both the good and the bad features of the coal mine communities.

The following stand out:

1. Facts, information and comments are entirely impartial and are made with every effort to present all sides of the picture or problem.
2. The miner's health and welfare are as good or as poor as the leadership in the community in which he lives.
3. The "mining community" is neither better nor worse than communities in which many other segments of the working population live.
4. The health and welfare of the miners would be definitely improved by applying the accepted standards of industrial medicine to the bituminous coal industry.
5. Improvement of the health and living conditions of the miner can come about only through the cooperation of labor, management, the medical profession and the community itself. No one of these is responsible, no one alone has the remedy.
6. There should be representation from the civilian medical profession on any trusteeship established to provide medical care and hospitalization for the miners and their dependents.

Purpose

The purpose of the survey was to determine the character and scope of improvement which should be made to provide the mine workers of the nation with medical, housing and sanitary facilities conforming to recognized American standards. In interpreting this purpose the director of the survey states that "its objective was to determine broadly the extent, the adequacy and the characteristics of the facilities and services that most directly affect the physical and mental health of the miners and their families."

Extent of Survey

The survey encompassed medical and hospital services and facilities, housing, sanitation, recreation facilities and the use of leisure time by the miner and his family. It traces the origin and development of the coal mining industry in the United States showing how, where and why it spread from coast to coast. In tracing the development, observations are made and factual data presented concerning the character of the communities, the economic conditions of the industry, the mine accident record, mine-labor relations, wage rates, miners' earnings, and the age of the mines themselves.

The survey did not direct itself to the economics of the industry other than historically or to the technology of coal mining. Nor was time available to go into the details of such aspects as the prevalence and incidence of specific diseases and illnesses, the extent and nature of nutritional deficiencies, and other specific details which might be necessary in the actual application of the recommendations made.

Methods Used in Survey

The Secretary of Interior selected Rear Admiral Joel T. Boone (MC), U. S. Navy, to direct the survey, leaving the program entirely in his competent hands. The staff consisted of a headquarters staff of advisers on special matters and a field staff made up of five teams. Each team contained a medical officer, an engineer officer, a welfare and recreation officer and a clerical aide.

The nation was divided into five areas for the survey purposes. Since it was impossible to investigate conditions in all the eight thousand bituminous coal mines or even the 2,350 mines in government possession, a sampling program was adopted. The sampling procedure was based on mine population with a final total of 260 mines agreed on (each of which produces more than 50,000 tons annually). These 260 mines produce 18 per cent of the total coal output of the nation and employ 22 per cent of the miners. They are located in 105 different counties, and these counties in turn are located in the twenty-two leading bituminous coal producing states.

Actual visits were made by the teams to the mines, homes, mine communities and hospitals. A standard recording form was devised so that the teams could gather similar data. Both management and labor were asked to supply representatives to accompany the teams, and all investigations were made in the presence of both.

In addition to the team visits, a questionnaire was prepared and mailed to a large number of mining companies and to all district offices of the United Mine Workers union. The information gathered from these questionnaires was used to verify and corroborate specific items of information obtained by the field teams.

HOUSING AND SANITARY FACILITIES

The study of housing and sanitary facilities brings out all the conditions one would expect to find in a nationwide study of any industrial group of workers: miners owning eight-tube radios but lacking a sanitary toilet, owning a modern washing machine with water drawn from an outside well by pail, getting an ever increasing pay envelop without a comparable improvement of living conditions.

The survey teams visited and studied in detail 2,028 homes in the 260 mine areas and observed without detailed inspection approximately 50,000 dwellings. Fifty-seven per cent of the homes studied were company owned. The background or reasons for the development of both types of dwellings is traced in considerable detail in an effort to lend some sense to the "Tobacco Road" housing found in many mine communities.

Isolation, poor roads, rugged topography, uncertainty of mine return and similar findings are all conditions which were given as affecting the development of mine communities.

The range in extremes with respect to housing, water supplies and sanitary facilities is so wide that the median or average conditions are difficult to determine. While a large majority of miners living in company camps have a standard of living unsatisfactory in view of the levels attained by families throughout the United States in comparable income classes, many examples of excellent company-owned housing are available. The housing and sanitary facilities of the miners who do not live in company towns are generally better than in coal camps. The survey indicates that all three—management, labor and the families—are at fault: management because, having instituted the system, it neglected, with notable exceptions, to fulfil the humanitarian obligations of its dual role of employer-governor; labor because its interest in wages and hours seemingly blinds it to housing and sanitary reforms; and the miner because he tolerates eradicable evils.

PUBLIC HEALTH

In consideration of the emphasis on sanitation facilities in the Krug-Lewis agreement, considerable attention is given to public health administration in coal mining communities. It is contended that proportionate allocation of public health expenditures is not made in these areas. Reasons include imperfect local health department organization, lack of specially qualified personnel, unwillingness to expend funds on privately owned property and lack of an educated demand. Deficiencies exist in all phases of public health administration. Water supply and waste disposal, milk and restaurant sanitation, communicable disease control, child care and school health programs are singled out for special consideration. All elements in the community are at fault, but the report emphasizes that much improvement could occur under effective medical leadership and guidance.

Specific Recommendations Regarding Public Health

1. Mining companies should assure safe water supply, adequate sewage disposal and proper disposal of wastes.

2. Management and labor should act together to promote basic sanitation.

3. New legislation is needed relating to water analysis and adequate water and sewerage systems in relation to new housing projects.

4. Compulsory wash and change house legislation is needed.

5. Adequate financial provision for state and county health units is urged.

6. Local groups should acquaint their representatives in the government about specific public health needs.

7. Extensive and continuous health education programs should be inaugurated.

8. Mine operators should encourage physicians to promote the use of health education and general public health services.

9. A demonstration project in infant and child health should be undertaken.

10. Tuberculosis case finding programs are advocated.

11. Improved reporting, recording and analysis of morbidity and mortality data are essential as a basis for needed medical and public health services.

12. Voluntary health agencies should extend their activities into rural and isolated industrial communities.

INDUSTRIAL MEDICINE

The survey teams found that industrial medicine in its modern application is largely nonexistent in the soft coal mining industry. This anomalous situation prevails in spite of the hazardous nature of the occupation. Only 5 per cent of the mines surveyed maintained any kind of regular medical supervision over workers or the working environment. First aid training and practice, once carried to high degrees of efficiency, have lately deteriorated seriously. Emergency medical care, including transportation and hospitalization, call for a high degree of organization and training and maintenance of auxiliary personnel, since mines are frequently located in relatively isolated regions. Physicians in mining areas are, for the most part, unfamiliar with conditions of the work and in consequence exert little real influence over safety and health programs. This situation is reflected also in low standards of physical examination, job evaluation, placement and absentee analysis, all of which are extremely useful functions of the modern industrial physician. Lack of effective industrial accident and occupational disease control is due in part to deficiencies in scope and administration of workmen's compensation laws. The report indicates that some physicians who receive pay roll deductions for the provision of general medical care still treat industrial disabilities without submitting a separate claim for this service as required under the workmen's compensation laws. Proper use is not being made of agencies designed to rehabilitate disabled civilian workers, and the industry itself has no comprehensive program of restoration, retraining and placement. In regard to industrial medicine, the specific recommendations in the report are as follows:

1. The industry should extend its research activities into all phases of industrial medicine and hygiene and provide consulting services where necessary.

2. Full or part time physicians should be employed to develop and maintain an adequate industrial medical program.

3. Essential elements of an industrial medical service are physical examination, prompt care of industrial accidents, good first aid and emergency facilities, well trained professional personnel, knowledge of working conditions, satisfactory consultant services and the maintenance of adequate records for absentee analysis.

4. The Federal Bureau of Mines should enlarge its scope to include industrial medicine and hygiene.

5. State and local health departments need to extend industrial hygiene services to the coal mining industry.

6. Compulsory rather than elective workmen's compensation acts where they do not now exist are recommended. They should include general coverage for occupational diseases.

7. Proper claims should be made by physicians treating occupational disability in accordance with existing compensation laws.

8. The operators and workers should combine to reestablish first aid training and practice.

9. Medical associations should encourage training in industrial medicine and promote the establishment of special qualifications for practice.

10. Rehabilitation of disabled miners should be supported by the workers and the coal mine operators.

GENERAL MEDICAL SERVICES

A majority of the bituminous coal miners in the United States and their families receive their medical care through a prepayment system by regular deductions from their pay. This system is traditional with them, dating back to the middle of the nineteenth century.

The remoteness of mining communities and other factors that compelled them to provide for housing, water supplies, stores and other necessary provisions also compelled them to attract and retain medical practitioners. As an incentive for physicians to establish themselves in these places, the wage deduction system was instituted to provide funds for an assured minimum income.

The Navy Medical Corps officers assigned to the survey set out to determine the extent of the prepayment system of general medical care in the bituminous coal industry; regional differences, if any, in utilization of the system; the comprehensiveness of the services rendered under the various general prepayment plans; the manner of selecting physicians; the various ways in which plans are administered; the quality of medical care given to miners and their families, and the medical facilities available to miners.

Data were obtained from physicians, mine operators, union officials, medical societies and miners and their dependents at each of the 260 mines selected for the survey.

Extent of Prepaid System

The survey findings show that home and office medical care is provided through some form of prepayment at 155 of the 260 mines surveyed. The remaining 105 mines are generally so located as to allow the employees to live in or near urban communities where private practitioners are available. "Where such (prepayment) plans are in effect, the estimated participation of the employed miners and their families averages more than 95 per cent." These plans are limited primarily to mine employees and their dependents and are not the community-wide type of prepayment plan such as are sponsored at present by medical societies in some thirty-seven states and the District of Columbia.

Regional Differences

Important regional differences were found in the distribution of prepayment plans for general medical care. Plans are more prevalent in areas where housing is or has been provided by mine operators and almost entirely absent in areas where company camps have not been provided. The frequency of prepayment plans is highest in the predominantly rural Southern Appalachians and Rocky Mountains and lowest in the highly industrialized and urbanized Midwestern areas. Prepayment plans are rarely utilized by employees at strip (surface) mining operations that have developed in parts of Oklahoma, Arkansas, Kansas and Missouri.

Charge to Employees

Prepayment is made by pay roll checkoff. The amount ranges from 75 cents to $3 monthly for individuals and from $1.20 to $3 for married employees and dependents, with an average of $1.36 and $2 respectively. No effort is made in the study to correlate the monthly charges with the benefits offered.

Service Provided Under Plans

The usual services offered are office care and necessary attendance on the sick or injured in their homes, provided subscribers live within the company camp or within prescribed geographic limitations. Obstetric care is generally excluded but is sometimes included for an additional fee. Routine immunization is administered without extra cost at 80.3 per cent of the mines.

Dental Services

Dentists are seldom found in typical mining communities.

Contracts and Agreements

To protect the doctor-patient relationship one doctor negotiated separate written agreements with subscribers who authorized the proper pay roll deduction. Physicians furnishing medical care to miners on a pay roll checkoff basis enter into contracts with the company or the local union or both. More than 50 per cent of the agreements were verbal. Where there is a written contract, it is usually entered into between the doctor and the union with the approval of management.

Selection of Physician

In past years management assumed most of the responsibility for selecting a physician. Recently, however, unions have demanded a voice in the appointment of the doctor. Evidence of selection on basis of personal friendships and other nonmedical considerations were found. Management may exert considerable influence on the selection by withholding company-owned office space or living quarters or refusal to make a pay roll deduction for transmittal to a physician whose selection it has not approved. Doctors with contracts under prepayment plans do, in some instances, exercise a voice in selection of additional physicians.

Financial Administration of Plans

Financial administration or supervision of the numerous plans under which prepaid medical services are provided is vested in varying degrees in management, local unions and physicians. Expressed statistically, 127 plans are considered to be controlled primarily by the contract physician, 14 are company sponsored in providing medical facilities and salaried physicians, 8 are controlled by the union and 5 are administered by a joint commission.

Labor's Concern in Medical Care

In recent years, problems associated with the administration of prepaid medical services have resulted in the interjection of certain pertinent provisions in the labor contracts between coal operators and the union.

Patients' Choice of Physician

Unless he wishes to pay extra to obtain the services of a doctor who is not associated with the prepayment plan, the miner must accept the services of the contract physician. In some places the contract physician is the only doctor available. Where two or more physicians are practicing at some mines or groups of mines, the participant in the plan is usually assigned to only one of them. If several of the independent prepayment plans could be grouped, the participants would then be enabled to have a choice of doctor, limited only by the size of the group. Furthermore, he would have a physician to call on in an emergency if the physician of his choice was away. Doctors likewise would be able to rotate their practice when desirable.

Facilities for Treatment

At only 17 of the 260 mines surveyed have the companies erected and equipped excellent dispensaries to be utilized for industrial medicine and ordinary medical care of miners and dependents. Generally the company doctors' offices are in small frame buildings for which management charges nominal rent. The equipment of such offices ranges from that carried in a practitioner's bag to that found in a modern up to date office with sanitary features and modern physical therapy equipment. These offices are equipped by the doctor rather than by the company. "It is axiomatic that the extent of utilization and value of medical care facilities . . . depends on the availability and competence of professional personnel. Conversely, it is also true that the availability of good doctors frequently depends on the existence in a community of suitable physical facilities."

Attitude Toward Prepayment

The quality of medical facilities at the mines, the limited choice of physicians, the ways in which physicians are selected and the exclusions under the prevailing prepayment plans have all given rise to dissatisfaction by management, by labor, by physicians and by patients. Although the groups acknowledge the need for improvements, the concept of a prepayment system for medical care is acceptable to all parties, and abandonment would not only be resisted but would be undesirable.

It is indisputable that many physicians have been attracted to unprepossessing areas by a guaranteed minimum income each month. This economic advantage is responsible in a large measure for the fact that mining communities are as well supplied with physicians as they are. Under any revision of the system, provision should be made for a subsidy, retainer or minimum salary or other suitable method of payment for physicians who are willing to practice in such relatively isolated localities, to which otherwise they might not be attracted.

"Many of the mine physicians participating in contract practice believe that prepayment by pay roll checkoff is essential to the provision of medical care in most mining communities."

There are many advantages to the miners inherent in any prepayment "insurance" system of medical care where the risk is spread over a large group of people. Economic burdens are lightened for the individual through the distribution of costs and the individual protected against large outlays of funds in times of medical emergency.

Most of the causes of dissatisfaction hindering operation will not be eliminated until prepayment funds are administered by a representative body so constituted as to be above suspicion of partiality to the mine operator, the physician, the union or the miner. The objective should be to provide maximum service to the individual patient at the lowest cost consistent with (*a*) adequate remuneration to physicians for services rendered, (*b*) expansion and improvement of medical facilities and (*c*) the furthering of medical science.

Improvement in the administration of medical prepayment plans will be accompanied by the formulation of equitable written contracts clearly defining privileges and limitations. The subscriber should know what he is buying with his prepayments. A desirable requisite is freedom of choice of physician from among all legally qualified doctors who desire to participate, physicians should be paid from a fund centrally administered by a nonprofit association on the basis of specific services performed, and, to prevent abuses, consideration should be given to proposals that the subscriber should pay some moderate portion of the first cost of each illness.

An urgent need exists for the medical profession in each of the coal mining states to develop, in cooperation with management and labor, actuarially sound prepayment plans which will furnish the maximum of medical service coverage at the lowest cost consistent with continued improvement of services and facilities and opportunity for future scientific progress.

The development of such plans by the medical profession with the United Mine Workers of America and mine operators would contribute to the solution of many health problems of the people in the bituminous coal mining industry.

HOSPITALIZATION

Although the practice of prepayment of hospitalization is firmly established in the bituminous coal industry, there is great variation among the local plans. This situation, however, is no different from that of other prepayment plans throughout the country. Prepayment plans sponsored by medical organizations, Blue Cross and private insurance companies differ throughout the country. Such differences are necessary to accommodate local needs and desires in the areas served.

The various agencies administering these plans and a brief description follow:

1. Hospital Administered Plans: These plans are administered by what are known as "list" or contract hospitals. These hospitals have agreed to render certain services to beneficiaries. Such services are paid for by a "checkoff" from each miner's pay. The deductions are remitted in total to the contracting hospitals.

2. Nonprofit Associations: In several areas there are agencies which are incorporated on a legal nonprofit basis for the purpose of providing hospitalization to subscribers. These agencies make agreements with "participating" hospitals whereby such hospitals agree to provide specified hospital services to beneficiaries.

3. Mutual Benefit Associations: These associations are normally formed by the employees. In many instances the benefits go beyond providing hospitalization to beneficiaries and include cash indemnities for burial expenses, for disabilities resulting from accidents or illnesses and for support of survivors in case of death.

4. Union Administered Plans: The survey teams found such plans in all areas, but they predominated in the West. Union plans are no more specific in their provisions regarding benefits to subscribers than are other plans.

5. Employer Administered Plans: These plans are administered solely by the employers, usually by means of making company owned or operated hospital facilities available to the beneficiaries.

6. Physician Administered Plans: Such plans do not differ materially from the hospital administered plans. In most instances the physicians administering these plans own the hospitals with which contracts have been made or they are members of the hospital staffs.

7. Hospital-Operator-Union Administered Plans: Only one such plan was observed in the survey. It is operated by a commission composed of representatives of the hospital, management and employees of coal companies. This was reported to be the outgrowth of one originally devised by the hospital to care for indigent patients and persons with low incomes.

8. Indemnity Plans: Seven per cent of the plans studied were indemnity type group insurance contracts carried with private insurance companies.

Recommendations on Medical and Hospital Plans

In establishing any broad system to provide comprehensive medical and hospital care for miners and their dependents, the survey suggests that serious consideration be given to the following:

1. Plans should be administered on a sound actuarial basis.
2. Plans should cover as wide an area as is practicable and feasible.
3. Each subscriber should know exactly what he is paying for and to what he is entitled.
4. Eligibility to subscribe to prepayment plans should not be limited to a single occupational group.
5. Scope of plans should be broad enough to permit participation by employer, company officials and supervisory personnel.
6. Each plan should make sound provisions for continuing benefits during periods of cessation of the income of participants.
7. Subscribers should be permitted to continue to participate following termination or transfer of employment.
8. Subscribers should be allowed free choice among an adequate number of hospitals and physicians who are willing to participate.
9. Funds should be sufficient to assure an adequate panel of participating physicians.
10. The plan should allow maximum professional competition compatible with high quality and reasonable economy.
11. Plans should seek the endorsement of the medical profession.
12. Checks should be included within the plans to prevent unnecessary demands by malingering patients.
13. Administration should not result in domination or coercion of physicians.
14. Responsibility for maintaining standards of medical care should be retained by the medical profession.
15. Provisions should be made for adjudicating grievances that may arise in the administration of the plan.

HOSPITAL FACILITIES

Included in the report is a survey of 153 hospitals closely associated with the bituminous coal industry. These institutions were studied from both a quantitative and a qualitative point of view, utilizing mainly such factors as size, distribution, ownership or control, surgical and obstetric facilities, x-ray and laboratory service and the availability of medical, nursing and technical personnel. Of the hospitals surveyed, 75 per cent had a capacity of less than 150 beds, indicating that most of the miners depend on small or medium size hospitals located close to their homes.

All the hospitals included in the report rendered the usual medical and surgical services, and all but two provided facilities for obstetric care. Although many hospitals were well organized and well equipped, a considerable number exhibited deficiencies in various departments, particularly in the areas where small hospitals predominated. In relation to surgery, for example, it was reported that 30 per cent of the hospitals did not have adequate facilities, but in this connection it should be noted that the standard of comparison had been placed at a minimum of two operating rooms for all hospitals below 150 beds. Sixteen per cent of the hospitals surveyed did not maintain separate delivery rooms, 40 per cent lacked a labor room, and approximately 10 per cent did not have a nursery for the segregation and care of newborn infants. Nearly all the hospitals, however, had facilities for x-ray and laboratory work.

The nationwide shortage of nursing personnel was also reflected in the hospitals of the coal areas, where over 60 per cent of the institutions failed to meet the established index of 2 beds per nurse. Laboratory technicians were not employed in 30 per cent of the small hospitals and in 10 per cent of the hospitals of medium size. It was also reported that 30 to 50 per cent of the hospitals did not list on their staff any physicians who specialized in surgery, internal medicine or obstetrics. A full evaluation of these services, however, would no doubt require a further study of the qualifications, training and experience of the individual staff physicians.

The report recommends that hospital facilities in the bituminous coal mining areas be increased in size and improved in quality, that multiple small hospitals be consolidated into nonprofit associations whenever possible so that they may benefit under the Hospital Survey and Construction Act, and that small hospitals which cannot be consolidated affiliate themselves with larger institutions or limit their services to special phases of hospital work. It was further urged that increased attention be given to the specialties, that young physicians be induced to enter the coal areas under conditions that will permit them to advance professionally and financially, that hospitals extend their attending privileges to local physicians, that standards of administration, facilities and practice be established in accordance with the principles set forth by the American Medical Association, the American Hospital Association and other agencies, and that hospitals be licensed and also inspected at regular intervals. It was likewise urged that the United Mine Workers of America together with coal operators aid in the development of leadership in the establishment and improvement of community hospital facilities under the Hospital Construction Act.

The report calls attention to deficiencies in hospital facilities and services and indicates that "such attitudes appear to be most prevalent where the present system of contract hospitalization—a system that stifles competition on the basis of quality of service—is dominant." It states further that, "in the interest of proper medical care, the medical profession should closely scrutinize the present methods of practice in the coal mining areas and make modifications wherever necessary to provide adequate diagnostic services and treatment facilities, and enough fully qualified physicians to handle the needs of the regions."

OFF-THE-JOB LIVING

In the survey, off-the-job living is considered to include all the things the individual chooses to do in his own time for gratification of the doing.

What an individual does in his own time has a great deal to do with shaping his personality and coloring his attitudes. "This is where recreation comes in, for recreation is a means of satisfying human hungers for self expression and creativeness, for belonging to the group and being wanted, and for recognition, competition and adventure."

The circumstances in many coal mining areas limit the activities of private and public agencies as well as those of commercial firms, some of these inhibiting circumstances being that (1) areas are sparsely settled, (2) working time and earnings of inhabitants are irregular and undependable, (3) the land is owned or leased by mine operators and not generally available for lease or purchase, (4) many communities are unincorporated and there are no public bodies to provide recreational opportunities for residents, and (5) the proper use of leisure time depends on leadership as well as on facilities and programs.

In a great measure the people in coal mining areas depend on four sources—management, labor, the school and the church—for their recreational activities.

Leadership is of vital necessity in stimulating the major interests of the people, and instances were discovered in which recreational facilities that had been provided and installed were deteriorating rapidly from nonuse. Lack of adequate and interested leadership was given as the cause.

Recreational facilities are in direct ratio with other facilities available in individual camps and communities. They are better and more readily available in the larger incorporated communities with diversified classes of people, poorer in incorporated communities comprising mining families and workers in professions and trades different on mining and poorest in company owned camps and unincorporated communities made up almost solely of mining people. "These facts point out that community organization is needed to provide the basic needs for recreational facilities and comprehensive leisure time programs."

CENTENNIAL BROADCASTS FROM ATLANTIC CITY

Here again the Bureau of Health Education announces the following broadcasts connected with the Centennial Celebration of the American Medical Association at Atlantic City:

Saturday, June 7, 4:30 p. m., Eastern Daylight Time, Columbia Broadcasting System and associated stations: "Science Service Program." R. L. Sensenich, Chairman of the Board of Trustees, guest speaker. Topic, "Medicine's Centennial Year."

Saturday, June 7. "Doctors—Then and Now," Nevada and Northern California, speaker Lawrence Parsons, M.D., representing Nevada and California Medical Associations; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

Saturday, June 7. "Generations of Doctors" (tentative title), a fantasy story of the doctor of 1847 in contrast with his descendant, a doctor of 1947, dramatized with music; Columbia Broadcasting System and affiliated stations, 10:30 to 11 p. m., Eastern Daylight Time.

Sunday, June 8. Speakers from the Centennial religious observance, Msgr. Fulton J. Sheen, Rabbi Joshua Loth Liebman and Dr. Ralph C. Hutchison, President of Lafayette College; N. B. C. and affiliated stations, 11 to 11:30 a. m., Eastern Daylight Time.

Monday, June 9. Official opening of the Scientific Exhibit, Dr. Morris Fishbein, Editor of The Journal, and Dr. Harrison H. Shoulders, President of the American Medical Association; American Broadcasting System and affiliated stations, 4:15 to 4:30 p. m., Eastern Daylight Time.

Monday, June 9. "Stephen Graham, Family Doctor": this Mutual network broadcast, usually originating from New York, will be originated from the American Room at the Hotel Traymore as the entertainment feature for the annual dinner tendered the House of Delegates and officers of the American Medical Association by the local medical profession. The entire production will be moved from New York as a demonstration to the delegates and as a special event commemorating the Centennial of the American Medical Association. The topic will be "Medical Service in Rural Areas." The special script will be written by Willys Cooper and produced by Wynn Wright. The program is under the general supervision of Dr. W. W. Bauer and Harriet Hester.

Wednesday, June 11. Address by Dr. Edward L. Bortz: Columbia Broadcasting System, 6:15 to 6:30 p. m., Eastern Daylight Time. Topic: "Looking Forward from A. M. A. Centennial."

Friday, June 13.—*Interview: Dr. Edward L. Bortz,* President of the American Medical Association; interviewed by Harriet Hester, Mutual Broadcasting System and affiliated stations, 10:30 to 10:45 a. m., Eastern Daylight Time. Topic: "One Hundred Years of American Medicine."

Saturday, June 14. "Doctors—Then and Now"; closing program of the series entitled "American Medical Cavalcade," summarized by Dr. W. W. Bauer; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

In addition to the Monday night Mutual broadcast of the "Stephen Graham, Family Doctor" show, the speeches by Drs. Fishbein and Shoulders on the American Broadcasting System, and the speeches of Dr. Bortz on the Columbia Broadcasting System and the Mutual Broadcasting System will originate from Atlantic City; "Doctors—Then and Now" on N. B. C. will originate both Saturdays from Chicago; "Generations of Doctors" on C. B. S. will originate from New York.

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American College of Allergists, Atlantic City, Hotel Senator, June 6-8. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 5-8. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7-8. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Diabetes Association, Atlantic City, Chalfonte-Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Medical Women's Association, Atlantic City, Hotel Claridge, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Marlborough Blenheim Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E. Bacon, 2031 Locust St., Philadelphia 3, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7-8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough Blenheim Hotel, June 13-14. Dr. Robert S Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24 Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

Washington Letter

(From a Special Correspondent)

June 4, 1947.

Republicans Reject Truman Appeal for Action on Federal Health Insurance

Senator Robert Taft of Ohio, president of the Republican Policy Committee, announced that the Republican controlled Senate had no place on its 1947 legislative calendar for the "long and bitter battle" that would ensue if efforts were made to pass a federal health bill as advocated by President Truman. Mr. Taft added that the Labor Committee which he heads will hold hearings on health needs shortly, although a bill will not be taken up this year. He has already launched a bill to expand medical and dental care through federal aid to states. Republicans opposed the President's suggestion of a health and disability insurance program on the ground that it would involve nationalized medical service. Senator Murray, Democrat of Montana, co-author of the Murray-Wagner-Dingell bill, has since introduced a bill to carry out most of the suggestions made by President Truman in his message to Congress.

Senate Endorses Bill to Create Agency on Scientific Research

The Senate voted 79 to 8 for the creation of a new government agency, a National Science Foundation, to conduct basic research in biologic and other scientific fields. The measure has an uncertain fate in store in the House of Representatives. An amendment by Senator Magnuson, Democrat of Washington, was passed by a 42 to 41 vote with 5 Republicans joining 37 Democrats, providing for a $15,000 a year director, appointed by the President, to execute all foundation policies. Also passed was an amendment providing that 25 per cent of funds later appropriated are to be allocated to the states for distribution. The original bill would liquidate the Office of Scientific Research and Development as of June 30 and would absorb the National Roster of Scientific and Professional Personnel, now in the Labor Department.

Senate Votes Special Commissions on Remedies for Cancer and Heart Disease

In voting passage of the National Science Foundation bill the Senate also approved an amendment by voice vote authorizing the proposed foundation to set up cancer and heart disease commissions. Each commission would be asked to survey public and private research in the field and recommend research programs to be carried out through the foundation. In the House, Representative Dirksen, Republican of Illinois, has asked the House Appropriations Committee to give the Atomic Energy Commission $25,000,000 to fight cancer. He declared that it has been estimated that 17 million people now living will die of cancer.

Captain Nellie Jane DeWitt Heads Navy Nurse Corps

Navy Secretary Forrestal announced on the thirty-ninth anniversary of the Navy Nurse Corps the appointment of Capt. Nellie Jane DeWitt as new director of the corps.

Official Notes

QUESTIONNARIE TO MEDICAL OFFICERS

The analysis of the 26,000 replies to the 50,000 questionnaires sent by the Committee on National Emergency Medical Service to discharged medical officers has been completed in time for presentation to the House of Delegates at Atlantic City. A copy of this report of approximately thirty-five pages will be mailed to any discharged medical officer who requests a copy from the Bureau of Medical Economic Research, Chicago.

The analysis of the questionnaire on Medical Care of Civilians During World War II appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION May 24, pp. 369-374, and an editorial appears on page 366.

Medical Legislation

MEDICAL BILLS IN CONGRESS

National Science Foundation

A bill providing for the establishment of a **National Science Foundation**, S. 526, has passed the Senate. In addition to providing for five divisions within the foundation, including a Division of Medical Research, the bill directs the foundation to establish *(a)* a special Commission on Cancer Research, *(b)* a special Commission on Heart and Intravascular Diseases and *(c)* such other special commissions as the foundation may from time to time deem necessary. Each special commission will have authority to make a full and adequate survey of research, both public and private, being carried on in its field, to formulate and recommend to the National Science Foundation an overall research program in its field and constantly to review the manner in which such programs are being carried out.

Army and Navy Medical Departments

The bill proposing to **revise the Medical Department** of the Army and the Medical Department of the Navy, H. R. 3215, has been reported to the House with the recommendation that it pass. This legislation, among other things, would establish in the Medical Departments of the Army and Navy a Medical Service Corps consisting of the pharmacy, Supply and Administrative Section, the Medical Allied Sciences Section, the Optometry Section and such other sections as the Secretary of War or the Secretary of Navy, as the case may be, may deem necessary.

Compulsory Sickness Insurance

President Truman on May 19 transmitted to the Congress a special message containing his recommendations for the development and enactment of **national health and disability insurance programs.** He recommended (1) adequate public health services, including an expanded maternal and child health program, (2) additional medical research and medical education, (3) more hospitals and more doctors in all areas of the country where they are needed, (4) insurance against the cost of medical care and (5) protection against loss of earnings during illness.

The day following the transmission of this special message, a new version of the Wagner-Murray-Dingell bill was introduced in the Senate as S. 1320 by Senators Murray, Wagner, Pepper, Chavez, Taylor and McGrath Companion bills were introduced in the House by Representative Dingell as H. R. 3548 and by Representative Celler as H. R. 3579.

The 1947 version proposes to remove the administration of the legislation on a federal level from the United States Public Health Service and place it in a board of five persons established as a part of the Federal Security Agency. The members of this board, it is proposed, will be on a full time salary and three of them would be appointed by the President, one a physician, with the approval of the Senate. The Surgeon General of the United States Public Health Service and the Commissioner of Social Security will be the other two members, ex officio. Detailed provisions have been added in an effort to give recognition to voluntary plans, additional groups to be covered have been added and special provisions included for the supplying of services to rural areas. In broad outline, the new bill does not depart from the philosophy of the earlier bill and retains the compulsory features that characterized its predecessor.

Medical Research Agencies

A bill introduced by Representative Hand, New Jersey, as H. R. 3661 proposes to establish an independent agency of the government to be known as the **Medical Research Agency** to initiate, conduct and support scientific research with respect to the cause and cure of cancer, rheumatic fever, Bright's disease, diabetes, diseases of the heart and circulation, and other major diseases of mankind, and to investigate the cause and spread of contagious or infectious diseases, including malaria. To enable the agency to organize and to commence to carry out its powers and duties an appropriation of $5,000,000 will be authorized. Thereafter, such appropriations will be made available annually as the Congress may authorize.

Miscellaneous

H. R. 1714 has been reported to the House, proposing **to exclude from the Classification Act** and other laws relating to compensation and benefits of federal employees, student nurses, medical or dental interns, residents-in-training, student dietitians, student physical therapists and student occupational therapists, assigned or attached to a hospital, clinic or medical or dental laboratory operated by any department, agency or instrumentality of the federal government or by the District of Columbia and any other student-employees, assigned or attached to any such hospital, clinic or laboratory primarily for training purposes, who may be designated by the head of such department, agency or instrumentality, or by the Commissioners of the District of Columbia, as the case may be, with the approval of the Civil Service Commission.

A bill introduced by Representative LeCompte, Iowa, as H. R. 2815, **would provide hospitalization** for persons who (1) have served on active duty in time of peace in any branch of the armed forces of the United States and have been honorably discharged from such service; (2) are suffering from any disability, disease or defect and are, in the judgment of the Administrator of Veterans' Affairs, in need of hospitalization or domiciliary care; and (3) swear that they are unable to defray the expenses of the necessary hospitalization or domiciliary care.

In providing for **additional tax reductions** from gross income, a bill introduced by Representative Keating, New York, as H R 2850 would, among other things, permit the deduction of all necessary expenses incurred by professional persons "in taking required instructions in connection with his work."

A bill introduced by Representative Rogers, Massachusetts, by request, as H. R. 3599, would direct the Administrator of Veteran's Affairs to provide **complete medical care** for the widows and children of persons who died as a result of service in the armed forces of the United States *in time of war.*

H R. 3336, introduced by Representative Brehm, Ohio, proposes that the Medical Department of the United States Army shall be reorganized so as to provide for *greater autonomy of* **the dental service.**

A bill introduced by Representative Morrison, Louisiana, as H R 3443 would amend existing law to eliminate the requirement that a veteran, in order to receive medical or hospital care for a non-service connected disability, must declare that he is **financially unable** to defray the expense of such care.

A bill introduced by Representative Buck, New York, as H R 3073 would provide medical advice and outpatient treatment by the United States Public Health Service to the **widows and minor children** of certain deceased personnel of the Regular Coast Guard and of the United States Coast Guard Reserve, of the United States Coast and Geodetic Survey and commissioned officers of the regular corps of the Public Health Service and of the Reserve Corps when on active duty or when retired for disability.

The Federal Food, Drug and Cosmetic Act would be amended by a *bill introduced by Senator White, by request, as S 1190, so as to* provide for **seizure of foods, drugs,** devices and cosmetics which become adulterated or misbranded while held for sale *after* shipment in interstate commerce.

STATE LEGISLATION

California

Bills Introduced.—A 2307 proposes that **dogs and cats** may be used for studies or investigations requiring the cutting, crushing or burning of tissues or the administration of drugs, biologicals or chemical products only in institutions or laboratories approved by the state department of public health. The proposal then authorizes the state department of public health to grant written approvals for such purposes to universities and colleges in the state maintaining medical, dental, veterinarian or agricultural schools or scientific research or experimental departments *and to public or private laboratories* that are licensed or approved by the National Institute of Health. The approval, when granted would remain valid and in force and effect until surrendered. A 2681, to amend the law relating to the **practice of chiropractic,** proposes to define chiropractic as consisting of "any or all acts essential to the application of chiropractic principles. Said acts are directed chiefly to the proposition of *adjusting vertebral subluxations for the purpose* of reducing obstructive *pressure on nerves, where they lie in inter*vertebral foramina, or pressure on the spinal cord." The proposal would further define the terms "impingement, subluxation and adjustment" as follows: "Impingement is the state of any nerve, or the tissues of the spinal cord or brain, on which there is sufficient pressure to obstruct the transmission of nervous energy. Subluxation is any relation of contiguous vertebrae, of the first cervical vertebra and the occipital bone, of the fifth lumbar vertebra and sacrum or of any osseous articulation in which nerves may be subjected to obstructive pressure. Chiropractic adjustment is the voluntary and specific reestablishment of *proper vertebral relationship for the purpose of* relieving obstructive pressure on spinal nerves or the spinal cord." S 1059, to amend the law relating to offenses against the chapter on medicine and surgery, proposes that no person who does not hold at the time thereof an unrevoked and unsuspended certificate as a physician and surgeon shall make a ***postmortem examination*** *or perform an autopsy on the remains* of a deceased person.

Bills Enacted.—S 353, which has become chapter 327 of the Laws of 1947, is a **hospital survey and construction act** requiring a state wide survey of hospital facilities and the formulating of a plan for the *construction of additional* needed facilities, as well as the establishment of an advisory hospital council. The survey is to be administered by the state department of public health, which department is appointed as the state agency to accept money received from the federal government for state assistance in either *survey or construction programs.* S 1070, which has become chapter 309 of the Laws of 1947, amends the business and professions code by making it an act of unprofessional conduct for a practitioner to be **convicted of a violation of the narcotic or dangerous drugs** statutes of the state. S 1071, which has become chapter 308 of the Laws of 1947, amends the business and professions code by making it an act of **unprofessional conduct** for a practitioner to administer to himself cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, *chloral hydrate, paraldehyde* or barbituric acid, any of the narcotics or alcoholic beverages to an extent which is injurious to his practice.

Colorado

Bill Enacted.—S. 524, which was approved May 16, 1947, amends the law relating to **venereal diseases** by providing, among other things, that no person other than a *licensed physician* shall treat or prescribe for a case of venereal disease. It also provides that no person shall sell or dispense a *drug, medicine,* remedy or preparation for the treatment, relief or cure of such a disease except on the original written prescription of a duly licensed physician, which prescription shall bear the name and address of the prescribing physician and the name of the municipality or health district *in which the patient resides.*

Connecticut

Bills Enacted.—H. 922, which *has become public act 104 of the Acts* of 1947, relating to the **practice of naturopathy,** suspends the provisions of the naturopathic practice act relating to licensure without examination until the adjournment of the 1947 session of the general assembly. S 15, which has become Special Act 120 of the Acts of 1947, amends the charter of the **Connecticut Medical Society** by changing the name of the society from "The Connecticut State Medical Society" to "The Connecticut Medical Society" *and by eliminating* the limit of $100,000 on the value of real and personal estate which the society may purchase, receive, hold or convey.

Florida

Bill Introduced.—H. 312, to amend the law relating to the membership **of the state board of health,** proposes to authorize a person other than a doctor of medicine to be a *member thereof, that is,* "a licensed practitioner under the laws of the state of Florida of one of the healing arts for the treatment of human ills other than a doctor of medicine."

Bill Passed.—S. 710, which passed the senate May 21, proposes to authorize **colleges in the state of Florida** which are empowered to teach anatomy to obtain the bodies of unclaimed persons who die in the county poor farms and county hospitals for the purpose of medical, surgical or anatomic study or dissection.

Illinois

Bill Introduced.—S. 414 proposes the creation within the department of labor of a **board of industrial hygiene and safety.**

Michigan

Bill Introduced.—H. 466, relating to **absences from school** of children *who are physically unable to attend, proposes to authorize the attendance* officer to secure a written statement from a physician having the qualifications prescribed by the medical practice act or the osteopathic practice act certifying that such child is physically unable to attend school.

Bill Enacted.—H. 204, which has become public act 106 of the Acts of 1947, is a licensing law for **privately owned hospitals,** homes and institutions for the care and treatment of mentally diseased persons.

Minnesota

Bill Enacted.—S. 966, which has become chapter 240 of the Laws of 1947, provides, among other things, that no person shall act as **a superintendent or administrative head** of a hospital or sanatorium without first registering with the state board of health.

Ohio

Bill Introduced.—H. R. 75 proposes the creation of a **committee to make inquiries** and investigations into any and all matters pertaining to any of the state examining boards, including the medical examining board.

Bill Passed.—H. 295, which passed the house May 21, proposes to authorize the use in court of evidence of **the amount of alcohol** in a person's blood taken within two hours of the time after he is arrested as shown by a *chemical analysis* of his blood, urine, breath or saliva. This proposal would apply to the trial of any action or proceeding arising out of acts alleged to have been committed by any person arrested for operating a motor vehicle or motorcycle while in an intoxicated condition.

Oklahoma

Bill Enacted.—H 278, which was approved May 22, 1947, makes *it a misdemeanor for any person to use* ***the word "doctor"*** *or to hold* himself out as qualifying to engage in the practice of any of the healing arts without holding an unrevoked license or certificate issued by the laws of the state authorizing the person to practice the healing art covered by the license.

Pennsylvania

Bills Introduced.—S. 745 proposes to **exempt from taxation** the properties of charitable hospitals whose entire revenue is applied to the support of the institutions. S 746 proposes to require all pupils attending a public high school or a private school, all pupils attending a public or private elementary grade or high school, every student attending a state teacher's college and every faculty member and employee of every school district and state teachers' college to be given a standard chest **x-ray examination** for the presence or absence of tuberculosis at certain stated intervals.

South Carolina

Bill Enacted.—S. 236, which has become governor's act 547 of the Acts of 1947, proposes the *establishment of a* **state cancer clinic.**

Wisconsin

Bills Enacted.—A. 237, which was *approved* May 23, 1947, amends the law relating to chiropractic by **defining a chiropractor** as a person holding a license issued by the state board of examiners in chiropractic. S. 162, which has become chapter 132 of the Laws of 1947, requires all physicians to report immediately to the local health officer the name, age and address of every person diagnosed as afflicted with **epilepsy or similar disorders** characterized by lapses of consciousness.

GOVERNMENT SERVICES

ARMY

STRAIN ON PILOTS AND AIRCRAFT

The experience of army pilots flying the newest jet fighter planes indicates that, regardless of how well the aircraft are built, the human body is capable of greater strain for very brief periods than the aircraft. Such fighter craft are now being equipped with accelerometers to warn the pilots when a critical strain is being approached. The jet fighters are built to withstand successfully a force twelve times the force of gravity. This is much more than an airplane develops generally while performing acrobatics and much greater than a pilot would be able to stand for more than a few seconds. The accelerometers, however, have shown that in some instances pilots have pulled up to 14 g during acrobatics in rough air; the high speed jet aircraft can develop up to 7 g in turbulence. While these forces are dangerously high, the pilot is exposed to the high gravity force for less than one second and has experienced no ill effects. In the case of the jet fighter however, the exposure to any force greater than 12 g for even a part of a second damages the wings and fuselage. The accelerometer will enable the pilots to reduce the chances of such damage. A force of 1 g is equal to the pull of gravity. A force recorded as 4 g would be four times the force of gravity, and a pilot weighing 200 pounds would weigh 800 pounds when exposed to 4 g.

FLIGHT NURSES

Nine flight nurses, officers of the Army Nurse Corps, graduated from the School of Aviation Medicine, Randolph Field, Texas, May 16, after a five weeks course devoted to basic military medical and surgical subjects and to special consideration of the nursing of wounded during flight. During the last four weeks of the course actual air evacuation flights are used in on-the-job training.

TRANSLATION SERVICES DISCONTINUED

The Army Medical Library, Washington, D. C., as of May 1 discontinued all public translation functions of the library. While during the war the translating section rendered valuable services, demands for translations have lessened and the section can no longer be maintained as a separate unit. The personnel of the section will be detailed to the Index-Catalogue Division.

LIBRARY EVENING HOURS

Because of an increasing demand for evening hours the Army Medical Library, Washington, D. C., will remain open until 9 o'clock on Wednesday evenings but will no longer be open on Sunday mornings. The library closes at 5 p. m. on other days and is open Sundays from 1 to 5 p. m.

PROFESSIONAL STAFF PROGRAMS

The Army and Navy General Hospital, Hot Springs National Park, Ark., and Walter Reed General Hospital, Army Medical Center, Washington, D. C., have forwarded staff programs which outline for each day the professional activities at those institutions. These comprise in one or the other hospital clinical conferences, ward rounds, formal teaching ward rounds, seminars, case presentations and medical motion pictures.

NAVY

COMMENDS NAVAL DISASTER ACTIVITIES

The Surgeon General, Rear Admiral Clifford A. Swanson, has highly commended the naval activities in Texas for their contribution to Texas City and to the hospitals at Galveston at the time of the disaster. The medical personnel from the Naval Hospital at Houston, who were the first military organization to arrive at the scene of the explosion, some 46 miles distant, worked with the civilian doctors and first aid teams in the vicinity of the docks until the injured were evacuated and until the area became too dangerous for further work. The commanding officer of this hospital then made available 500 beds for the injured.

The medical group from Orange, Texas, flew directly to Galveston and reported to the John Sealy Hospital, formed a surgical team, were assigned a surgery, and worked through the night taking care of the injured. A second team from Orange formed a caravan and drove the 110 miles to Houston and worked at the Houston Naval Hospital, substituting there for the naval personnel who went to Texas City. The medical personnel from Dallas and Corpus Christi, who arrived by plane in the early afternoon, set up a first aid station at the Naval Air Field, Hitchcock, about 15 miles distant, and for forty-eight hours cared for more than 300 refugees and seriously injured.

On the afternoon of the explosion the medical officer in command of the Naval Hospital, Houston, Capt. Clyde W. Brunson, U.S.N., and Rear Admiral A. S. Merrill, commandant of the 8th Naval District, made a visit to Texas City and to all hospitals in Galveston and offered all available medical facilities. Later the Naval Hospital, Houston, became the headquarters for dispensing supplies in that area to both Texas City and Galveston, and the needed supplies were sent practically every hour, day and night. Casualties were also received at this station.

For this exceptionally meritorious work and for the long hours spent without rest in aiding the injured, the Surgeon General stated that he was exceptionally appreciative of the manner in which the personnel from these naval activities conducted themselves in this emergency and that their actions were in accordance with the highest tradition of the medical department of the naval service.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Ralph D. Eichhorn

The Navy Commendation Ribbon has been awarded to Lieut. Ralph D. Eichhorn (MC), U.S.N.R., of New York, for excellent service in the line of his profession and duty as junior medical officer aboard the U. S. S. *Ormsby* (APA-49) from Feb. 1 to Nov. 15, 1944 during the amphibious assaults and capture of Kwajalein, Aitape, Guam, Pelelieu and Leyte. The citation states that Lieutenant Eichhorn's exceptional leadership was a source of inspiration to medical department personnel. He demonstrated sound judgment, resourcefulness and high professional skill in meeting unique problems in surgery. During the assault on Guam he attended to the wounded continuously for seventy-two hours without rest and sleep and thus saved many lives. His conduct and accomplishments under hazardous combat conditions were in keeping with the highest traditions of the naval service. Dr. Eichhorn graduated from New York University College of Medicine in 1942 and entered the service Dec. 14, 1942.

PERSONAL

Captain O. L. Burton, chief, preventive medicine division, Bureau of Medicine and Surgery, returned from the fifth annual meeting of the United States-Mexico Border Public Health Association, held at Tijuana, Mexico, where he read a paper on venereal disease problems. This group reduced the venereal disease rate at the Mexican border areas and during the war solved public health problems by joint actions which were of concern to the two countries.

VETERANS ADMINISTRATION

CENTRAL LABORATORY ESTABLISHED

The Veterans Administration announces the establishment of a central laboratory for pathology in Washington, D. C., in cooperation with the Army Institute of Pathology, to provide a consultation, review and diagnostic service in pathologic tissues for the 126 hospitals and other medical facilities of the Veterans Administration. In addition, Veterans Administration pathologists will cooperate with the Army, civilian medical societies and others in maintaining a central file of pathologic anatomy and related records for reference, research, training and long-range follow-up programs. The joint laboratory will also provide instruction in pathologic anatomy and histopathologic technics for Veterans Administration pathologists and technicians within the limits of available facilities, conduct research in the pathology of diseases, cooperate with similar research programs of the Army Institute of Pathology and provide study and review material in the form of study sets, atlases and clinicopathologic conferences. It is planned that branch reference laboratories, to be established in thirteen branch offices of the Veterans Administration, will later maintain consultation and training services in pathology for Veterans Administration hospitals and other medical facilities within their respective areas.

NEUROSURGERY CENTERS

Veterans in need of surgery of the nervous system now are sent to forty-one specially equipped and staffed hospital centers operated by the Veterans Administration or under contract. Thirty-seven of these centers are in Veterans Administration hospitals. Eligible veterans may also be treated in navy hospitals at Philadelphia, at Houston, Texas, in the Army's Fitzsimons General Hospital, Denver, or in the Maine General Hospital, Portland. Each of the forty-one centers has special equipment, neurosurgeons and other skilled personnel necessary to perform all types of neurosurgical operations.

NEW CONCEPT OF NURSING PRACTICES

The Veterans Administration nursing service is pioneering in a new concept of nursing practices to give American veterans the best possible care. The announcement was made by Miss Dorothy V. Wheeler, director of the Veterans Administration's nursing service, after the major changes had been approved by Dr. Paul R. Hawley, chief medical director. The four major shifts in policy include (1) creation of professional standards boards to evaluate qualifications for appointment to the nursing service, just as physician boards now evaluate the qualifications for doctors; (2) new regulations revising the promotion of nurses so that the more proficient may be promoted to positions in line with their abilities; (3) establishment of a rotation policy transferring nurses in isolated Veterans Administration hospitals to hospitals with teaching units so they may keep abreast of the latest professional technic; (4) complete revision of nursing policies to increase the degree of nursing care given each veteran patient.

EXERCISE FOR PARALYZED VETERANS

Veterans paralyzed from the waist down now can play table tennis with ease from wheel chairs in Veterans Administration hospitals as a result of a specially built table designed for their use. The table is standard except for sideboards 30 inches high that extend above the playing surface and prevent the ball from glancing off the table. Two changes in the rules have been made to fit the needs of these players. The first provides that a serve may not strike the sideboard before it crosses the net; the other change involves a ball hitting the sideboard and then going off the table before it bounces on the table. This shot is scored against the player making it. These tables and other arrangements for athletic activities for paralyzed veterans not only entertain patients but provide an adjunct to their treatment in veterans' hospitals.

PROPOSED HOSPITAL AT HOUSTON, TEXAS

Construction is expected to get under way soon on the veterans' hospital to be located on a 209 acre tract a short distance from the Texas Medical Center and the new navy hospital in Houston, Texas. The twenty-five hospital buildings, costing around fifteen million dollars, will provide care for veterans in all branches of medicine, convalescence and rehabilitation. The hospital will be equipped for medical research also. Great emphasis will be placed in the planning on mental and spiritual restoration for veterans and for vocational instruction. In addition to a wide variety of facilities for athletics, physical development, training in manual art and many branches of education there will be an experimental farm for teaching rehabilitated veterans modern methods of agriculture.

PERSONAL

Dr. Edwin J. Euphrat, chief, radiologic service, U. S. Veterans' Hospital, Aspinwall, Pa., has returned to Elkins, W. Va., and accepted appointment as chief, department of radiology, Davis Memorial Hospital, Elkins.

Dr. Seldon R. Hoover, Charlestown, W. Va., has accepted appointment as urologist at the Veterans Administration office in Huntington, W. Va.

MISCELLANEOUS

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. Physicians who are veterans have certain priorities in the purchase of this government property.

Regional Office, 600 Washington Street, Boston 11. Sale of miscellaneous medical equipment. Sale closes June 12.

Regional Office, 95th and Troost, Kansas City, Mo. Sale of laboratory supplies and equipment, hospital equipment and supplies, one lot of surgical instruments and supplies, one lot of surgical chemicals, one lot of orthopedic accessories, one lot of restraint apparatus, one lot of splints and splint accessories. Sale closes June 18.

Regional Office, 412 West Market Street, Louisville, Ky. Sale of surgical supplies and of a large quantity of synthetic rubber gloves at 9 cents a pair. Sale opens June 6 and will be continuous.

SALE OF ANESTHETIC AGENTS

The War Assets Administration is offering $220,000 worth of government surplus anesthetic agents in a fixed price sale. The offering will be concurrent to priority claimants and other buyers until June 12, with orders being filled in the usual priority sequence. The offering includes evipal soluble powder in 1 gram ampules ranging in price per package of ten ampules from $3 to wholesalers and exporters to $3.60 to small retailers; avertin solution in 100 cc. bottles priced at from $6 to $7.20 to the various levels of trade; spinocaine solution in boxes of ten 2 cc. ampules priced at from $1 to $1.25 each, and procaine hydrochloride in boxes of ten ampules of 100, 120 and 150 mg. each at prices ranging from 30 cents to 36 cents a box. All prices are f. o. b. location. The surplus avertin solution is located in both the St. Louis and Louisville W. A. A. regions and the other items are located only in the Louisville region. Orders should be sent in duplicate to the W. A. A. region having the desired products. Brochures containing complete price listings and other details of the offering will be available at W. A. A. regional offices and customer service centers.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Dr. Noland Honored.—At a reunion of the medical staff of the Employees Hospital (Fairfield) of the Tennessee Coal, Iron & Railroad Company in Birmingham, May 16, more than half of the 248 interns who have worked with Dr. Lloyd Noland, Birmingham, at the hospital returned to pay him honor on completion of thirty-four years' service with the company. Part of the ceremony was in the nature of a surprise party in that Dr. Noland's six brothers and sisters, who had not been together for many years, were present. A book was presented to him, also as a surprise, containing a list of the interns and staff members with whom he had served throughout the years, and a number of medical papers published for the first time by eminent authorities. The book, which also contained a biography, had been prepared by a committee headed by Drs. E. Bryce Robinson Jr., Hillary H. Henderson Jr., Wallace A. Clyde and Russell G. Hightower, all of Fairfield. Dr. Noland came to Birmingham from the Panama Canal Zone, where he had been an assistant to General William C. Gorgas. He founded the three and half million dollar Tennessee Coal and Iron hospital. His experience in the tropics has enabled him to reduce greatly the number of cases of malaria among the company's employees.

CALIFORNIA

Physicians' Hobby Show Revived.—The Alameda County Medical Association plans to revive its hobby show, discontinued during the war, next fall. The society claims it was one of the first counties in the West to sponsor a show displaying hobbies of physicians. Doctors' Hobbies, Inc., was formed in 1940.

Narcotic Violation.—Dr. Paul O. Meyer, 327 Beloit Avenue West Los Angeles, was charged with prescribing narcotics to an addict or person representing himself as such and on February 17 was sentenced to serve six months in the county jail of Los Angeles County on a guilty plea to misdemeanor charges of issuing false prescriptions. The jail sentence was suspended and the doctor was granted probation for two years provided he pay a fine of $500 to the probation department.

Poisonous Mussels.—The annual quarantine order of the state department of health forbidding the gathering of mussels from ocean and bay waters in California became effective May 1 and will extend to October 31. The quarantine extends from Oregon to the Mexican boundary. During the summer months, cases of death among those who violate the order are usually reported to the state department of public health each year. In 1946, 3 cases and 1 death were reported from San Mateo County. Since 1927 there have been 345 cases and 24 deaths reported.

CONNECTICUT

Central Medical Association Centennial.—The Central Medical Association observed its centennial, April 9, at a meeting in Essex. The guest speaker was Dr. Morris Fishbein, Chicago, editor of The Journal, who discussed "The Motivation of the American Medical Association." Dr. James Murphy, Middletown, was presented a gold pen and pencil set in honor of his fifty-two years in the practice of medicine. Dr. Murphy related incidents in the practices of some of the early members. An interesting feature was an exhibit of excerpts from the old records of the association. The Middlesex County Medical Association held its annual meeting in conjunction with the Central Medical Association.

Dr. Bayne-Jones to Head Medical Center.—Dr. Stanhope Bayne-Jones, professor of bacteriology, Yale University School of Medicine, New Haven, and director of the board of scientific advisers, Jane Coffin Childs Memorial Fund for Medical Research, has been appointed president of the Joint Administrative Board of the New York Hospital-Cornell Medical Center. Dr. Bayne-Jones was dean of the Yale School of Medicine from 1935 to 1940. A veteran of both world wars, he was deputy chief, preventive medicine service, in the Office of the Surgeon General and director of the United States Typhus Commission from 1942 to 1946. Separated with the rank of brigadier general, he is still medical consultant to the Army Epidemiologic Board, Army Research and Development Board. Dr. Bayne-Jones was awarded the Charles V. Chapin Medal by the city of Providence, R. I., in recognition of his achievements in the control of typhus. The presentation took place at the 136th annual meeting of the Rhode Island Medical Society, May 14-15.

FLORIDA

State Medical Election.—At the meeting of the Florida Medical Association, April 21-23, Drs. William C. Thomas, Gainesville, was installed as president; Joseph S. Stewart, Miami, was named president-elect; Frank W. Hewlett, Miami, Frank D. Gray, Orlando, and Bricey M. Rhodes, Tallahassee, first, second and third vice presidents respectively, and Robert B. McIver, Jacksonville, secretary-treasurer. Nearly 1,000 members attended the three day convention.

ILLINOIS

State Medical Election.—At the annual meeting of the Illinois State Medical Society, Chicago, May 12-14, Dr. Irving H. Neece, Decatur, was installed as president and Dr. Percy I. Hopkins, Chicago, was chosen president-elect. Drs. H. Kenneth Scatliff, Chicago, and Walter E. Kittler, Rochelle, were chosen first and second vice presidents respectively. The council of the society authorized holding twelve postgraduate conferences in its eleven councilor districts 1947-1948. The next annual meeting was tentatively set for May 10-12 at the Palmer House, Chicago.

Chicago

University of Illinois Banquet.—An informal Alumni-Faculty-Student banquet will be held by the University of Illinois College of Medicine June 19 at the Furniture Club, 666 North Lake Shore Drive, at 6 p. m. Nonfaculty alumni should make reservations with Dr. Michael H. Streicher, secretary, 1853 West Polk Street. Guests are invited. Cost per plate is $5. Class reunions will be held for the years 1897, 1902, 1907, 1912, 1917, 1922, 1927 and 1937.

Committee to Publish Chicago-Cook County Health Survey.—In view of the public interest in the Chicago-Cook County Health Survey and the many requests for copies of the report, the advisory committee has decided to publish a nontechnical summary of the report. The booklet, about 40,000 words in length, will include a summary of the recommendations for the survey as a whole and a summary of the findings for each of the forty sections of the report.

Personal.—The Illinois Public Health Association April 19 elected Dr. Edward A. Piszczek, Chicago-Cook County health officer, as president.——Dr. Frode Jensen, member of the staff of the Council on Medical Education and Hospitals of the American Medical Association, has resigned to accept a position as director and coordinator of graduate and postgraduate medical education, University of Colorado School of Medicine, Denver, where he will also be an assistant professor of medicine in the department of internal medicine. He will be succeeded by Dr. William R. Albus, formerly of Washington, D. C., and recently of Chicago.

KANSAS

Logan Clendening Memorial.—A fountain in a court yard of the University of Kansas Hospitals, Kansas City, was dedicated to the memory of Dr. Logan Clendening at services April 20. Dr. Clendening, who died Jan. 31, 1945, was a widely known member of the faculty of the University of Kansas School of Medicine, Kansas City. He came to the university in 1910 as an instructor in the department of internal medicine and had served as professor of the history of medicine for many years.

KENTUCKY

Rehabilitation Center to Open in Louisville.—The Kentucky Society for Crippled Children will open a curative workshop for children and adults in Louisville within the next few months. This rehabilitation center is designed to assist the orthopedic handicapped patient to obtain maximum use of the injured part and to help him resume his normal place in the community. The types of treatment will be physical and occupational therapy. All treatment will be given only on medical recommendation. A committee has been appointed by the Jefferson County Medical Society to advise and cooperate with the local workshop committee. The types of cases will include persons suffering from fractures, cut tendons and amputations and persons suffering from infantile paralysis and cerebral palsy, as well as other handicapping disabilities. At present there is no such restoration center in Kentucky.

LOUISIANA

Eye Bank in New Orleans.—An eye bank which will serve as a branch of the Eye Bank for Sight Restoration, Inc., in New York is to be established in New Orleans, Mrs. Henry Breckinridge, director of the New York eye bank, has announced. The bank will be housed in the new wing of the Eye, Ear, Nose and Throat Hospital, but until it is constructed the bank will be located in the Tulane Medical School building.

Louisiana-Mississippi Ophthalmological and Otolaryngological Society.—This society held its annual meeting at Biloxi, Miss., on May 5. Among the speakers were Dr. Samuel Fomon, New York, "The Rhinoplastic Operation and the Restoration of Nasal Function"; Dr. Peter C. Kronfeld, Chicago, "Newer Trends in the Treatment of Ocular Diseases"; Dr. Henry L. Williams, Rochester, Minn, "Ménière's Disease," and Dr. Ralph Bowen, Houston, Texas, "Allergic Problems Seen by the Ophthalmologist and Otolaryngologist." Dr. Noel Simmons, Alexandria, La., was elected president, and Dr. Edley H. Jones, Vicksburg, Miss., was relected secretary. The 1948 convention will be held in New Orleans.

MAINE

State Medical Meeting.—The ninety-third annual session of the Maine Medical Association will be held at the Marshall House, York Harbor, June 22-24 under the presidency of Dr. John O. Piper, Waterville. Conferences have been planned for Monday and Tuesday on spinal anesthesia, deafness, metabolic diseases, sterility, allergy, the eye, urology, pediatrics and orthopedics. A symposium on gallbladder disease is scheduled for Tuesday morning. Among the speakers at the scientific sessions are:

Dr. Garfield G. Duncan, Philadelphia, Treatment of Acute Complications of Diabetes.
Dr. Richard B. Cattell, Boston, Management of Obstructive Jaundice.
George L. Maltby, Portland, The Problem of the Ruptured Intervertebral Disk.
Dr. Edwin B. Astwood, Boston, Propylthiouracil.
Dr. Richard H. Sweet, Boston, Diagnosis and Treatment of Mediastinal Tumors.

At the dinner Monday evening at 7 o'clock Dr. Winthrop Adams, Bedford, Mass., will speak on "Medical and Hospital Care of Veterans under Veterans Administration." Other speakers include Dr. Abraham Colmes, Boston, "Food Allergy," and Dr. Edward S. O'Keefe, Lynn, Mass., "Pediatric Allergy." The annual meeting of the Maine Medico-Legal Society will be held Tuesday morning at 9:30. Drs. LeMoyne Snyder, Lansing, Mich., and A. Warren Stearns, Billerica, Mass., will be the speakers.

MASSACHUSETTS

The Boston Eye Bank.—An affiliated "eye bank" has been organized in Boston and is ready to serve the needs of New England, it was announced at the national headquarters of the Eye Bank for Sight Restoration, Inc., New York, which is celebrating its second anniversary. The organization marked its first anniversary last year by announcing an affiliated eye bank in Chicago at Mercy Hospital. The Boston Eye Bank is located in the Massachusetts Eye & Ear Infirmary building at 243 Charles Street. Seven hospitals in the Boston area and one in Maine have already become affiliated with it. The public in New England is being urged to sign forms, available from the Boston Eye Bank, indicating their willingness to donate their eyes for use after death. Henry Hixon Meyer, William S. Ballard and Dr. Edwin B. Dunphy, Boston, constitute the executive committee of the Boston Eye Bank's Board of Sponsors. The board includes leading ophthalmologists throughout New England, business, industrial and religious leaders and representatives of the eye departments of various hospitals.

MICHIGAN

Health Examination for Bartenders.—The Michigan Liquor Control Commission has adopted a law which requires that bartenders, who must renew their licenses each year, must obtain a certificate of health signed by a physician and an officer of the board of health. The certificate must show that the applicant is not affected with any infectious or communicable disease.

Evaluation of Local Health Departments.—The fifty-eight local health departments of Michigan are now completing evaluation of their services on the basis of standards set up by the American Public Health Association. After reports have been submitted to the Michigan Department of Health, where they are graded by the field staff of the Michigan Public Health Association, and follow-up visits by the state department have been made, plans for immediate and long range programs with local health departments will be instituted.

Dr. Baker Wins Russel Award.—Burton L. Baker, Ph.D., assistant professor of anatomy at the University of Michigan Medical School, Ann Arbor, received the annual Henry Russel Award at a ceremony May 8 in Ann Arbor. Mr. Baker, the twenty-second recipient of the Henry Russel Award for achievements in scholarly activity and a promising future, was selected for his research work dealing with the microscopic structure and internal chemistry of cells, especially in relation to their secretory activity. His investigations have centered about the endocrine glands that regulate the physiology of reproduction. Mr. Baker received his Master of Science degree in 1935 from Kansas State College and a Doctor of Philosophy degree in anatomy in 1941 from Columbia University College of Physicians and Surgeons, which he served from 1936 to 1938 as an instructor in anatomy.

Marquette Honors Admiral Swanson.—The Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, was guest of honor at a three day "homecoming" at Marquette recently. Admiral Swanson was born and educated in Michigan. The city's chamber of commerce climaxed the celebration with a dinner attended by about 400 of the city's notables and their guests. Admiral Swanson addressed the dinner group on "Medicine in Action," pointing out the importance of medical service to the naval and military forces in winning a war and maintaining peace. Admiral Swanson was accompanied by Mrs. Swanson and his aide, Lieutenant Commander Arthur H. Nelson, U. S. Navy. Following the dinner he presented to the city a Bureau of Medicine and Surgery plaque which was inscribed "A certificate of appreciation to the city of Marquette, Michigan, in grateful acknowledgment for services rendered to the Medical Department of the Navy in World War II."

NEW YORK

Appointed Director of Association.—Dr. Herbert R. Edwards, New York, director of the Bureau of Tuberculosis, New York City Department of Health, has been appointed executive director of the New York Tuberculosis and Health Association to succeed Dr. Frank Kiernan on his retirement September 1.

New York City

Gift of $250,000 to Cancer Fund.—A check for $250,000 from the Damon Runyon Memorial Fund was presented to the American Cancer Society recently as "a first instalment only" toward cancer research. Brig. Gen. John R. Kilpatrick, chairman of the New York Cancer Committee's 1947 drive, said that part of the sum would be used to establish a pavilion in memory of Mr. Runyon in Memorial Hospital for the Treatment of Cancer and Allied Diseases. A large part of the gift will go for the care of newspapermen stricken with cancer.

Physicians Honor Sisters for Cancer Work.—At the fifteenth anniversary of the founding of their first cancer clinic Dr. Elise Strang L'Esperance and her sister Miss Mary Strang were honored for their work in cancer prevention at the New York Infirmary May 18. More than one hundred and fifty physicians attended. A scroll was presented to them by Dr. Ruth M. Bakwin, chairman of the medical board of the infirmary. Dr. George Baehr, president, New York Academy of Medicine, described how the impact of their interest in cancer prevention had spread widely. The sisters' first clinic at the infirmary, which was started in honor of their mother, became known as the Kate Depew Strang Cancer Clinic.

Library Donated for Jewish Doctors in Europe.—The New York Academy of Medicine has donated twelve thousand textbooks and medical journals to the book campaign of the Supplies for Overseas Survivors collection of the Joint Distribution Committee. This library will be sent to Jewish doctors and other professionals in Europe whose personal libraries were looted and destroyed by the Nazis. Selection of this material from the storehouse of the Academy of Medicine was supervised by Dr. Archibald Mallock, librarian of the New York Academy of Medicine, and Miss Libby Vernon, head of the storehouse division. The books and journals, printed chiefly in English, French, German, Russian and Yiddish, contain information pertinent to the treatment of tuberculosis, anemia and other diseases prevalent in postwar Europe. In addition to medical books and journals the Supplies for Overseas Survivors book campaign seeks fiction, poetry and other cultural reading material. Picture books for children have also been requested overseas. The Supplies for Overseas Survivors collection is a project of the Joint Distribution Committee in cooperation with sixteen national Jewish women's organizations and other groups.

OHIO

Smallpox in Fostoria.—Vaccinations were ordered by health officials of Fostoria following the death of a 73 year old Mexican who came to Fostoria early in May from Savina, Mexico, with a truckload of other Mexican workers who are scattered over northwest Ohio. Vaccine was rushed to the city from Toledo, Columbus, Detroit and New York.

Research on Toxins and Toxoids.—Western Reserve University School of Medicine, Cleveland, has received $31,000 from the Lederle Laboratories to support research on bacterial toxins and toxoids, bringing the total given by Lederle to $46,000 in the last two years. Work under the direction of Louis Pillemer, Ph.D., associate professor of immunochemistry, has produced two purified toxoids, those of tetanus and diphtheria. The toxoids produced by Dr. Pillemer and his staff, it is claimed, have been found to be many times purer than the toxoids formerly used.

OKLAHOMA

Physicians Aid Tornado Stricken Woodward.—When news of the tornado that devastated the city of Woodward April 9 reached the executive secretary of the State Medical Association at 12:15 a. m., he immediately contacted doctors and nurses from nearby communities, who made up the first rescue party. Eleven private and four army physicians and nine nurses and technicians who assembled at the Highway Patrol headquarters were flown to Woodward through the cooperation of the Army Air Forces at Tinker Field. The plane, also carrying medical supplies secured from the state health department, the Red Cross and the Station Hospital at Tinker Field, departed at 2:45 a. m. and was met at Gage air field by citizens from both Shattuck and Woodward. The doctors, nurses and technicians and medical supplies were divided between these two towns. The personnel remained on duty until late the following day, when additional medical assistance arrived. Meanwhile senior medical students, interns and residents from Oklahoma City rendered valuable assistance. The next morning doctors came from as far away as Wichita, Kan., and Amarillo, Texas, and from many cities of the surrounding areas. The seriously wounded were evacuated by air to Oklahoma City hospitals. Patients were evacuated to the hospital at Alva by train, and the more seriously injured were transported to Community Hospital at Mooreland and a temporary hospital set up at the Baker Hotel, Woodward. No fuel or water until the following morning made emergency care and operative procedures at Woodward almost impossible. The public health department moved in at once to supervise and protect the people from epidemics occasioned by breaking of water and sewage mains. As late as the third day it was still necessary to take medical care into the area, for some of the injured were in too serious a condition to be evacuated. Of the 74 persons, including children, evacuated to University Hospital, Oklahoma City, only four fatalities resulted. At the hospitals long-stay cases were diffused so those less injured could be cared for as quickly as possible and normal services of the hospitals could be resumed. Hundreds of persons in Woodward had injuries that were not emergencies but which required care, and, as late as twenty-four hours after the tornado, people reported for aid with minor fractures, exhaustion and hysteria. Pebbles and splinters were driven into their skin and bodies. The catastrophe showed the definite need for establishing statewide disaster planning, as there was little coordination of available facilities. Medical supplies were scarce. Although long lines of people waited to give blood, there was insufficient equipment to give transfusions.

PENNSYLVANIA

Centenaries in Pennsylvania.—Two medical organizations are celebrating or approaching celebration of their one hundredth anniversaries this year. The Montgomery County Medical Society has been in existence one hundred years, and on May 10 Mercy Hospital of Pittsburgh completed one hundred years of service as a general hospital to the people of the tri-state area. In 1948 the Lycoming County Medical Society and the Medical Society of the State of Pennsylvania will observe their centennials.

State Society Plans Graduate Courses.—Plans for a statewide graduate course in medicine to be taken to the general practitioners in rural areas by traveling teams of lecturers have been endorsed by the board of trustees of the Medical Society of the State of Pennsylvania. Six teaching centers have been selected where seminars on the fundamentals of medicine will be given one day a week for ten weeks beginning in the fall: Allentown, Harrisburg, Johnstown, Oil City, Wilkes-Barre and Williamsport. Headed by Dr. Charles W. Smith, Harrisburg, the committee on graduate education includes the deans of the six medical colleges of Pennsylvania and officers of the state society. An advisory committee of medical leaders from Pittsburgh, Philadelphia and Harrisburg met in Philadelphia and formulated plans May 15. The lecturing teams will consist of four men. The schedule has been so arranged that lecturers from the five medical colleges in Philadelphia will cover the central and eastern sections of the state and those from the University of Pittsburgh School of Medicine will assume most of the teaching of the western centers. The state society believes its program is the largest statewide postgraduate education program scheduled in this country, although state medical societies in Wisconsin, Michigan, New York and other states have postgraduate training programs.

Philadelphia

Mine Workers Fund for Occupational Diseases.—Jefferson Medical College of Philadelphia has announced establishment there of a fund of $575,000 by the United Mine Workers of America for research and treatment of occupational diseases found among anthracite coal workers. Known as the Anthracite Health and Welfare Fund Foundation, it will finance treatment, care and rehabilitation, and research into the nature and prevention of silicosis and safety measures looking toward prevention of the disease. The gift enables the hospital to expand work that has been under way for years. The fund will contribute to the operation of a program that will include instruction of medical students, interns and resident physicians in the problems of silicosis; cooperation of the alumni of Jefferson Medical College of Philadelphia practicing in the anthracite coal regions; cooperation with physicians in the coal regions and elsewhere to facilitate the study and care of their patients, and the dissemination of scientific reports and medical papers.

WEST VIRGINIA

Lifetime Members of State Association.—The following doctors have been elected by the council as honorary lifetime members of the West Virginia State Medical Association: Edward Davis, Salem (Harrison); William T. McClellan, Ethel (Logan); Thomas C. Smith, Slagle (Logan); George R. Miller, Fairview (Marion); Robert A. Ashworth, Benjamin F. Bone, Orra F. Covert and Joseph A. Striebich, all of Moundsville (Marshall); Richard V. Shanklin, Bluefield (Mercer); Donald M. Post, Lawrence, Ind. (Monongalia); Paul C. Spangler (Morgantown, N. C. (McDowell); Frank D. Fortney, Beckley (Preston); Elmer E. Watson, Kingwood (Preston), and Francis E. Martin, New Martinsville (Wetzel).

County Health Bureau Director.—Dr. Alexander Witcow, city-county health commissioner, Delaware, Ohio, has been appointed by Dr. Newman H. Dyer, Charleston, W. Va., state health commissioner, as director of the bureau of county health work, to succeed Dr. Norman G. Angstadt, who resigned to accept appointment as director of the department of medical supervision of the school district of Reading, Pa. Dr. Witcow is a graduate of the New York University College of Medicine and received his master's degree in public health at Yale University, New Haven. Prior to going to Delaware he served as director of the health department of Menominee County, Mich., and afterward as director of the Dickinson County (Mich.) health department.

WISCONSIN

Wisconsin Surgical Society.—At the semiannual meeting of the Wisconsin Surgical Society, Madison, May 15, Dr. Claude Dixon, Rochester, Minn., addressed the society on "Anterior Resection of Lesions of the Lower Sigmoid and Rectum." The day's program consisted of morning operative clinics at the Wisconsin General and Methodist hospitals, case presentations and papers by members of the Jackson Clinic at the Methodist Hospital in the afternoon and a dinner meeting at which addresses were given by Dr. Russell M. Kurten, Racine, and the guest presentation by Dr. Dixon. Newly elected officers are Drs. Kurten, Racine, president; Erwin R. Schmidt, Madison, president-elect; Warner S. Bump, Rhinelander, secretary-treasurer; Frank D. Weeks, Ashland, recorder. Newly elected members of the council are Drs. Joseph W. Gale, Madison, and Peter A. Midelfart, Eau Claire. A combined meeting with the Chicago Surgical Society is being planned for October in Chicago.

GENERAL

Societies for Experimental Biology.—About one thousand papers were presented before the various meetings May 19-23 in Chicago of the Federation of American Societies for Experimental Biology. The federation is composed of the American Physiological Society, American Society for Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, the American Society for Experimental Pathology, American Institute of Nutrition and the Association of Immunologists.

Electroencephalographers' Meeting.—The annual meeting of the Eastern Association of Electroencephalographers was held May 24 at the New York Hospital, New York. Following an inspection of laboratories, Wladimir T. Liberson, Hartford, Conn., spoke on "Place of Electroencephalography in the Psychiatric Hospital," and Dr. Margaret A. Kennard, New York City, "The Electroencephalogram in Behavior Problems." During the afternoon Dr. Donald J. Simons, New York, discussed "Electroencephalography in Psychopathic Personalities."

Biological Photographic Exhibition.—An international exhibition of biological photography will be held September 10-27 in Rochester, N. Y., in conjunction with the convention of the Biological Photographic Association. The committee desires to include all photographic technics in the preparation of black and white and color, still and motion picture photographic material. Entry blanks for contributors may be secured from Mr. H. Lou Gibson, 343 State Street, Rochester 4, N. Y. The entry fee is one dollar in United States currency. The last day for receiving entries is August 1, 1947.

Resolution on Delay in Appointments to Hospital Staffs.—The Board of Regents of the American College of Surgeons at a meeting in Hot Springs, W. Va., April 24, carefully considered the problem of helping veterans and other young surgeons in obtaining appointments. The deliberations resulted in the adoption of the following resolution:

> WHEREAS, It has come to the attention of the American College of Surgeons that many well trained surgeons, especially returned veterans, who have located or have signified their intention of locating in communities where there are hospital facilities, have been denied hospital privileges until they have been in residence in that locality for six months to a year; be it
>
> *Resolved*, That the Board of Regents of the American College of Surgeons disapproves of the practice, and, although fully cognizant of the shortage of hospital beds, the Board believes that such well trained, competent and ethical individuals should be given opportunities similar to those offered to established medical practitioners of the community

Cancer Study Grants Total Three Million Dollars.—Nearly $3,000,000 in grants for cancer research was distributed during 1945 and 1946 to finance two hundred and forty research projects in forty-eight universities, hospitals and other institutions, the American Cancer Society has announced Research has turned special interest on the basic element on the growth of cells. As a result of initial work and a recent survey, a special panel of cell chemistry has estimated that $500,000 could be well spent annually in research in this field alone. Another project is investigating a possible effect on malignant growth of the enzyme systems. A vast amount of further study is recommended particularly to explore the effect of hormones and nucleotides on enzyme action. Projects under direction of the panel on virus are tracing the action of viruses in the cell through the use of radioactive substances produced at Oak Ridge, Tenn. The American Cancer Society has appropriated $100,000 for the purchase of stable isotopes.

Outbreak of Hoof and Mouth Disease in Mexico.—In a concerted effort by the Mexican and United States governments to eradicate a serious outbreak in Mexico of hoof and mouth disease, an average of 700 head of cattle, sheep, swine and goats are being killed daily. A board of agricultural experts are directing the battle against the disease, which threatens to spread to the United States. Maurice S. Shahan, D.V.M., co-director of the hoof and mouth commission in Mexico City, said on May 26 that the disease had advanced to within 300 miles of the United States but believed it had been checked. The United States closed its borders to Mexican cattle last December when the disease was officially diagnosed The strategy of the board calls for cleaning up the fringe of the border of the area affected and gradually working toward the center. There have been seven outbreaks in the United States since 1870, the last two in 1924. The cost of eradicating the disease is being split, and $9,000,000 has been appropriated by the United States to share its cost in the early part of the campaign.

Fifth International Congress of Pediatrics Program.—The International Pediatric Congress will meet at the Waldorf-Astoria, New York, July 14-17 under the presidency of Dr. Henry F. Helmholz, Rochester, Minn. Program Chairman Dr. Rustin McIntosh has announced that, because American physicians are hosts, platform privileges have been given to authorities from throughout the rest of the scientific world. The program has been arranged with major sessions on nutrition Tuesday afternoon and on tuberculosis Thursday morning. Minor session subjects Wednesday morning and Thursday afternoon are Diseases Caused by Filtrable Viruses, Chemotherapy of Infectious Diseases, Neonatal Mortality, Incompatibility of Blood, Alimentary Toxicosis and Congenital Heart Disease. Sectional meetings to be held at the New York Academy of Medicine Wednesday afternoon are on Factors in Pregnancy Affecting the Child, Preventive Pediatrics, Bioimmunologic Procedures, Vitamin Requirements and Avitaminoses, Insect and Other Vectors of Disease, Rheumatic Fever, Endocrinology in Childhood and Miscellaneous Topics.

Mission to Tour Austria and Hungary.—The Interim Commission of the United Nations Health Organization will send a ten member team of health experts on a two month tour of Austria and Hungary this summer to explain the latest advances in scientific medicine to Austrian and Hungarian doctors. The group, organized by the Unitarian Committee of Boston, will be headed by Dr. Maurice B. Visscher, professor in physiology and head of the department, University of Minnesota, Minneapolis. Other American doctors include McKeen Cattell, head of the pharmacology department of Cornell University College of Medicine, New York; John J. Bittner, Ph.D., director of cancer research, University of Minnesota Medical School, Minneapolis; Chester M. Jones, clinical professor of medicine, Harvard Medical School, Boston; Alexander Brunschwig, now of the University of Chicago School of Medicine and, beginning July 1, clinical professor of surgery, Cornell University College of Medicine, New York; Joseph P. Evans, associate professor of surgery, University of Cincinnati, Cincinnati; Stuart C. Cullen, assistant professor of surgery, State University of Iowa College of Medicine, Iowa City, and S. Bernard Wortis, professor of psychiatry, New York University College of Medicine, New York. These men will leave June 26 and will join two Swiss members of the team in Vienna.

The Government's Savings Bond Campaign.—To obtain wider distribution of the securities issued on the public debt so that more Americans can own these bonds and share in the interest rates is the object of the U. S. Treasury Department June-July Savings Bond Campaign. Under the plan, checking account depositors can authorize their banks to deduct from balances each month the purchase price of one or more savings bonds, which will be delivered to depositors and the transaction recorded in periodic bank statements. Series E bonds pay $4 for $3 if the securities are held to maturity in ten years. Treasury Department officials believe the Bond-a-Month Plan is ideal for busy doctors for, once the doctor authorizes this systematic purchase of guaranteed securities, there is no need for any further action on his part. According to Commerce Department studies, the average practitioner's income begins to fall off at age 52½. A number of plans for systematic investment to provide for retirement incomes have been evolved by actuaries assuming the continuation of the sale of Savings Bonds. Following are two samples:

> *Plan A.*—At age *27*, buy a $50 series E bond monthly for $37.50 for ten years. At age 37, as the bonds mature each month, reinvest proceeds, interest and principal ($50) and make an additional investment of $100 a month, purchasing a $200 bond for $150. If all bonds are held to maturity the investor will begin to receive, at age 47, $200 a month, or a return of $24,000 on an original investment of $16,500.
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> *Plan B.*—At age 30, buy a $100 series E bond for $75 each month for ten years. At age 40, as the bonds mature, reinvest proceeds and add $200 a month, purchasing two $200 bonds monthly. If all bonds are held to maturity, income at age 50 will be $400 a month for ten years, or a return of $48,000 on an original investment of $33,000.

CORRECTION

Review of Motion Picture.—In a review of a motion picture entitled Plaster Casts in THE JOURNAL, May 10, page 208, it was stated that this film was produced during World War I. The statement should have read that it was produced during World War II.

Marriages

CHARLES RAYMOND KIEFER JR., Easton, Pa., to Miss Elizabeth Margaret Herron of Collingswood, N. J., February 18.

JOHN LEE FARRINGER JR., Knoxville, Tenn., to Miss Mary Margaret Smith of Fort Madison, Iowa, March 8.

WILLIAM BURFORD HAHN, Austin, Texas, to Miss Martha Harriett Ethridge of Meridian, Miss., March 7.

Deaths

Percy Starr Pelouze ⊕ Philadelphia; born in Camden, N. J., in 1876; Jefferson Medical College of Philadelphia, 1902; assistant professor of urology at the University of Pennsylvania School of Medicine; specialist certified by the American Board of Urology; member of the American Urological Association; second president and at the time of his death honorary president of the American Neissarian Medical Society; served as consultant to the U. S. Public Health Service; member of the board of directors of the American Social Hygiene Association; in 1926 with Dr. Frederick S. Schofield received the Alvarenga Prize of the Philadelphia College of Physicians; served as cystoscopist at Jefferson Medical College, chief of urologic services, Episcopal Hospital in Philadelphia, and consultant to the Delaware County Hospital in Drexel Hill, Pa.; on the advisory editorial board of the *American Journal of Syphilis, Gonorrhea, and Venereal Diseases*; associate editor of the Cyclopedia of Medicine, Surgery and Specialties; died March 12, aged 70.

Curle Latimer Callander ⊕ San Francisco; Johns Hopkins University School of Medicine, Baltimore, 1917; associate clinical professor of surgery and topographical anatomy at the University of California Medical School; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; associate visiting surgeon, University of California Division, San Francisco Hospital; in 1925, at the Atlantic City, N. J., session of the American Medical Association, received a gold medal for exhibit on surface capillaries in health and in disease; author of "Surgical Anatomy"; died March 30, aged 54, of heart disease.

Jesse Sharp Hixson, San Angelo, Texas; Missouri Medical College, St. Louis, 1899; member of the American Medical Association; fellow of the American College of Surgeons; at one time asistant surgeon at the St. Louis University School of medicine; formerly member of the school board; during World Wars I and II medical adviser to Selective Service boards; medical superintendent of the Shannon West Texas Memorial Hospital; served on the staff of St. John's Hospital; active in establishing San Angelo Junior College; died January 22, aged 77, of arteriosclerotic heart disease and congestive failure.

Frank Warner Bishop, New York; Columbia University College of Physicians and Surgeons, New York, 1912; served during World War I; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the New York Academy of Medicine and the American Medical Association; past president of the New York Clinical Society; past president of the medical board and alumni society of St. Luke's Hospital, where he served in various capacities for many years and where he died March 23, aged 59, of cerebral hemorrhage.

Wilford Daniel Albert, Leslie, Mich.; College of Medical Evangelists, Los Angeles, 1937; interned at the Saginaw (Mich.) General Hospital; died in the University Hospital, Ann Arbor, March 10, aged 39, of brain tumor.

Henry Croskey Allen ⊕ Schwenkville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; served overseas during World War I; formerly burgess of Schwenkville and school physician; died March 5, aged 69, of coronary thrombosis.

Orion T. Arnold, Laredo, Texas; Eclectic Medical Institute, Cincinnati, 1898; formerly associated with the U. S. Public Health Service; died March 12, aged 81, of hemiplegia.

John Anthony Balsiger, White Salmon, Wash.; Cooper Medical College, San Francisco, 1904; member of the American Medical Association; served on the staffs of the Sacred Heart Hospital in Spokane and the Hood River Hospital in Hood River, Ore.; died March 7, aged 70, of heart disease.

Conrad Cullis Bell, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1912; died March 6, aged 58, of angina pectoris.

Clement Campbell Blakely ⊕ Barnum, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; served during World War I; on the staff of the Community Hospital in Moose Lake; died March 26, aged 71, of cerebral hemorrhage.

William Wallace Bonner, Rock Mills, Ala.; Southern Medical College, Atlanta, 1892; member of the American Medical Association; died in Roanoke March 4, aged 80, of coronary embolus.

Harry Bishop Boram, South Bend, Ind.; Eclectic Medical Institute, Cincinnati, 1905; died in the Memorial Hospital March 1, aged 77, of arteriosclerosis.

Harrold K. Bryant, Detroit; Detroit College of Medicine, 1900; died in the Receiving Hospital March 1, aged 70, of burns when his home and office quarters were destroyed by fire.

Robert L. Carrick, Lexington, Ky.; Pulte Medical College, Homeopathic, Cincinnati, 1888; served on the staffs of St. Joseph's Hospital and Good Samaritan Hospital, where he died March 7, aged 81, of cerebral hemorrhage.

Andre Aloysius Castaldi, New York; Eclectic Medical College, Cincinnati, 1922; member of the American Medical Association; for many years affiliated with the Bronx Eye and Ear Infirmary; died March 27, aged 53, of coronary thrombosis.

Clarence Henry Christiansen, Superior, Wis.; Marquette University School of Medicine, Milwaukee, 1927; member of the American Medical Association; on the staffs of St. Mary's, St. Francis and St. Joseph's hospitals; died March 8, aged 53, of agranulocytosis and pneumonia.

Harry Sylvester Church, East St. Louis, Ill.; St. Louis University School of Medicine, 1906; died in the Christian Welfare Hospital March 9, aged 66, of heart disease.

Joshua Williams Clarke ⊕ Attleboro, Mass.; University of the South Medical Department, Sewanee, Tenn., 1901; Medico-Chirurgical College of Philadelphia, 1910; veteran of the Spanish-American War and World War I; on the staff of the Sturdy Memorial Hospital; died March 27, aged 76, of coronary disease.

Albert H. Cochran, Atlanta; University of Georgia Medical Department, Augusta, 1897; served as city councilman, alderman and mayor pro tem; died March 5, aged 72, of myelogenous leukemia.

Emmett G. Colvin, Locust Grove, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; member of the American Medical Association; died in St. Joseph's Hospital, Atlanta, February 27, aged 69, of carcinoma.

Clarence Weiny Cook ⊕ Los Angeles; University of Southern California School of Medicine, Los Angeles, 1908; on the staff of the Methodist Hospital; died March 2, aged 71, of myocarditis.

George Francis Corrigan, Newark, N. J.; Marion-Sims College of Medicine, St. Louis, 1899; died March 5, aged 68, of coronary disease.

Charles Clement Cropper ⊕ Lynchburg, Ohio; Louisville (Ky.) Medical College, 1897; member of the board of public affairs for many years; died in Alpine, Texas, March 4, aged 75, of diabetes mellitus and heart disease.

Walter Everett Deering ⊕ Los Angeles; University of Southern California School of Medicine, Los Angeles, 1902; affiliated with the Hollywood-Presbyterian Hospital, where he died March 8, aged 69, of cerebral hemorrhage.

Michael Ercole Deluca, ⊕ Troy, N. Y.; Albany (N. Y.) Medical College, 1911; fellow of the American College of Surgeons; on the staff of the Troy Hospital; died March 8, aged 58, of coronary heart disease.

Charles Henry Dixon, St. Louis; Baltimore Medical College, 1894; died in the Barnes Hospital March 9, aged 75, of coronary thrombosis and carcinoma of the colon.

Mary Phylinda Dole, Shelburne, Mass.; Woman's Medical College of Baltimore, 1888; member of the American Medical Association; died February 23, aged 84, of heart disease.

Henry Rhea Douglas, Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the American Medical Association; past president of the Harrisburg Academy of Medicine and the Dauphin County Medical Society; veteran of the Spanish-American War; on the staff of the Harrisburg Hospital; member of the board of directors of the public library; died March 6, aged 71, of arteriosclerosis and chronic nephritis.

Joseph James Dunnigan, Syracuse, N. Y.; New York Homeopathic Medical College and Flower Hospital in New York, 1917; member of the American Medical Association; served during World War I; member and past president of the staff of the General Hospital, where he died March 16, aged 55, of cerebral hemorrhage.

Raymond Edwin Elliott, Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1915; member of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association; specialist certified by the American Board of Otolaryngology; on the staff of St. Mary's Hospital, where he died March 4, aged 56, of chronic nephritis.

William Thomas Elliott, Berwick, Maine; Dartmouth Medical School, Hanover, N. H., 1900; member of the American Medical Association; affiliated with the Frisbie Memorial Hospital in Rochester, N. H.; died February 26, aged 76, of angina pectoris.

Ernest L. Epperson, St. Louis; College of Physicians and Surgeons, Keokuk, Iowa, 1883; died March 3, aged 87, of myocarditis.

Charlie Welton Evans, Apple Springs, Texas (licensed in Texas by years of practice); member of the American Medical Association; died in Lufkin in March, aged 66, of carcinoma of the liver.

Morris Feintuch, Brooklyn; Long Island College of Medicine, Brooklyn, 1933; interned at the Unity Hospital; served in the medical corps, Army of the United States, during World War II; died July 4, 1946, aged 39, of coronary thrombosis.

William J. Flint, Watertown, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1890; member of the American Medical Association; on the staffs of the House of Good Samaritan and the Mercy Hospital; died March 1, aged 76, of cerebral hemorhage.

Charles Franklin Frosh, Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1909; member of the American Medical Association; on the staffs of the Mount Carmel, White Cross, Mercy and Grant hospitals; died March 1, aged 62, of heart disease.

Ulysses Grant Gallemore, Melber, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; died March 2, aged 81, of heart disease and intestinal carcinoma.

James M. Gaume, Salina, Kan.; Ensworth Medical College, St. Joseph, 1906; died February 20, aged 70, of cerebral hemorrhage and hypertension.

William S. Gooch ⊕ Fort Scott, Kan.; Beaumont Hospital Medical College, St. Louis, 1900; for many years county health officer; chief of staff of the Mercy Hospital, where he died February 21, aged 72, of heart disease following an operation on the prostate.

Charles Butler Hamma, Springfield, Ohio; Miami Medical College, Cincinnati, 1892; member of the American Medical Association; formerly assistant director of public health; served during World War I; died February 25, aged 80, of cardiorenal disease and diabetes mellitus.

Clarence E. Hanes, Indianapolis; Eclectic Medical College of Indiana, Indianapolis, 1904; died March 4, aged 73, of cirrhosis of the liver.

John Douglas Harrison, Greenwood, S. C.; Medical College of the State of South Carolina, Charleston, 1911; member of the American Medical Association; served as a member of the National Guard, on the Mexican border and during World War I; on the staff of the Greenwood Hospital; died March 5, aged 59, of coronary occlusion.

Gustave Esaias Henschen, Sherman, Texas; Dearborn Medical College, Chicago, 1904; member of the American Medical Association and honorary member of the State Medical Association of Texas; past president of the Grayson County Medical Society; served in France during World War I; died January 4, aged 72, of myocarditis.

William M. Holman, Lee, Va.; Medical College of Virginia, Richmond, 1890; member of the American Medical Association; died in Richmond February 22, aged 86.

Joseph Will Horton, Monrovia, Ind.; Medical College of Indiana, Indianapolis, 1900; died March 10, aged 77, of coronary occlusion.

James Wilson House, Bruceville, Ind.; Starling-Ohio Medical College, Columbus, 1908; died in St. Vincent's Hospital Indianapolis, March 3, aged 68, of nephritis.

Francis Edward Jones ⊕ White Plains, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1921; served during World War I; on the staffs of the White Plains Hospital and St. Agnes Hospital; found dead March 1, aged 53, of coronary thrombosis.

James M. Judd, Varina, N. C.; Baltimore Medical College, 1897; member of the American Medical Association; past president of the Wake County Medical Society; for many years chairman of the local school board; bank president; affiliated with the Rex Hospital and the Mary Elizabeth Hospital in Raleigh; died March 7, aged 76, of coronary occlusion.

Zygmunt L. Kadlubowski, Detroit; Michigan College of Medicine and Surgery, Detroit, 1899; died in the Wayne County General Hospital March 2, aged 78, of coronary thrombosis and cerebral hemorrhage.

Arthur Dale Kirk ⊕ Flint, Mich.; University of Michigan Medical School, Ann Arbor, 1923; fellow of the American College of Surgeons; member of the Detroit Academy of Obstetrics and Gynecology; served as chairman of the maternal health committee of the Genesee County Medical Society; for many years affiliated with the Hurley Hospital, where he died March 4, aged 46, of uremia.

Bartholomew Kunny ⊕ Baldwin, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; past president of the village of Baldwin; president of the Baldwin Community Hospital; died in South Laguna, Calif., January 28, aged 66, of coronary thrombosis.

Charles Allen Lanon, Pittsburgh; Temple University School of Medicine, Philadelphia, 1916; served as secretary of the National Medical Association; died February 19, aged 56, of cardiorenal disease.

Frieda E. Lippert, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1889; died in the Norristown (Pa.) State Hospital Dec. 3, 1946, aged 80, of arteriosclerosis.

Vernon MacCammon, Arkansas City, Ark.; Kentucky School of Medicine, Louisville, 1898; member of the American Medical Association; local surgeon for the Missouri Pacific Railroad; died January 6, aged 70 of heart disease.

Thomas Henry Magness, Baltimore; Baltimore University School of Medicine, 1901; died February 28, aged 67, of injuries received when struck by a street car.

Damon George Matthews, Milton, Iowa; St. Louis College of Physicians and Surgeons, 1911; member of the American Medical Association; died in Ottumwa January 9, aged 67.

Solomon Mayantz, New York; University of Kharkov Faculty of Medicine, Russia, 1913; died in February, aged 66.

Lawson A. Meeker, Holgate, Ohio; University of Louisville (Ky.) Medical Department, 1897; member of the staff of the Detwiler Memorial Hospital in Wauseon; died February 25, aged 73, of cerebral hemorrhage.

Edward D. Miles, Carthage, Mo.; Missouri Medical College, St. Louis, 1885; died in the McCune-Brooks Hospital March 10, aged 83, of uremia and pneumonia.

Carlton Mitchell, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1898; died in a hospital at Miami Beach, Fla., February 12, aged 85.

Seth Eastman Moore, Palo Alto, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; at one time on the faculty of the University of Minnesota Medical School in Minneapolis; died in the Providence Hospital, Washington, D. C., February 28, aged 71, of cerebral hemorrhage.

Frederick Henry Morhart ⊕ Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1898; served during the Spanish-American War and World War I; director of the Liberty National Bank; died in the Doctors Hospital, March 5, aged 72, of cirrhosis of the liver.

Antonin D. Mueller ⊕ Chicago; Chicago Physio-Medical College, 1896; died March 4, aged 84, of chronic myocarditis.

Ida May Shively Herr Nelson, Sanitarium, Calif.; Northwestern University Woman's Medical School, Chicago, 1897; served on the staff of St. Helena Sanitarium and Hospital, where she died February 11, aged 79, of carcinoma of the intestine.

James Nightingale, Worcester, Mass.; Harvard Medical School, Boston, 1900; member of the American Medical Association; served during World War I; medical director of the Jewish Home for Aged and Orphans; died March 6, aged 70, of cerebral hemorrhage and bronchopneumonia.

Lytle Neale Patrick, Gastonia, N. C.; University of Maryland School of Medicine, Baltimore, 1909; also a pharmacist; for many years city physician; died February 12, aged 63, of cerebral hemorrhage.

George William Payne ⊕ Bardwell, Ky.; Missouri Medical College, St. Louis, 1899; past president of the Carlisle County Medical Society; past president of the school board; active in the chamber of commerce; affiliated with St. Mary's Hospital in Cairo, the Riverside Hospital and the Illinois Central Railroad Hospital in Paducah, where he died March 7, aged 73, of coronary occlusion.

Linton Yancey Pittard, Monticello, Ga.; St. Louis University School of Medicine, 1912; member of the American Medical Association; burned to death February 14, aged 59.

Frank Bert Rasbach, Buffalo; Bellevue Hospital Medical College, New York, 1891; died February 24, aged 80, of transverse myelitis and bronchopneumonia.

George Stiles Reitter ⊕ East Orange, N. J.; Albany Medical College, 1915; specialist certified by the American Board of Radiology; member of the American College of Radiology; served overseas during World War I; consultant to the Essex Mountain Sanatorium in Verona, Essex County Hospital for Contagious Diseases in Belleville and the Essex County Hospital in Cedar Grove; died in the Veterans Administration Hospital in Lyons, March 5, aged 58, of empyema.

Rush Rodger Richison, Springfield, Ohio; Ohio Medical University, Columbus, 1904; member of the American Medical Association; health director of Springfield; formerly county health commissioner; past president, secretary and treasurer of the Clark County Medical Society; at one time mayor of Yellow Springs; served three terms as president of the medical staff at Springfield City Hospital; formerly medical superintendent of the District Tuberculosis Hospital; died January 1, aged 65, of coronary thrombosis.

August Herman Ringen, Sweet Springs, Mo.; Marion-Sims College of Medicine, St. Louis, 1899; member of the American Medical Association; died January 24, aged 76, of heart disease.

Clayton Elbert Royce, Tampa, Fla.; Columbia University College of Physicians and Surgeons, New York, 1911; member of the American Medical Association, American College of Physicians and the American Society of Clinical Pathologists; specialist certified by the American Board of Pathology; served on the staff of St. Vincent's Hospital in Jacksonville; died February 12, aged 60, of coronary occlusion.

John Hollibaugh Sanford, Santa Rosa, N. M.; University of Tennessee College of Medicine, Memphis, 1913; formerly mayor; died February 22, aged 56, of heart disease.

Kalmen Charles Sapero, Denver; Louisville (Ky.) Medical College, 1894; died February 28, aged 79, of cerebral hemorrhage.

Joseph J. Schultis ⊕ Butler, Pa.; Medico-Chirurgical College of Philadelphia, 1895; died recently, aged 75, of cardiac failure.

William Samuel Scott, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1916; served during World War I; killed March 6, aged 52, when struck by an automobile.

David A. Sherrill, Newbern, Tenn.; University of Tennessee Medical Department, Nashville, 1888; died February 28, aged 89, of myocarditis and arteriosclerosis.

John Beach Solley ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; member of the American Psychoanalytic Association; for many years associated with the Manhattan Eye, Ear and Throat Hospital; died in St. Luke's Hospital March 3, aged 75, of cerebral hemorrhage.

Kuno Herbert Struck ⊕ Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; vice president of the Davenport Bank & Trust Company; served as secretary of the park board of Davenport, president of the library board, secretary of the Municipal Art Gallery board of trustees and president of the chamber of commerce; past president of the Scott County Medical Society; secretary and medical officer of a local draft board during World War I; died March 4, aged 63, of cerebral hemorrhage.

Clara Josephine Swan, Chardon, Ohio; State University of Iowa College of Homeopathic Medicine, Iowa City, 1887; member of the American Medical Association; died in the Huron Road Hospital, East Cleveland, March 7, aged 80, of carcinoma of the pancreas, with metastases.

Frank Lehr Thomas, Marion, Ohio; Eclectic Medical College, Cincinnati, 1924; member of the American Medical Association; served during World War I; member of the city school board; on the staff of the Marion City Hospital; died February 4, aged 54, of coronary thrombosis.

Edward F. Wehner, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1902; honorary member of the Harrison County Medical Society and the West Virginia State Medical Association; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; died March 3, aged 71, of coronary thrombosis.

Benjamin Franklin White Jr., ⊕ Bradford, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1907; served overseas during World War I; on the staff of the Bradford Hospital; died February 7, aged 65, of arthritis.

Ruffin Ashe Wright, Mobile, Ala.; University of Virginia Department of Medicine, Charlottesville, 1889; member of the American Medical Association; died March 3, aged 81, of heart disease and pneumonia.

DIED WHILE IN MILITARY SERVICE

Thomas Matthew Calladine, Chicago; University of Rochester School of Medicine and Dentistry 1943; interned at the University of Chicago Clinics; began active duty as a lieutenant (jg) in the medical corps of the U. S. N. R., on Jan. 10, 1944; promoted to lieutenant; died in the Robert Merritt Billings Hospital February 27, aged 29, of testicular embryonal carcinoma with metastases.

William Stewart Chadwick, Beaufort, N. C.; Medical College of Virginia, Richmond, 1928; interned at the James Walker Memorial Hospital in Wilmington; formerly acting assistant surgeon in the U. S. Public Health Service; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve; promoted to commander; died in the Morehead City Hospital, Morehead City, Jan. 6, 1946, aged 43, of coronary thrombosis.

Frederick Ernest Keane Clarke, Santa Monica, Calif.; University and Bellevue Hospital Medical College, New York, 1927; member of the American Medical Association; diplomate of the National Board of Medical Examiners; interned at the Staten Island Hospital in Staten Island, N. Y.; formerly assistant in clinical medicine at his alma mater; served on the staffs of the Veterans Administration Facility in West Los Angeles and the Santa Monica Hospital; entered the medical corps, Army of the United States, as a captain on May 15, 1944; served in the Pacific theater with the 49th General Hospital; died while on terminal leave May 14, 1946, aged 47, of coronary occlusion.

Dual Alastair Macintyre, Palmer, N. Y.; Albany (N. Y.) Medical College, 1939; interned at the Meadowbrook Hospital in Hempstead, where he served a residency in surgery; diplomate of the National Board of Medical Examiners; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on May 25, 1942; promoted to lieutenant; drowned May 18, 1944, aged 32.

Roger Beasley Martin, New Rochelle, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1943; diplomate of the National Board of Medical Examiners; interned at the Johns Hopkins Hospital in Baltimore; captain, medical corps, Army of the United States; died in the Valley Forge General Hospital, Phoenixville, Pa., May 15, 1946, aged 30.

Charles Howard Mortimer ⊕ New York City; Columbia University College of Physicians and Surgeons, New York, 1937; served a residency at the Pilgrim State Hospital in Brentwood; formerly an intern at St. Vincent's Hospital in New York, where he served a residency; first lieutenant, medical corps, Army of the United States; passenger aboard B-24 aircraft which failed to return from combat ferry mission in 1944; presumptive date of death Jan. 26, 1946, aged 34, according to the U. S. Army.

Julius Hurst Smith ⊕ Lieutenant Commander (MC), U. S. Navy, Pelham, Ga.; University of Georgia School of Medicine, Augusta, 1941; interned at the Macon Hospital in Macon, Ga.; began active duty as lieutenant (jg) in the medical corps of the U. S. Naval Reserve in 1942; later joined the medical corps of the regular navy in the same rank; promoted to lieutenant and lieutenant commander; died in the Naval Hospital, San Diego, March 21, 1946, aged 31, of hepatic abscess.

Michael Thomas Tedesco, Hammond, Ind.; Eclectic Medical College, Cincinnati, 1928; interned at the Jennie Edmundson Memorial Hospital, Council Bluffs, Iowa; served a residency at the Lord Lister Hospital in Omaha; major, medical corps, Army of the United States; died in Camp Hood, Texas, April 16, 1945, aged 46, of general peritonitis secondary to appendical abscess.

Clarence Warren Whittaker, Easton, Maine; Tufts College Medical School, Boston, 1943; interned at the Boston City Hospital; diplomate of the National Board of Medical Examiners; began active duty as a first lieutenant in the medical corps, Army of the United States, in September 1944; promoted to captain; head of the medical department for a prisoner of war camp at Luzon Island in the Philippines; died in Luzon Island Sept. 20, 1946, aged 27, of pneumonia and injuries received in a jeep accident.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 3, 1947.

Penicillin in Suppurative Conditions of the Brain

At the Royal Society of Medicine a joint meeting of the Section of Neurology with the Société de neurologie of Paris was held. Sir Hugh Cairns discussed the use of penicillin in suppurative conditions of the brain and meninges. It might be given by the lumbar or cisternal route or into the lateral ventricle. Unless there was blockage it would spread freely. Normally 12,000 units would maintain a bacteriostatic level for twenty-four hours, but occasionally, for example early in pyogenic meningitis, this dose might have to be given every twelve hours. The upper limit of tolerance for crystalline penicillin had not been worked out; but heavy doses of 50,000 to 100,000 units might cause severe meningeal reactions. Such large doses could do no good and might do harm. There was never need to exceed 20,000 units in one day. Intrathecal penicillin continued for some weeks caused depression of the ankle jerks, suggesting damage to the cauda equina, which was reversible. Normally penicillin was given by the lumbar route. If there was a block, of which the most important sign was difficulty in obtaining cerebrospinal fluid by lumbar puncture, the cisternal route might be adopted. But with some head retraction this might not be easy, and blocks sometimes occurred above the cisterna magna, so that there should be no hesitation in injecting the lateral ventricle. For pachymeningitis and subdural abscess, penicillin was given into the subdural spaces, from which it passed about as rapidly as from muscle. Usually 8,000 to 10,000 units was injected every four hours.

Penicillin injected systemically did not pass in appreciable amounts into the cerebrospinal fluid. Nevertheless it had its value in pyogenic meningitis. It helped to combat the primary focus and the septicemia from the primary focus or a relapsing meningitis. It helped to overcome infection of the cerebral blood vessels. Probably penicillin could pass from the blood stream into the perivascular spaces of the brain and thus might be valuable in acute pyogenic meningitis (which is more correctly a meningoencephalitis). Also it might limit the spread of a brain abscess. Penicillin appeared to pass freely from the blood stream into the subdural space. Crystalline penicillin appeared to be nontoxic when given systemically. One patient received 300 million units without reaction. The sulfonamides should be given with penicillin; they were especially valuable when intrathecal penicillin was stopped. Until the diagnosis of meningitis was established bacteriologic treatment should be confined to systemic penicillin and sulfonamides.

S. Monckton Copeman: An Authority on Vaccination

Dr. S. Monckton Copeman, who at one time was the leading authority on vaccination, has died at the age of 85. In 1891 he became a medical officer to the Local Government Board. His papers on the relation between variola and vaccinia were so important that they were published in the *Proceedings of the Royal Society,* which awarded him its fellowship, the highest scientific distinction in this country. He is best known for his work on glycerinated lymph for vaccination. This device was not new, but he was the first to show the selective effect of the glycerin in eliminating extraneous germs from vaccine lymph without affecting the specific virus. One of the stock objections to Jenner's vaccination was that Jenner had never proved that there was any biologic relationship between cowpox and smallpox, so that it was absurd to think that an attack of one disease would produce immunity against a different disease. The results of inoculating calves with smallpox matter had not always been satisfactory. It occurred to Copeman to pass smallpox virus through monkeys and then to vaccinate a calf from a monkey. He thus produced typical vaccinia, which gave excellent strains of vaccine lymph. Copeman's view was that cowpox may have originated from inoculated smallpox. Although the inoculated strains rarely produced a general eruption, the local sore often itched badly. Copeman therefore suggested that it would be easy for the inoculated milker who scratched his arm to convey material to the udder.

COPENHAGEN

(From Our Regular Correspondent)

April 7, 1947.

The School Children of Copenhagen During the War

In October 1941 the senior school medical officer of Copenhagen, Dr. G. Jørgensen, sounded a note of warning about the health of school children under war conditions in Copenhagen. Measures were accordingly taken to counteract these conditions as much as possible, and from the beginning of 1943 a special ration of cod liver oil was issued, with the result that 87 per cent of the school children examined received some cod liver oil every day. At the same time an educational campaign for the better utilization of available food was conducted vigorously. A recent postwar survey of the health of the school children in Copenhagen by Dr. Knud Bojlen makes good reading; there has been no material deterioration in general health, and that telltale public health index, the tuberculin test, shows that the percentage of positive reactors declined steadily throughout the war.

Bovine Tuberculosis and BCG Vaccination

In 1937 tuberculosis had been stamped out in barely half the herds of cattle in Denmark. But the systematic campaign against this scourge has been so effective that by 1946 the claim could be made that between 95 and 100 per cent of the Danish herds were tuberculosis free. This means that fewer and fewer Danish children and adolescents will be tuberculin positive, and already there are several Danish schools in which practically all the students are tuberculin negative. Now that there is a prospect of systematic BCG vaccination of tuberculin negative persons at the school leaving age, it will be seen how comprehensive this measure will soon become. Already in the island of Bornholm over 22 per cent of all the inhabitants had undergone BCG vaccination by 1945, and it looks as if the pace set by Bornholm will be emulated by several other communities in Denmark.

Hay Fever

The incidence of hay fever depends on geography. In the five year period 1941-1945 Dr. E. Bruun and Dr. M. Schwartz treated 69 hay fever patients at the Rigshospital's polyclinic for cases of allergic disease. As many as 63 of these patients suffered from midsummer hay fever (June-July) while there were only 2 cases of spring hay fever (March-May) and only 4 cases of autumn hay fever (August-October). In the United States it seems that the autumn cases are the most numerous, a phenomenon reflecting differences in the flora of the two countries. In 67 cases desensitization was attempted by injections of an extract of pollen, good results being achieved in 59. These injections were as a rule started about April 1 and continued for two months, during which from twenty-four to thirty were given. Among the patients were 16 who also suffered from seasonal asthma, which in 14 cases disappeared completely under this prophylactic treatment.

Correspondence

PROPYLTHIOURACIL IN THYROTOXICOSIS

To the Editor:—The article on the use of propylthiouracil in thyrotoxicosis by Dr. William S. Reveno (The Journal, April 19, p. 1190) presented some unusual if not distressing data. Of 18 previously untreated cases, 9 were reported with initial basal metabolic rates ranging from plus 9 to plus 15 inclusive. While I am not unaware that thyrotoxicosis may occur with a metabolic rate near plus 15, such an occurrence is decidedly uncommon and should be supported by carefully documented observations. I believe the use of so potent and revolutionary a drug as propylthiouracil certainly demands more care in the selection of cases to be reported

Joseph S. Feibush, M.D., New York.

[Note.—This letter was referred to Dr. Reveno, who replies:]

To the Editor:—All the reported cases, including those with relatively low basal metabolic rates, presented a majority of the symptoms of thyrotoxicosis such as palpitation, nervousness, sweating, heat intolerance, weakness, weight loss, tremor, warm moist palms, lidlag or widened palpebral fissures and elevated pulse pressures. The thyroid gland showed either a nodular or a diffuse enlargement. Two initial basal metabolic rate determinations were made on separate days and the lower of these was reported. With the exception of 1 patient who died, all have since responded to treatment with subsidence of symptoms and lowering of the basal metabolic rate.

That 9 patients out of a small group showed basal metabolic rates under plus 15 per cent is not as important as that all presented unmistakable evidence of thyrotoxicosis.

William S. Reveno, M.D., Detroit.

COLD PACKS TO PROTECT TESTES IN MUMPS

To the Editor:—I read with interest a communication on cold packs suggested as a protective for testes in mumps in The Journal, Oct. 26, 1946. In view of the actual experience, it would be unfair to let the suggestion pass uncriticized. I am not a research scholar, nor am I given to "armchair philosophizing." With the large amount of clinical material available in India, I wish to record some observations which may have a bearing on the point at issue. I have seen patients with continuous high temperature (104-105 F.) for days on end without their productivity being affected in any way after the severe illness.

In India as a result of hot climate there is often a laxity of scrotal tissues. To prevent the unpleasant sensation of "drooping" testes in the loose scrotal bag it is customary in the working classes to keep them tightly held up by a double layer of a thick broad piece of cloth between the thighs and tied round the waist. This will be expected to raise the temperature of the testes to that of the body, particularly during hard physical exertion. After years of such habit, the persons are found to be as much potent for reproduction as before.

Thus it appears that rise of temperature does not appear to be the sole cause of degeneration of the testicular tissue in living subjects. In mumps the frequent involvement of testes and ovaries suggests that the causative virus is gonadotropic. It has a tendency to incite inflammatory changes in the gonads, which are often followed by fibrosis and atrophy. Under these circumstances it is extremely doubtful that cold packs will act as protective for testes in mumps, as suggested in the communication.

In practice I have found early multiple acupunctures of the tunica albuginea a useful procedure in the prevention of testicular atrophy in mumps. The procedure was first advocated by Henry Smith in 1864 for acute gonococcic epididymitis and later recommended for acute orchitis in mumps by Wesselhoeft and Vose (*New England J. Med.* **227**:277 [Aug. 20] 1942; cited in Operation for the Orchitis of Mumps, *Brit. M. J.* **1**:138 [Jan. 30] 1943). It is believed that tubular degeneration in mumps is brought about by increased intratesticular tension resulting from an acute inflammatory condition produced in it by the virus. Early acupuncture helps to relieve tension and thus prevents degeneration and atrophy of the testicular tissue. The authors mentioned recommend exposure of the swollen organ and a longitudinal or crucial incision of the tunica albuginea. The operation, they claim, affords an immediate relief of pain. They report 9 cases of orchitis in mumps in which they were able to prevent atrophy by early operative intervention. In practice in India, where such an elaborate operation cannot be undertaken, multiple acupunctures work as well.

P. L. Deshmukh, M.D.(Bom.),
D.T.M.H.(Lond.), F.C.P.S.(Bom.),
Poona City, India.

AMERICAN ACADEMY FOR CEREBRAL PALSY

To the Editor:—I believe that the readers of The Journal will be particularly interested in an action which was taken in the latter part of January by a group of medical men who serve the National Society for Crippled Children and Adults as a medical advisory council in its national cerebral palsy program. The advisory council is composed of Dr. Earl Carlson of Long Island, N. Y., and Pompano, Fla., Dr. Bronson Crothers of Boston, Dr. George Deaver of New York, Dr. Temple Fay of Philadelphia, Dr. Meyer Perlstein of Chicago and Dr. Winthrop M. Phelps of Baltimore as chairman.

Meeting in Chicago at the time of the American Academy of Orthopedic Surgeons, this group voted to organize an American Academy for Cerebral Palsy, of which those present would constitute the charter members. Dr. Winthrop Phelps was selected as chairman and I was chosen secretary.

This action was taken because there is currently a tremendous interest in the cerebral palsied and a demand for services which are nonexistent. Trained personnel is desperately needed, and at present there are no standards for the training of such personnel.

In the opinion of the group the American Academy for Cerebral Palsy, though not serving as a certifying board, will set up certain standards of training, will serve as a clearing house for information and will be a focal point for interest in the field.

M. A. Perlstein, M.D., Chicago.

OTOSCLEROSIS

To the Editor:—In The Journal of March 29 I find an editorial regarding otosclerosis. Mention is not made of the use of benzyl cinnamate, otherwise known as Jacobson's Solution and distributed by E. Fougera & Co., New York. A preliminary report of the use of this solution was abstracted in The Journal, Dec. 25, 1943, page 1141. Since that time I have used this medication a number of times, the ages of the patients ranging from 25 to 75, and the results have been most gratifying both to the patients and to myself.

By the use of a balanced tuning fork I determine whether the eighth nerve is at fault; if it is I do not recommend benzyl cinnamate. In cases of conduction deafness, tinnitus and associated vertigo, relief has been gratifying and patients have been greatly helped.

John J. Smith, M.D., Santa Monica, Calif.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Revocation of License for Associating with Laymen.—The Dental Practice Act of West Virginia authorizes the revocation of a dentist's license for, among other things: ". . . professional connection or association with, or lending his name to another, for the illegal practice of dentistry, or professional connection or association with any person, firm or corporation, holding himself, themselves, or itself out in any manner contrary to this article." For a violation of this provision, the State Board of Dental Examiners revoked the defendant's license and from an order of the Circuit Court reversing this revocation order the petitioner, Huntington Dental Society, appealed to the Supreme Court of Appeals of West Virginia.

Prior to December 1943 one Harry Devore, a dental technician, had had his laboratory on Madison Avenue in Huntington, W. Va., adjoining the offices of Dr. Nichols, a practicing dentist. In 1942 five indictments were returned against Devore for the illegal practice of dentistry. He pleaded guilty to each count, was sentenced, served his time and then returned to his old office. Dr. Nichols died sometime before December 1943 and the defendant Winton, whose office was then on Third Avenue, decided that he would move to the office Nichols had occupied, at the same time retaining his office on Third Avenue in order to keep from losing practice until he became permanently located. In 1944 Devore was again indicted, and defendant was questioned by the Huntington Dental Society concerning his association with him. He gave up his Madison Avenue office and practiced only at his Third Avenue location until after Devore's acquittal, Dr. Winton having been one of Devore's principal witnesses. After Devore's acquittal he "started coming" to defendant's Third Avenue office, "picking up" impressions or molds and taking them to his Madison Avenue laboratory for prosthetic work, or the making of artificial teeth mounted on plates. About this time defendant consulted an attorney for the purpose of determining whether or not there was any reason why he should not occupy joint offices with Devore in the light of the fact that Devore had been indicted for the illegal practice of dentistry but acquitted. He was told that there was not. He therefore rented six rooms at the corner of Eighth Street and Sixth Avenue, three of which he occupied himself and three of which he sublet to Devore.

In September 1944 a professional investigator employed by the petitioner called Dr. Winton's office on the telephone, asked for an appointment and was told to come immediately. He went, found Devore at the office and recognized him as probably being the person with whom he had talked on the telephone. Being told that he wanted an upper and a lower plate, Devore seated him in a dental chair and stated that he must call Dr. Winton on the telephone. With whomever he talked he asked "Do you want me to go ahead and work on him?" The investigator did not hear the reply but states that Devore said that he would go ahead and "work on him." Devore then examined his mouth in detail, mixed a mortar or plaster to be used in taking an impression, placed a ladle containing the mixture in investigator's mouth, made an impression and went into his laboratory. Later he made an additional impression, being dissatisfied with the first. After Devore made the second impression, he stated that he had finished and asked for and received a $5 deposit, giving investigator a receipt for the deposit signed "Dr. J. L. Winton by H. C. D." (investigator using the name of K. E. Taylor) and telling him to return the following evening. As Devore was preparing the receipt defendant entered the office but neither investigator nor defendant spoke to each other. On September 28 investigator returned to the office and met Dr. Winton. Being informed that he wished to see the "Doctor" who had taken his impression Tuesday evening, defendant called to "Harry" and Devore appeared, placed investigator in the dental chair and proceeded to fit the two plates, returning to the laboratory to grind them two or three times. As investigator was leaving, Devore explained that he was not permitted to make impressions or to fit teeth and that defendant "fronted" for him. At the hearing, Dr. Winton's version of the conversation over the telephone was a direct contradiction to investigator's. Defendant said that Devore told him that there was a patient in the office who wished some impressions made and that his response was "Hold him. I will be there in a few minutes." It doesn't appear how long it took Devore to take the impressions or how long it took defendant to get from his home to his office. At any rate the impressions were evidently made in what defendant would estimate as "a few minutes," because when he reached his office they were finished. He said that he was very much incensed at Devore's having done the work, that he did not speak to Devore about it that evening but that the next morning he reprimanded him severely.

The surrounding circumstances, said the court, we regard as quite damaging to Dr. Winton's defense. Devore had been sentenced and convicted of violating the law by practicing dentistry illegally and had served time therefor. He had been indicted again for the same offense, tried and acquitted. It is fairly well established that, following his acquittal, he was illegally practicing dentistry in what were his and defendant's joint office. Defendant had had his attention directed to the questionableness of Devore's methods while the second indictment against Devore was pending and had then severed the connection. After that the association was renewed, however. Dr. Winton denies actual knowledge of many of these circumstances, particularly of the conviction of Devore, until after the second indictment. These are matters that casual inquiry would have disclosed. In a prior West Virginia case it was held that the decision of the Public Health Council (in the same situation as the Board of Dental Examiners in this case) revoking a license will not be disturbed on appeal unless the Council has exceeded its power or based its decision on a mistake of law. We believe, said the court, that it is necessary to find that the State Board of Dental Examiners attached more importance to the testimony of the witnesses of the petitioner than to that of Dr. Winton. In doing so it did not exceed its powers or commit a mistake of law. Accordingly the Supreme Court of Appeals reversed the order of the circuit court and directed that the revocation order of the State Board of Dental Examiners be reinstated.—*Huntington Dental Society v. Winton, 40 S. E. (2d) 769 (W. Va., 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 31, page 480.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, June 16-18. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Part II. *Oral.* Cleveland, Oct. 5-11. Sec., Dr. P. [illegible] New York 24.

AMERICAN BOARD O[illegible], June 15-19. Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Part II. Chicago, *Jan. 22-23. Final date for filing applications is Sept. 15, 1947.* Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, [illegible] City, Ia.

AMERICAN BOAR[illegible], Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kingshighway, St. Louis 10.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Louis T. Byars, 508 N. Grand Blvd., St. Louis.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Boston, Nov. 26-30. Final date for filing application is Aug. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: Final date for filing application for the next written examination is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Harry Culver, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

33:135-268 (Feb.) 1947

Incidence of Acute Coronary Artery Occlusion: Discussion of Factors Responsible for Its Increase. A. M. Master.—p. 135.

*Coarctation of Aorta: Review of 104 Autopsied Cases of "Adult Type," 2 Years of Age or Older. G. H. Reifenstein, S. A. Levine and R. E. Gross.—p. 146.

Treatment of Shock Accompanying Myocardial Infarction. W. B. Schwartz.—p. 169.

Relation Between Size of Heart and Velocity of Blood. G. R. Meneely and J. L. Chesnut.—p. 175.

*Origin of Left Coronary Artery from Pulmonary Artery: Review of Literature and Report of 2 Cases. P. E. Kaunitz.—p. 182.

Plethysmographic Measurement of Blood Flow Through Forepaw During Experimental Shock. B. Kondo, L. N. Katz, J. Meyer and M. R. Malinow.—p. 207.

On Mechanism of Paroxysmal Tachycardia with Rhythmic Alternation in Direction of Ventricular Complexes. W. T. Zimdahl and L. I. Kramer.—p. 218.

Heart in Acute Anterior Poliomyelitis. W. I. Gefter, W. G. Leaman Jr., P. F. Lucchesi, Irene E. Maher and M. Dworin.—p. 228.

Lutembacher's Syndrome Complicated by Acute Bacterial Endocarditis: Report of Case Diagnosed During Life. A. J. Geiger and H. C. Anderson.—p. 240.

Tetralogy of Fallot: Account of a Patient with This Condition Surviving Over Forty-Five Years. W. S. Middleton and G. Ritchie.—p. 250.

*Cardiac Asystole in Normal Young Man Following Physical Effort. L. W. Eichna, S. M. Horvath and W. B. Bean.—p. 254.

Coarctation of Aorta.—Reifenstein and his associates review the necropsies in 104 cases of coarctation of the aorta. Although coarctation occasionally was compatible with long life, many died before or during their fortieth year of life, the average age at death being 35 years. The lesion was more common in males. Death was due to incidental causes in 26 per cent, rupture of the aorta (most commonly the ascending portion) in 23 per cent, bacterial endocarditis or aortitis in 22 per cent, congestive failure in 18 per cent and intracranial lesions (exclusive of embolism from bacterial endocarditis) in 11 per cent. Congestive failure was common, but almost all patients who died of this cause had additional cardiovascular burdens, chiefly chronic valvular disease. Bicuspid aortic valves were the commonest congenital anomaly associated with coarctation, being present particularly in cases of bacterial endocarditis. Dilatation of the aorta was common, especially in its ascending portion. The degree of coarctation appeared to be related to the extent of collateral arterial development and the frequency of antemortem diagnosis, which was 40 per cent in this series. The cardinal features of coarctation include hypertension in the upper extremities, lower blood pressure in the legs, collateral arterial anastomoses, the systolic murmur and cardiac hypertrophy. When resection of the area of coarctation with anastomosis of the cut ends of the aorta is not feasible, surgical treatment of the associated hypertension may be of value. Surgery affords the only possible cure of this condition.

Origin of Left Coronary Artery from Pulmonary Artery.—Kaunitz reports clinical and postmortem observations on 2 infants aged 3 and 6 months at death in which the left coronary artery arose from the pulmonary artery. No additional cardiac anomalies were present. In both cases there was excessive dilatation and hypertrophy of the left ventricle, with necrosis, fibrosis, calcification and dilated sinuses in the myocardium. There was musculoelastic thickening of the intima of some of the smaller arteries. Fibroelastic thickening of the endocardium of the left ventricle was present. It is felt that these changes are attributable to chronic anoxia of the portion of the heart supplied by the left coronary artery.

Cardiac Asystole in Normal Young Man.—Eichna and his co-workers report observations on a man aged 22 who had completed basic training and for the preceding four months had engaged in clerical duties. His performance on fitness tests indicated an average physical fitness. On Oct. 19, 1942 he performed the Harvard pack test, became exhausted after four minutes and ten seconds and developed orthostatic hypotension with syncope in the postexertional standing periods. On Oct. 29, 1942 he performed the test for the second time. He had had a mild cold for four days. After two minutes and thirty seconds of effort he was stopped because he began to lag behind the required pace of one step-up per two seconds. During the second erect period the systolic blood pressure fell steadily. The heart rate, instead of accelerating, slowed progressively. Signs of increasing discomfort and incipient syncope developed. After standing for two minutes and forty-five seconds of this period, the blood pressure was 100/90 and the heart rate 99 per minute; the man was in severe distress. Suddenly the heart rate slowed, and before he could be tilted flat he lost consciousness, collapsed and had a short clonic convulsion. After he became supine consciousness rapidly returned and with it apparently complete subjective recovery. Such an asystole raises the question whether sudden death during and after physical exertion may not be the result of a fatal vasovagal syncope.

American Journal of Diseases of Children, Chicago

73:139-256 (Feb.) 1947

*Pulmonary Calcifications and Sensitivity to Histoplasmin in Charleston, S. C. J. I. Waring and D. B. Gregg.—p. 139.

Supplements of Vitamin A and of Carotene During Pregnancy: Their Effect on Levels of Vitamin A and Carotene in Blood of Mother and of Newborn Infant. J. M. Lewis, O. Bodansky, M. C. C. Lillienfeld and H. Schneider.—p. 143.

*Effect of Measles on Nephrotic Syndrome. R. W. Blumberg and H. A. Cassady.—p. 151.

Duplication of Rectum: Enterogenous Cyst or Diverticulum. H. D. Cogswell and H. C. Thompson Jr.—p. 167.

Mirror Movements. Carol K. Smith.—p. 175.

Pulmonary Calcifications and Sensitivity to Histoplasmin.—Waring and Gregg made contact tests with tuberculin and roentgenograms on 494 children of school age in Charleston County, S. C. Among the children in whom the tuberculin reaction was negative 349 had a normal roentgenogram and 8 had pulmonary calcifications. Intradermal tests with histoplasmin could not be made on all the children, but of the 8 with pulmonary calcification and negative reactions to tuberculin each was given an intradermal injection of a 1 : 100 dilution of histoplasmin and simultaneously an intradermal test with 0.1 mg. of old tuberculin. Only 1 of those whose reaction had been negative to the contact test with tuberculin reacted positively when 0.1 mg. of old tuberculin was injected intradermally. This child also reacted positively to histoplasmin. All 5 who reacted positively to histoplasmin had either lived in or made prolonged visits in Kentucky, Tennessee, Alabama or Mississippi—all within the area of high incidence of sensitivity determined in the study of the U. S. Public Health Service.

Effect of Measles on Nephrotic Syndrome.—Blumberg and Cassady report observations on 5 patients with nephrosis in whom measles developed while they were hospitalized. Two of the 5 patients presented the picture of the nephrotic syndrome with edema, albuminuria, hypoproteinemia, hypoalbuminemia, hypercholesteremia and normal blood pressure, and 3 presented the same picture with a nephritic element, with azotemia and hematuria. In the 2 patients with the uncomplicated nephrotic syndrome the disease subsided. One of these was still well when seen ten months later, while the other relapsed after a remission of three and a half months. The remaining 3 patients experienced transient modification of their disease. Reports of 4 or 5 complete cures of nephrosis by infection with measles were found in the literature.

Annals of Allergy, Minneapolis

5:1-94 (Jan.-Feb.) 1947

Bacterial Allergy. M. Scherago.—p. 1.

Chemical, Physical and Immunologic Properties of Electrophoretically Purified Pollen Extracts. H. A. Abramson.—p. 19.

Report on Standardziation of Dust Extracts: Advisory Council of Standardization Committee. G. E. Rockwell, J. W. Thomas and F. W. Wittich.—p. 27.

Clinical and Comparative Allergy. A. J. Weil.—p. 42.

Hay Fever Plants of Albuquerque, N. M.: Preliminary Report. W. I. Werner, W. G. Reed and E. L. Stormfels.—p. 47.

California Medicine, San Francisco

66:57-106 (Feb.) 1947

Treatment of Bacterial Meningitis with Penicillin, Sulfonamides and Serums. H. Brainerd and Elizabeth Bradley.—p. 57.

Treatment of Pneumococcic Pneumonia with Penicillin and Sulfadiazine. M. F. Collen.—p. 62.

Antibiotics in Treatment of Hemolytic Streptococcus Sore Throat. L. A. Rantz.—p. 66.

Nitrous Oxide and Oxygen Anesthesia with Curare Relaxation. W. Neff, E. C. Mayer and Maria de la Luz Perales.—p. 67.

Poison Oak: New Antigens and Their Effect on Sensitized Guinea Pigs. E. K. Stratton.—p. 70.

Thiouracil in Thyroid Disease. M. H. Soley.—p. 75.

Improved Forms of Insulin: Advantages of Modified Protamine Zinc Insulin. C. M. MacBryde.—p. 79.

Recent Advances in Neurology. C. D. Aring.—p. 84.

Canadian Journal of Public Health, Toronto

38:67-110 (Feb.) 1947

Economic Background to Public Health During the War. H. L. Robinson.—p. 67.

Outbreak of Paratyphoid B Fever in Nursery of Small Hospital. A. R. Foley.—p. 73.

*Trichinosis in Wild Rats in Toronto. E. Kuitunen-Ekbaum and Dorothy Webster.—p. 76.

Public Health Nursing in County Health Units of Quebec. M. V. LaRose.—p. 79.

Trichinosis in Rats.—Kuitunen-Ekbaum and Webster state that of 650 rats (Rattus norvegicus) caught in Toronto 9 were found to be infected with Trichinella spiralis. These rats, caught at the same time and in the same place, may have had access to infected pork scraps at the nearby restaurant.

Gastroenterology, Baltimore

8:123-250 (Feb.) 1947

Large, Otherwise Normal Gastric Rugae Simulating Tumor of Stomach: Report of 3 Cases. W. E. Ricketts, J. B. Kirsner and W. L. Palmer.—p. 123.

Criteria for Gastroscopic Examination in Army. D. T. Chamberlin. —p. 131.

Amebiasis: Observations in Army General Hospital in India. K. A. Elsom, A. M. Rogers and F. C. Wood.—p. 135.

Observations on Methylene Blue Test for Bile Pigment in Urine. W. F. Lipp and A. R. Lenzner.—p. 154.

Organization of Gastrointestinal Service in Army During Second World War: Personal Observations and Impressions. J. L. Kantor.—p. 157.

Gastric Surgery: Review of Literature for 1945. S. F. Marshall and I. C. Schmidt.—p. 160.

Clinical and Pathologic Findings in Prolonged Hepatitis. C. A. Flood and E. M. James.—p. 175.

Laënnec's Cirrhosis: Effect of Therapy in Increasing Life Expectancy. S. Kimball and W. A. C. Chapple.—p. 185.

Anion Exchange Resin and Peptic Ulcer Pain. Mary M. Spears and Mildred C. J. Pfeiffer.—p. 191.

Polyamine Formaldehyde Resin: III. Chronic Toxicity Experiment in Rats. H. L. Segal, H. C. Hodge, J. S. Watson Jr. and Hilda Coates. —p. 199.

Treatment of Peptic Ulcer with Anion Exchange Resins: Preliminary Report. M. Kraemer and D. J. Lehman Jr.—p. 202.

Report of Preliminary Clinical Trial of Dibutoline, A New Antispasmotic Drug. G. M. Cummins, G. H. Marquardt and M. I. Grossman. —p. 205.

*Effect of Cigaret Smoking on Malnutrition and Digestion. A. E. Koehler, Elsie Hill and N. Marsh.—p. 208.

Cigaret Smoking in Malnutrition and Digestion.—Koehler and his associates studied the effect of cigaret smoking on the flow of digestive secretions. Smoking of three cigarets in succession did not significantly influence the rate of flow or the concentration of amylolytic, proteolytic and lipolytic enzymes of the duodenal secretions as obtained by transduodenal drainage. Thus, although excessive cigaret smoking may be a dominant factor in the prevention of weight gain in underweight subjects on an adequate dietary program, the adverse effect is not due to a diminution of the secretions of the pancreatic ferments. The excessive smokers who were underweight all manifested a certain indifference to foods frequently bordering on a mild anorexia. Cessation of smoking definitely improved the appetite in this group, and it is believed that improved appetite and increased food intake were the main cause of weight gain.

Journal of Aviation Medicine, St. Paul

18:1-108 (Feb.) 1947

Electrocardiographic Changes in Fulminating Anoxia. B. G. King and Margaret Henson.—p. 3.

Motivations of the Flier and His Reactions to Stresses of Flight. R. C. Anderson.—p. 18.

Study of Relation Between Minnesota Multiphasic Personality Inventory Scores and "Pilot Error" in Aircraft Accidents. W. D. O'Gorman and E. C. Kunkle.—p. 31.

*Auditory Deterioration in Airline Pilots. H. Graebner.—p. 39.

Aerotitis Media: Brief Presentation of Its Symptomatology, Prevention and Treatment. C. W. Shilling, H. L. Haines, J. D. Harris and W. J. Kelly.—p. 48.

Aviation Medicine and Physical Standards for Airmen. W. R. Stovall. —p. 56.

Notes on Japanese Aviation Medicine and Research. N. Molomut. —p. 64.

Aero Medical Experiences in China. T. C. Gentry.—p. 69.

Physiology of Pressure Breathing: Brief Review of Its Present Status. A. L. Barach, W. O. Fenn, E. B. Ferris and C. F. Schmidt.—p. 73.

Studies on Altitude Decompression Sickness: IV. Attempts to Avoid Decompression Sickness by Selection of Resistant Personnel. J. S. Gray, H. S. Wigodsky, R. L. Masland and E. L. Green.—p. 88.

Effect of Positive Radial Acceleration on Intrarectal Pressure. R. F. Rushmer.—p. 96.

Effect of Binding of Abdomen and Thorax on Pulmonary Lesions Produced by Explosive Decompression. W. V. Whitehorn, A. Lein and F. A. Hitchcock.—p. 102.

Auditory Deterioration in Airline Pilots.—Graebner presents a survey of the audiometric findings of a group of 449 airline pilots of various ages and of various air hours' experience. The pilot under survey was checked on chronological age in years of life and physiologic age in air hours flown. All tracings were made on one standardized audiometer in steps of 5 decibels to determine the threshold of sound perception in each ear over the tone range from 128 to 11,584 cycles per second. Graphs showing the results of the tests give the general impression of definite causal relation of professional aviation and auditory deterioration. Clinical experience suggests cochlear damage due to acoustic trauma. Normal function of the conductive apparatus is corroborated by tuning fork tests. Tinnitus was conspicuous by its absence. All findings suggest a functional deterioration rather than a disease process. Deterioration in important spectrums, such as range stations, fan markers and outer and inner markers, would create difficulties in making instrument approaches. The constant radio signal of range stations may cause auditory fatigue. Airline flight surgeons should determine the threshold of hearing in these spectrums and to that end the standard audiometer should be equipped with frequencies to cover these tones that are broadcast for the guidance of pilots in flight.

Journal of Bacteriology, Baltimore

53:129-256 (Feb.) 1947. Partial Index

Egg Yolk Plate Reaction for Presumptive Diagnosis of Clostridium Sporogenes and Certain Species of Gangrene and Botulinum Groups. L. S. McClung and Ruth Toabe.—p. 139.

Ultraviolet Irradiation of Bacteriophage During Intracellular Growth. S. E. Luria and R. Latarjet.—p. 149.

Effects of X-Rays on Strain of Eberthella Typhosa. T. H. Grainger Jr. —p. 165.

Intracellular Bacteroids in Cockroach (Periplaneta Americana Linn.) H. T. Gier.—p. 173.

Comparative Studies of Enterococci and Escherichia Coli as Indexes of Pollution. M. Ostrolenk, N. Kramer and R. C. Cleverdon.—p. 197.

Studies on Some Biologic Aspects of Dihydrostreptomycin. R. Donovick and G. Rake.—p. 205.

Practical Media and Control Measures for Producing Highly Toxic Cultures of Clostridium Botulinum, Type A. K. H. Lewis and E. V. Hill.—p. 213.

Relation of Natural Variation in Penicillium Notatum to Yield of Penicillin in Surface Culture. Alma J. Whiffen and G. M. Savage. —p. 231.

Studies on Penicillinase: III. Effect of Antipenicillinase on Penicillin Resistant Organisms. R. D. Housewright and R. J. Henry.—p. 241.

Journal of Experimental Medicine, New York

85:217-328 (March) 1947

Quantitative Study of Collagen Content in Experimental Cirrhosis. T. G. Morrione.—p. 217.

Antibody Formation in Men Following Injection of Four Type Specific Polysaccharides of Pneumococcus. M. Heidelberger, C. M. MacLeod, R. G. Hodges, W. G. Bernhard and Marie M. di Lapi.—p. 227.

Significance of Lesions in Peripheral Ganglia in Chimpanzee and Human Poliomyelitis. D. Bodian and H. A. Howe.—p. 231.

Plasma Protein and Hemoglobin Production: Deletion of Individual Amino Acids from Growth Mixture of Ten Essential Amino Acids. Significant Changes in Urinary Nitrogen. Frieda S. Robscheit-Robbins, L. L. Miller and G. H. Whipple.—p. 243.

Anemia and Hypoproteinemia: Weight Maintenance Effected by Food Proteins but Not by Mixtures of Pure Amino Acids. L. L. Miller, Frieda S. Robscheit-Robbins and G. H. Whipple.—p. 267.

Raiding of Body Tissue Protein to Form Plasma Protein and Hemoglobin: What is Premortal Rise of Urinary Nitrogen? G. H. Whipple, L. L. Miller and Frieda S. Robscheit-Robbins.—p. 277.

Active Immunity to Poliomyelitis in Chimpanzees Following Subclinical Infection. J. L. Melnick and Dorothy M. Horstmann.—p. 287.

Inactive Precursor of Streptococcal Proteinase. S. D. Elliott and V. P. Dole.—p. 305.

Experimental Study of Shock Waves Resulting from Impact of High Velocity Missiles on Animal Tissues. E. N. Harvey and J. H. McMillen.—p. 321.

Journal of Investigative Dermatology, Baltimore

8:1-52 (Jan.) 1947. Partial Index

Effects of *p*H on Antifungal Activity of Fatty Acids and Other Agents: Preliminary Report. E. J. Foley, F. Herrmann and S. W. Lee. —p. 1.

Penicillin and Sweat. T. Cornbleet, M. Novak and H. C. Schorr.—p. 9.

Studies of Effects of Glycerite of Hydrogen Peroxide on Infections of Skin and Mucous Membranes: Preliminary Report. F. Thurmon and E. A. Brown.—p. 11.

Staphylococci and Hemolytic Streptococci from Normal Skin and from Cutaneous Infections. G. C. Rebell.—p. 13.

New Surface Active Antibiotics. H. H. Anderson with assistance of S. C. Wong.—p. 25.

Studies on Adherence of Epidermis to Corium. Z. Felsher.—p. 35.

Journal of Urology, Baltimore

57:427-618 (March) 1947. Partial Index

Familial Eunuchoidism: Laurence-Moon-Biedl Syndrome. A. A. Roth. —p. 427.

Adenoma of Kidney. A. B. Cecil.—p. 446.

Unilateral Renal Tuberculosis: Management of Nephrectomized Patient; Review of 98 Cases. C. P. Mathé.—p. 451.

Large Hydronephrosis of True Supernumerary Kidney. S. K. Bacon. —p. 459.

Hypertension Associated with Solitary Renal Cyst: Report of 2 Cases. H. A. R. Kreutzmann.—p. 467.

Stones in Ureter: Their Extraction by Looped Catheter. M. Ellik. —p. 473.

Misinterpretations of Enlarged Prostates Gained Through Cystoscopy. W. Stegeman.—p. 479.

*Infarct of Prostate. W. G. Rogers.—p. 484.

*Carcinoma of Prostate: Simultaneous Occurrence in Identical Twins. G. M. Fister.—p. 488.

Care of Paraplegic's Urinary Tract. M. H. Nourse and H. C. Bumpus. —p. 495.

Sperm Invasion of Epididymis. J. Steinberg and R. Straus.—p. 498.

Aneurysms Involving Urinary Tract. J. R. Dillon and G. L. Torassa. —p. 504.

Azoospermia: Analysis of 146 Cases. L. Michelson.—p. 512.

Solitary Polycystic Kidney and Successful Pregnancy. D. W. Branham. —p. 519.

Management of Ureteropelvic Juncture Obstruction: Translumbar Aortagraphy and Adjunct. A. K. Doss.—p. 521.

Cancer Cells in Prostatic Secretions. P. A. Herbut and E. N. Lubin. —p. 542.

*Streptomycin Therapy in Urinary Tract Infections. A. M. Kleinman, T. P. Shearer and H. Sprinz.—p. 599.

Infarct of Prostate.—Rogers reports 2 cases of infarct of the prostate. Infarct of a hypertrophied prostate may occur as a result of interference with the blood circulation. These vascular changes are most often the result of trauma from transurethral procedures. The symptoms of prostatic infarction are largely those of urinary obstruction which results from the swelling and increase in the volume of the gland. When healing takes place a certain amount of contraction occurs and the volume is decreased. As a result of this decrease in volume, obstructive symptoms may be less severe than before the infarct developed. This may account for some of the results following bizarre methods of treatment. Diagnosis of infarction may be made clinically or cystoscopically on occasion, but it usually depends on examination of the tissue removed at operation or necropsy. Correct diagnosis is important in order to differentiate the condition from carcinoma.

Carcinoma of Prostate in Identical Twins.—Fister reports the histories of twins who developed simultaneously adenocarcinoma of the prostate. Both had hypertension, obesity and diabetes. Transurethral prostatic resection was performed in each case at an interval of one month. Diethylstilbestrol therapy and orchiectomy were carried out in case 1, in which the cancer was apparently more advanced and symptoms of metastasis evident. This treatment was followed by reduction in size and hardness of the gland, decrease in pain and improvement in general health. Both twins are doing fairly well two years after resection. Future study of these patients will be of interest, as one has been castrated and the other has not.

Streptomycin in Urinary Tract Infections.—Kleinman and his associates report experiences with streptomycin therapy of nonvenereal urinary tract infections in 18 patients. Seventeen of the 18 had neurogenic bladders resulting from spinal cord injuries. A preliminary study of the bacterial flora cultured from the infected urinary tracts of 42 similar patients showed that the organisms occurred in the following order of frequency: Streptococcus nonhemolyticus, Bacillus proteus, Aerobacter aerogenes, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, Staphylococcus aureus and Streptococcus hemolyticus. All but the last 2 organisms are known to be resistant to penicillin and the sulfonamides. With dosages of 3,000,000 units of streptomycin a day for three days prompt sterilization of the urine was obtained, but only temporarily. With dosages of 1,200,000 units a day for three days the results were generally poor, except in the 1 patient who did not have a neurogenic bladder. The failure of streptomycin therapy of urinary tract infections in paraplegic patients with neurogenic bladders is attributed to the presence of one or more of the following conditions: persistent suprapubic fistulas, urinary calculi, residual urine or repeated catheterization, or inadequate dosage.

New England Journal of Medicine, Boston

236:341-382 (March 6) 1947

Military Surgery in World War II: Backward Glance and a Forward Look. M. E. DeBakey.—p. 341.

*Protein Nutrition: Therapeutic Use of Digest of Liver Protein, Especially in Patients with Cirrhosis of Liver. Jessica H. Lewis, F. H. L. Taylor and C. S. Davidson, with assistance of Margaret A. Adams, Jean V. Harrison and Mary A. Maloney.—p. 351.

Congenital Dislocation of Knee: Report of Case. R. W. Provenzano. —p. 360.

Synthetic Plastic Materials in Surgery. F. D. Ingraham, E. Alexander Jr. and D. D. Matson.—p. 362.

Subdiaphragmatic and Subhepatic Abscess, Secondary to Cholecystectomy: Acute Lipoid Nephrosis.—p. 368.

Chronic Pancreatitis, with Extension to Wall of Stomach.—p. 371.

Protein Nutrition with Digest of Liver Protein.—Lewis and her associates administered a partial enzymatic digest of liver protein as a food supplement to 65 patients. The digest contained 60 per cent protein in addition to relatively large quantities of vitamin B complex. The taste of the liver protein digest is somewhat disagreeable. A laxative effect was observed in some patients. The liver protein digest supported positive nitrogen balance or nitrogen equilibrium when given as the chief source of protein to 5 normal subjects and 4 malnourished patients. Plasma protein regeneration was demonstrated in 1 patient with nephrosis and in 1 with uncomplicated malnutrition, as well as in several patients with cirrhosis of the liver. The results of the treatment of 19 patients with portal cirrhosis was at least as satisfactory as those attained with other means of supplying the many nutrients that have recently been advocated for the treatment of this disease. The recovery of 5 patients with infectious hepatitis progressed satisfactorily. The liver protein digest proved to be an adequate protein supplement for 4 of 5 patients with severe thermal burns. The digest was given to 3 patients with peptic ulcers, with excellent results. It proved satisfactory in 3 patients with alcoholic peripheral neuritis. Great improvement was observed in 10 of 14 patients with malnourishment of various causes.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Biochemical Journal, London

41:1-138 (No. 1) 1947. **Partial Index**

Metabolic Processes in Gastric Mucosa. C. Lutwak-Mann.—p. 19.

Determination of Iron in Biologic Material. A. J. Woiwod.—p. 39.

*British Antilewisite: 4. Antidotal Effects Against Therapeutic Arsenicals. L. A. Stocken, R. H. S. Thompson and V. P. Whittaker.—p. 47.

Experimental Investigation of "Ring Hypothesis" of Arsenical Toxicity. V. P. Whittaker.—p. 56.

Studies in Vitamin A: 1. Chromatographic Method for Separating Free and Esterified Vitamin A. J. Glover, T. W. Goodwin and R. A. Morton.—p. 94.

Intercellular Hormones. A. M. Webb and J. R. Loofbourow.—p. 114.

Antidotal Effects of BAL Against Therapeutic Arsenicals.—Stocken and his associates say that BAL has been tested as an antidote to the toxic action of mapharside, neoarsphenamine and arsphenamine. Through use of the pyruvate oxidase system of brain it has been shown that BAL can protect effectively against these three arsenicals and can also bring about a significant degree of reactivation of the already poisoned enzyme system. BAL is also effective in bringing about the survival of rats after the injection of lethal doses of mapharside or neoarsphenamine.

British Journal of Ophthalmology, London

31:129-192 (March) 1947

Comparative Visual Acuity and Ease of Reading in White and Colored Light. L. C. Martin and R. W. B. Pearse.—p. 129.

Allergy to Endogenous Hormones as Cause of Keratitis Rosacea. B. Zonder, J. Landau and Y. M. Bromberg.—p. 145.

Observations on Symptomatology and Diagnosis of Cases of Proptosis. H. Bey.—p. 155.

Influence of Intraocular Pressure on Rate of Drainage of Aqueous Humor: Stabilization of Intraocular Pressure or of Aqueous Flow? E. H. Bárány.—p. 160.

Case of Bilateral Genuine Iris Atrophy. Ida Cyukrász.—p. 176.

Indian Journal of Medical Research, Calcutta

34:207-328 (Oct.) 1946. **Partial Index**

*Studies on Cultivation of Etiologic Agent of Rabies in Vitro and Its Nature. N. Veeraraghavan.—p. 207.

*Studies on Antirabic Immunization with Culture Vaccine. N. Veeraraghavan.—p. 225.

Action of Penicillin on Mycobacterium Leprae Muris. Dharmendra and N. Mukherjee.—p. 237.

Level of Fat Intake and Composition of Serum Lipoids. N. G. Nhavi and V. N. Patwardhan.—p. 257.

Effect of Different Diets and of Iron Medication on Nutritional Anemia of Indian Army Recruits. M. Hynes, M. Ishaq and O. P. Verma.—p. 273.

Cultivation of Etiologic Agent of Rabies in Vitro.—Veeraraghavan describes a simple medium which contains steamed sheep brain extract, sheep serum, aminoacetic acid (glycine) and peptone, which he used for the cultivation of rabies fixed virus in vitro. He found that with this medium it is possible to obtain at least five times the maximum concentration of virus obtained in the brains of infected sheep used in the manufacture of antirabic vaccine. Cultivation under strict anaerobic conditions gives better results than under aerobic conditions. The successful cultivation of the etiologic agent of rabies in a cell free medium proves that it is not a virus in the accepted sense of the term. Protection afforded by culture vaccine the virus content of which is adjusted to be equal to that of 5 per cent phenol vaccine compares favorably with that obtained with phenol vaccine.

Antirabic Immunization with Culture Vaccine.—Veeraraghavan stresses that his culture vaccine is superior to Semple's 5 per cent vaccine, which is used in India. The virus content of the vaccine can be accurately determined. It is 100 times as high as that present in 5 per cent phenol vaccine. It is free from gross nerve tissue. It is apparently free from toxic effects. Assuming that five times the quantity of virus ordinarily used in treatment with phenol vaccine is necessary for producing adequate immunity in man, it should be possible to give with 7 cc. of undiluted culture vaccine five times the virus content present in 140 cc. of phenol vaccine.

Medicina, Cir., Farm., Rio de Janeiro

129:1-48 (Jan.) 1947. **Partial Index**

*Intrapericardial Penicillin. H. Franco.—p. 41.

Intrapericardial Penicillin.—A man aged 22 presented symptoms of pericardial effusion complicating influenza. Sulfanilamide and intramuscular injections of penicillin were without effect. Aspiration of pus and instillation of 50,000 units of penicillin in isotonic solution of sodium chloride into the pericardial sac performed four times at intervals of four days resulted in recovery. Klebsiella pneumoniae was identified in cultures of the pus. The organism could no longer be demonstrated in the pus after the second injection. Attention is directed to the fact that the bacillus was regarded as being resistant to penicillin, whereas the results in this case suggest that it is not.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:241-296 (Feb. 1) 1947. **Partial Index**

Skin Eruptions in Gonorrhea. J. R. Prakken.—p. 243.

*Measles Pneumonia in Children Repatriated from India: Isolation of Measles Virus and Hemophilus Influenzae from Lungs. N. Lubsen and J. D. Verlinde.—p. 250.

Pellagra. O. L. E. de Raadt.—p. 254.

*Castration in Treatment of Psychopathic Criminals. F. Hartsuiker.—p. 263.

Measles Pneumonia in Children Returning from India.—Lubsen and Verlinde review observations on children who developed pneumonia following measles contracted while on board ship returning from India. In 1 child on whom a postmortem was done seventeen days after the onset of the measles exanthem laryngitis, tracheitis and mucopurulent bronchitis were found together with an extensive bronchopneumonia. One of the authors was able to isolate from the lungs a virus that was almost certainly identical with a virus isolated from the blood of a measles patient on the first day of the exanthem. In the lungs Hemophilus influenzae and anhemolytic streptococci were also found. This explains the fact that these patients did not react favorably to penicillin and sulfathiazole.

Castration in Treatment of Psychopathic Criminals.—Hartsuiker says that since 1938 certain groups of sexual delinquents have been treated in the Netherlands by removal of the testes. The Justice Department of the Netherlands recommends that the operation be performed only on men who are not less than 25 years old and only with the consent of the patient. The author reviews observations on 88 criminals who were so treated and says that the results so far have been generally favorable. He discusses the physical and psychic consequences of castration and demonstrates with the aid of a case history that libido and potency are not linked to the secretion of the testicular hormone.

Acta Radiologica, Stockholm

27:569-666 (Dec. 20) 1946

Roentgen Treatment of Tuberculous Infected Guinea Pigs. R. Steinert and J. Cammermeyer.—p. 573.

Roentgen Diagnosis of Arteriovenous Aneurysm of Lung. E. Lindgren.—p. 585.

*Incipient Stages of Porcelain Silicosis. P. Eskildsen and P. F. Møller.—p. 601.

Arthritis Mutilans. B. Nielsen and E. Snorrason.—p. 607.

Pyeloscopy: Evaluation of the Method. H. Salinger and F. Saalberg.—p. 617.

Vertebra Plana in Lipoidosis (Hand-Schüller-Christian): Contribution to Etiology of Aseptic Necrosis of Bone. J. Torgersen.—p. 638.

Technic of High Retrograde Arteriography in Circulatory Disturbances of Lower Limbs. M. Sulamaa.—p. 643.

Action of Gravity on Visceral Cavity. F. Polgar.—p. 647.

Porcelain Silicosis.—Eskildsen and Møller say that an investigation was begun in 1941 to control the efficacy of the improvements in the dust prophylaxis among Danish porcelain workers introduced in 1933. Observations were made on 39 young workers, all of whom were subjected to two x-ray examinations. The diagnosis became certain only during the second stage of silicosis, the peribronchial perivascular type, with gradual increase of the interstitial extension of the fibrosis and comparatively rare combination with nodular changes. The incipient stage was discovered at the first x-ray examination in 15 cases. In 6 of these the diagnosis of silicosis could not be maintained with certainty at the second, although 5 of them had continued their work in the porcelain industry for as long as twelve years.

Book Notices

Injuries of the Knee Joint. By I. S. Smillie, O.B.E., M.B., F.R.C.S., Surgeon-in-Charge, Orthopaedic Hospital, Larbert, Stirlingshire (Scottish E. M. S.). Cloth. Price, $9. Pp. 320, with 350 illustrations. William Wood and Company, Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This is one of the best books on injuries of the knee that has been published. The author has had vast experience, having treated "2,235 cases in five years in the hospital" and "in addition 2,700 internal derangements in service personnel, mining and industrial workers were referred for consultation during the same period." This work was done in the Orthopedic Unit of the Base Hospital set up by the Department of Health for Scotland in 1940.

The book starts out with a comparative anatomy description of knee action and an explanation of quadriceps insufficiency which the author ascribes in part as due to the late acquisition in man's evolution from a quadruped to the erect posture. When injury occurs the lately acquired function of supporting orthograde posture easily disappears. The quadriceps and especially the vastus medialis wastes quickly. This inhibition should be overcome by early active non-weight bearing exercises which do not produce movement of the joint. Later graded exercises, even with weights, should be used. The book goes on to deal with synovitis, hemarthrosis and the necessity of early aspiration in case of swelling of the joint. The next four chapters take up in detail the surgical anatomy and physiology of the menisci and mechanism of their injuries, surgical pathology, clinical features of their internal derangment and the treatment, after-treatment and complications of injuries to the menisci. The necessity for complete removal of an injured meniscus is emphasized. The author illustrates special knives with a cutting edge on the end. The knives should be kept sharp. An elaborate system of postoperative treatment with gradually increasing exercise should return the patient to A I category in rarely less than twelve weeks. This seems like a safe opinion.

Complications of pain; hemarthrosis necessitating aspiration; sepsis, usually a result of faulty aseptic technic, treated by sulfonamide drugs—the author not having had opportunity to test penicillin but which since has proved efficacious elsewhere; aspiration done and opening of joints widely avoided if possible; persistent effusion; neuroma of infrapatellar branch of saphenous nerve, excised. Injuries of the ligaments are diagnosed and treated conservatively or by operation. The latter shows several technics, but the end results are not guaranteed, and no conclusion has been reached as yet about them. Injuries of the extensor apparatus are dealt with. In fractured patella the smaller fragment may be removed. Fractures of the tibia and femur require careful fixation of fragments in anatomic position, often requiring operation. The last chapters deal with foreign bodies, wounds of the joints and finally the stiff joint requiring prophylactic early motion and at worst manipulation under anesthesia or operative treatment. The book is well prepared and edited. The excellent illustrations add much to its value, and make this volume an unusually meritorious contribution.

Cardiovascular Diseases. By David Scherf, M.D., F.A.C.P., Associate Professor of Medicine, New York Medical College, Flower and Fifth Avenue Hospitals, New York, and Linn J. Boyd, M.D., F.A.C.P., Professor of Medicine, New York Medical College, Flower and Fifth Avenue Hospitals. [Based on previous editions of book of same title.] Fabrikoid. Price, $10. Pp. 478, with 56 illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1947.

This is in reality a new edition which has been completely rewritten to make the coverage of cardiovascular diseases more complete. The topic of rheumatic fever has been greatly expanded. Newer advances in diagnosis and in treatment are introduced. The material covered lives up to the title in that the authors are not concerned only with diseases of the heart but give proper emphasis to the diseases of the blood vessels.

In dealing with the clinical aspects of cardiovascular diseases the authors are at their best, although at times the old tradition of the Viennese school in which the senior author grew up is given undue prominence. There is also too much concern with the problem of priority. However, the American reader will find adequate coverage and proper reference to the earlier European work which might otherwise be forgotten. This book shares with many other clinical textbooks, and perhaps more so than others, the tendency to explain mechanisms on physiologic grounds which are often superficial and contradictory to the present knowledge of normal and pathologic physiology. In this regard the volume is weak. It is regrettable also that picturesque language is at times introduced which is out of place with the more sober general context.

This book can be recommended for the many practical hints which it contains, for its summary of European work, for its refreshingly different handling of this subject and for its proper balance in dealing with the various aspects of cardiovascular diseases. The format and illustrations are on the whole excellent, although on occasion imperfections of the type appear.

Outlines of Internal Medicine. Parts I-V. Edited by C. J. Watson, M.D., Head, Department of Medicine, University of Minnesota, Minneapolis. Fifth edition. Paper. Looseleaf. Price, $9 per set. Pp. 161; 108; 112; 61; 95, with 12 illustrations. W. C. Brown Co., 973 Main St., Dubuque, Iowa, 1946.

These outlines, prepared in five parts, present to the student a succinct fund of information relative to the bacteriology, physiology, diagnosis and treatment of disease. Part I includes infectious diseases, allergies and arthritis. Part II covers diseases of the blood, liver and biliary tract, pancreas and intestinal tract. Part III deals with the heart. Part IV is concerned with deficiency and metabolic diseases, while part V is devoted entirely to clinical chemistry and microscopy. In all sections the material is carefully compiled and well indexed, and the contents are largely confined to noncontroversial information. There is included enough history to interest the student, and a well selected bibliography follows each chapter. The material as organized should stimulate the student to pursue on his own a program of medical instruction which is much more valuable than attempting to cover the material in a series of didactic lectures with page assignments in a standard textbook. In the bibliography are included references to many original articles dealing with the subject under consideration. All in all, it is a most satisfactory compilation of essential information and is recommended to all students of medicine, including those who have graduated.

What Is Heart Disease: A Handbook for the Heart Patient. By William Hyatt Gordon, M.D., F.A.C.P., Head of Medical Section, Lubbock Memorial Hospital and Clinic, Lubbock, Texas. Cloth. Price, $2.50. Pp. 114, with 10 illustrations. Grune & Stratton, 381 4th Ave., New York 16, 1946.

This small book is written at a mutual intellectual level for the physician and his patient who is afflicted with heart disease. Most busy physicians are unable to afford sufficient time to outline the reasons for medical management of a particular cardiac problem to the complete satisfaction of the patient. This the author attempts to do by first explaining that heart disease does not signify a single rapidly fatal process but that heart disease varies greatly in its gravity, usually has a chronic course and need not be cause for invalidism. The book attempts to aid the patient by first describing the anatomy and the physiology of the normal heart and its amazing ability to endure added effort and handicaps.

The author then discusses the pathology and the abnormal physiology of diseases of coronary vessels, disorders of the heart valves, diseases of the heart muscle and abnormal heart beats. This is followed by a section on the treatment of heart disease. Many incorrect ideas and much unfortunate knowledge possessed by the average person are exposed and corrected throughout the entire book.

A splendid addition is the last chapter, entitled "Symptoms Erroneously Thought to Indicate Heart Disease." Functional disorders frequently force apprehensive patients to go from physician to physician in an attempt to obtain a diagnosis of organic heart disease. The author advises them to consult a competent physician and to accept his advice, for "there is nothing more tragic than needless invalidism caused by a nonexistent disease."

This book may be considered a good contribution for the layman. It is written in simple, understandable language, but because of its brevity questions will be left in the minds of many persons who read it as a guide for a specific cardiac disorder.

On the Morphology of Blood and Bone-Marrow in Thyrotoxicosis. By O. Biström Inaugural Dissertation, II Surgical University Clinic, Helsingfors. Acta chirurgica Scandinavica, Vol. XCIV. Supplementum 114. Paper. Pp. 188. Helsingfors, 1946.

The author reviews the earlier literature and then reports his own investigation on the peripheral blood and bone marrow findings in thyrotoxicosis. He obtained the bone marrow by sternal aspiration. A control group of 24 surgical patients were studied, excluding those with diseases which might influence the blood or bone marrow characteristically. Twenty-six patients with nontoxic goiter were next studied to compare with 33 patients with thyrotoxicosis. The immediate postoperative findings in the nontoxic group of cases were a proportionate decrease in erythrocytes and hemoglobin and a polymorphonuclear leukocytosis in the peripheral blood. There was often a thrombocytosis and reticulocytosis also. The white cells of the marrow showed little alteration, while the decrease in normoblasts was the most regular and conspicuous feature. Fifty per cent of the patients examined at follow-up examination three months later showed improvement in the red blood cell values but not quite to normal, a distinct leukopenia due to a decreased number of granulocytes and an improvement in erythropoiesis in the marrow.

Comparison of the peripheral blood and marrow of patients of varying degrees of thyrotoxicosis offered little information. There was a tendency toward macrocytosis. Low values for leukocytes were found more commonly in this group than in the controls and some showed slight leukopenia. Granulocytes were low in relative and absolute values, while the lymphocytes were often increased. A higher degree of lymphocytosis was found in the more severe cases of thyrotoxicosis. The sternal marrow showed a shift of the granulocytes to the left. No increase in lymphocytes in the marrow was revealed when compared with the control cases. The changes in the marrow and peripheral blood were inconstant, and the changes enumerated were characterized as tendencies. The patients treated preoperatively with iodine showed an increase in leukocytes, mainly granulocytes, in the majority of cases. The lymphocyte change was equivocal. The shift of granulocytes to the left in the marrow receded on iodine therapy, depending on the duration of the therapy, but did not reach the control values.

Changes observed in 5 patients treated preoperatively with thiouracil were improvement in red blood cell counts and hemoglobin where they were formerly reduced; decreased white blood cell count due mainly to a decrease in granulocytes, shift of the granulocytes in the bone marrow to the right where formerly there was a shift to the left, and an increase in adult forms of nucleated red cells. In five to eight days postoperatively a decrease in red cells and hemoglobin occurred similar to the immediate postoperative findings in the nontoxic group. Increase in granulocytes was more obvious than in the nontoxic group. The findings in the bone marrow were comparable to those in the nontoxic group and consisted mainly in increased erythropoiesis. In the three month postoperative follow-up the erythrocyte and hemoglobin values did not reach the preoperative values; low values were found for the leukocytes in one third of the cases; cases which previously showed an absolute lymphocytosis were reduced to relative values; the granulocytes showed no constant pattern. The bone marrow showed a moderate shift to the right. There was less active erythropoiesis at normoblastic levels than before treatment.

In his study of the correlation of lymphocytosis in the blood and lymphocytic infiltrates in the surgically removed thyroid glands, the author constantly found that lymphocytic infiltration in the goiter tissue occurred, especially in the presence of high grade thyrotoxicosis, where an absolute lymphocytosis occurred in the peripheral blood.

The author concluded that patients with nontoxic goiter do not show any characteristic changes. In thyrotoxicosis the bone marrow shows evidence of a slight maturation arrest, possibly in response to the increased metabolic rate. When the metabolic rate was reduced by iodine, thiouracil or surgery, the shift of the bone marrow elements to the left was decreased and this is simultaneously reflected in the peripheral blood. The danger of granulocytopenia after thiouracil is stressed especially in thyrotoxic states in which the myeloid tissue is already disturbed. While the author was not able to account for the lymphocytosis in the peripheral blood in thyrotoxic states, he was inclined to explain it on the basis of lymphocytic infiltration of the thyroid gland. The variation of the changes in the blood or bone marrow was not considered to be of great diagnostic or prognostic importance in thyrotoxicosis.

In this thorough and objective survey on peripheral blood and bone marrow findings in thyrotoxicosis, it is unfortunate that the recent literature was not available because of wartime conditions. The publications of Renzi and Lenzi in 1939 and the article of Robert Jones in 1940 should have been available, however. Jones found a constant myeloid hyperplasia of the aspirated sternal bone marrow in hyperthyroidism that was not reflected in the peripheral blood. Nevertheless the material presented in this monograph was well controlled and adequately studied. The author's conservatism in drawing conclusions concerning the diagnostic and prognostic value of peripheral blood and bone marrow findings is in keeping with sound scientific thinking. The monograph is a definite contribution to the field of hematology and internal medicine and represents the most comprehensive and controlled study in this field.

Diagnostic électrocardiographique. Par André Jouve, Jacques Senez, chef de Clinique à la Faculté de médecine de Marseille, et Jean Pierron, chef de Clinique à la Faculté de médecine de Marseille, Marseille. Préface du Professeur Ch. Laubry. Paper. Price, 860 francs. Pp. 362, with 217 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris, 6e, 1946.

This textbook on electrocardiography is written with considerable knowledge of the entire subject, and the authors are familiar with the American literature and frequently refer to it. The book is divided into four parts, covering (1) the theoretical basis and technic, (2) the normal electrocardiogram, (3) the pathologic electrocardiogram and (4) the clinical application of electrocardiography. The classification of abnormal electrocardiograms is unorthodox and therefore confusing to beginners in this country, who will follow the American tradition. The diagnostic importance of chest leads is stressed. However, a polarity is used the reverse of that now universally accepted in English speaking countries following the recommendation of the official heart associations of Great Britain and America. It is to be hoped that the French Société de Cardiologie will also adopt the newer method of recording chest leads, so that the nomenclature will become uniform.

Most of the illustrations are well reproduced. It is regrettable that in a book which gives so much detailed information no illustrations are available to demonstrate the effect of acute cor pulmonale and of digitalis on the electrocardiographic contour. It is regrettable also that the effects of excess digitalis on heart rhythm are not illustrated. Some discussion of the effects of low calcium and high potassium in the blood should have been included. No illustrations of the effects of digitalis and of quinidine on auricular fibrillation and flutter are shown. The electrocardiographic modifications reflecting left ventricular preponderance or predominance, the latter apparently being the French term used for "strain," are discussed together with deviation of the electrical axis; no mention is made of the pattern of left heart strain occurring in the absence of abnormal deviation of the electrical axis.

A number of errors in interpreting arrhythmias appear. For example, no distinction is made between the normal refractory phase giving rise to auriculoventricular dissociation and the abnormal depression of auriculoventricular conduction giving rise to auriculoventricular block. Accordingly the authors fail to see how the classic concept of auriculoventricular conduction—in contrast to that of the French school led by Geraudél—can explain the occurrence of ventricular capture in auriculoventricular dissociation. A rather confused definition is given of interference—dissociation, misquoting both Mobitz, and Wenckebach and Winterberg. The disturbances termed "isorhythmic dissociation" and "sinus bradycardia with permanent idioventricular rhythm" do not necessarily represent definite entities and are therefore unnecessary.

This textbook offers a new classification of the disturbances of impulse formation and impulse conduction which may be interesting to the advanced student but it can only be confusing to the beginner. The American reader will welcome the well chosen references to the more recent French literature on electrocardiography.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SMALLPOX VACCINATION

To the Editor:—Kindly give me the following information concerning smallpox vaccination in an adult: 1. Indications or contraindications in a woman who is within (*a*) the first four weeks of pregnancy, (*b*) first three months of pregnancy, (*c*) last month of pregnancy and (*d*) the puerperal stage. 2. Should a husband who is being revaccinated consider impregnating his wife at this time? If contraindicated, how long should he wait?

M.D., New York.

Answer.—1. If there is a history of exposure to smallpox there is no contraindication to vaccination. (*a, b, c* and *d*) The present consensus is that vaccination of a mother exposed to smallpox at any stage of pregnancy is not contraindicated.

2. There is no objection to a husband being vaccinated at any time.

In at least one large contagious disease hospital it has been customary for a period of thirty years to vaccinate all patients admitted who show no evidence of a successful vaccination against smallpox. There has never been any serious complication from such a procedure, regardless of the age of the patient or the disease from which the patient suffered at the time of vaccination. However, if vaccination is not imperative because of exposure to smallpox, it is ill advised to perform this operation on individuals suffering from either acute or chronic eczema or various forms of dermatitis, on account of the danger of multiple accidental vaccinations occurring.

DIAGNOSIS OF POLYCYTHEMIA

To the Editor:—A man aged 35 has had chronic throbbing headaches for ten to twelve months. Six years ago, while working as a tire recapper, he had similar headaches. Four years ago while working in the galvanizing plant of a shipyard he was treated for acute zinc poisoning and was forced to give up such work. He is now back at his trade of tire recapper. In the course of his work he is exposed to both rubber dust and fumes of rubber solvent (supposedly petroleum benzin). Examination is negative except for a manifest midphase cardiac murmur over the pulmonic area. The lungs are normal on physical examination. Erythrocytes number 5,360,000. Hemoglobin is 16.2 Gm. per hundred cubic centimeters. There is a moderate but decided shift of the granulocytes to the left. The sedimentation rate is slightly increased in the final phase. The definite but moderate degree of polycythemia is not accompanied by the dusky redness seen in the primary type of the disease. Differential diagnosis involves the problem of secondary stimulation of the blood forming organs by anoxemia due to occupational hazards, congenital heart disease and primary polycythemia vera. What is rubber solvent and will it act as a poison to the bone marrow? Will rubber dust produce a pneumonoconiosis or otherwise interfere sufficiently with the pulmonary circulation to effect a relative anoxemia? Please discuss the differential diagnosis of this case, with particular reference to the etiologic factors involved.

Zaven M. Seron, M.D., Sebring, Fla.

Answer.—The headache and polycythemia strongly suggest repeated low grade exposure to carbon monoxide. There may not be chronic carbon monoxide poisoning, but there may be chronic exposure to that gas. Leaky gas appliances at home or at work may account for the two manifestations mentioned but not for certain others coexisting. The earlier zinc poisoning is probably without consequence at the present time. Acute zinc poisoning (there is no chronic form) is due to the inhalation of freshly flocculated zinc oxide fume and in galvanizing commonly arises only when the metal is overheated. This condition is one of the "metal fume fevers." It is characterized by severe chilling, usually at night after exposure during the previous work period, by great thirst and by malaise. There is a twelve to twenty-four hour course, with full recovery. Tolerance is readily developed and readily lost. Rubber dust will not produce a demonstrable pneumonoconiosis, but possibly rubber or some of its adjuvants may be allergenic. The features described scarcely suggest sensitivity. At this time some solvents are mislabeled or at least do not represent full content of the label designation. Petroleum benzin is naphtha but might possess a certain content of benzene. If this is present it is unlikely to produce a polycythemia. The percentage of carbon monoxide hemoglobin in the patient's blood should be determined. If significant the exposure should be located. Otherwise the condition probably is not related to work.

PROPHYLAXIS OF SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor:—What is the best procedure for the prevention of subacute bacterial endocarditis following dental extractions or similar possible precipitating factors in cases of rheumatic valvular heart disease? What is the dosage of penicillin and/or sulfonamides and the duration of treatment in such cases?

M.D., Connecticut.

Answer.—Opinion is not unanimous concerning the drugs or doses to be used as prophylactic procedures in patients with acquired or congenital cardiac lesions who have teeth extracted. Since penicillin does not provoke serious toxic manifestations, this antibiotic probably has first choice. Two to three hours before extraction one could give intramuscularly 300,000 units of penicillin suspended in peanut oil and beeswax. This dose could be repeated daily for two to three days following the extraction. Another method would be to administer tablets of penicillin orally. An hour or two before the extraction 50,000 units may be ingested, preferably with the stomach empty of food. Then for two to three days, 50,000 units may be taken four times a day. One dose could be given before each of three meals and one in the evening. If a sulfonamide is to be used, one must ascertain whether or not the patient is sensitive to the drug. Either sulfadiazine or sulfamerazine may be employed. To determine whether the person is sensitive to the selected drug, one could give 0.5 Gm. orally and then wait a period of six hours before administering any further drug. Then about two hours before the contemplated extraction 2 Gm. of either sulfonamide may be given orally. For the following two to three days 1 Gm. should be administered every six hours. The patient should be instructed to drink adequate amounts of fluid.

TREATMENT OF PREMENSTRUAL TENSION

To the Editor:—What is the present status of the use of anhydro-oxyprogesterone in the treatment of premenstrual tension?

Glenn W. Cosby, M.D., Miami, Okla.

Answer.—Premenstrual tension is probably due to the sudden rise of blood estrogens several days before the onset of menses (Freed, S. C.: The Treatment of Premenstrual Distress, The Journal, Feb. 17, 1945, p. 377). This rise in estrogens produces the various symptoms of premenstrual tension by causing an increase in the tissue fluid of the various organs; for example, swelling of the brain producing migraine, of the gastrointestinal tract, nausea, of the bladder, frequency of urination, or of the skin, nervousness and pruritus. Gilman, however, differs with these opinions and has claimed that progesterone is the inciting agent in the production of premenstrual tension (Gilman, Joseph: *J. Clin. Endocrinol.* **2**:157 [March] 1942). Nevertheless, these symptoms may be duplicated by administering rapidly absorbed estrogens to a patient in the menopause. The treatment of premenstrual tension is aimed at either neutralizing the action of estrogens by administering certain steroid hormones or relieving the water retention through the use of diuretics such as ammonium chloride. In some cases vitamin B complex may curb the increase in estrogens and thereby relieve the symptoms. Either progesterone or the androgens are effective in antagonizing the endogenous estrogens and thereby eliminating the symptoms, the androgens being more effective in this regard than progesterone. Anhydro-oxyprogesterone should theoretically produce a similar effect, since on an experimental basis it has an estrogen suppressing effect. However, clinically there is little evidence of this action, and in the experience of one investigator this treatment has been unsatisfactory.

POSTCOITAL HEADACHE AND LOSS OF MEMORY

To the Editor:—A man aged 30 complains that following coitus he experiences suboccipital headache and has difficulty in clear rationalization and memory for a period of twenty-four hours. He finds it difficult to remember and think clearly and becomes befuddled and uncertain of his ability to recall events or things. Can this be due to cerebral ischemia or cerebral congestion with straining on intercourse? This patient is not neurotic and I believe his story.

M.D., Texas.

Answer.—It is presumed that similar happenings have not been experienced by this man in any other stressful situation in which he might exert himself and overbreathe, or it would have been mentioned. It is also presumed that the recumbent posture was assumed in coitus and that the phenomena described followed each experience. It would be of interest to know the duration of coitus, the time elapsed between orgasm and onset of the first symptom, and whether the partner is usually the same person.

Syncope (fainting) and the syncope associated with hyperventilation may be dismissed from consideration, since symptoms lasting for twenty-four hours would not be apt to occur in these conditions.

Is it possible that the patient is suffering from disturbances of consciousness because of epilepsy? If so, the condition would most likely be psychomotor epilepsy, though it would be most unusual for this type of attack to follow sexual intercourse only. It is probably true that it is impossible to define the limits of psychomotor epilepsy, so that it may not be ruled out in this patient without more evidence.

The last sentence in the query probably contains the key to the solution of the patient's problem. "This patient is not neurotic and I believe his story." If there is anything to the association of ideas, and many studies have tested its validity, it may be inferred that the questioner seems to believe that neurosis and veracity are not likely associated; in other words, the person with a neurosis cannot be believed. If this is so, it must certainly disqualify him from deciding whether or not a group of symptoms are psychogenic.

Whether or not the symptoms described are on a psychogenic basis cannot be determined from the meager data supplied. However, the chances of this being the case are relatively good.

In an attempt to elucidate the cause of these symptoms the aid of a psychiatrist should be sought. Blood pressure readings in the recumbent, sitting and erect positions will probably be normal, as most likely will serial electroencephalograms done on several days during a week in which the patient notes these symptoms.

URTICARIA FOLLOWING PENICILLIN IN OIL AND WAX

To the Editor:—Several patients have developed severe generalized urticaria and pruritus following the administration of penicillin in oil and wax (Romansky formula). As penicillin itself is reported to be a remote cause of reaction, the question arises as to the allergenic properties of the vehicle in which it is administered. Has any method been developed to skin test or otherwise determine the sensitivity of a patient prior to the use of this formula? Willis P. Baker, M.D., Santa Ana, Calif.

Answer.—Evidence that the generalized urticarial eruption that follows the administration of penicillin in oil and wax (Romansky formula) is any more likely to occur with this preparation than with the use of penicillin in aqueous solution or in salt solution is not available. The evidence is good that the sensitization is due to the penicillin itself and not to the oil or wax, since patients who receive penicillin in aqueous solution after having been sensitized following the use of penicillin in oil and wax will react with an urticarial eruption. Extensive studies have been carried out to determine whether or not any pollen extracts are carried over in the beeswax, and all these studies have been negative.

HEMOGLOBIN

To the Editor:—1. In calculating hemoglobin values by the Sahli method, what effect does a wait of thirty minutes, one hour, two hours or a day have on the final reading after the blood and hydrochloric acid have been mixed? 2. What percentage of the hemoglobin molecule is protein?

Leon Paris, M.D., New York.

Answer.—The color of an acid hematin solution increases in intensity on standing. The formation of color is said to follow a rectangular, hyperbolic curve ending at infinity. Actual readings made at various time intervals on the same blood sample are as follows: 5 minutes, 12.7 Gm.; 30 minutes, 13.7 Gm.; one hour, 14.2 Gm.; two hours, 14.7 Gm.; twenty-four hours, 14.7 Gm. The importance of calibrating and reading the Sahli instrument after the acid hematin has stood for a fixed period is obvious. To save time, it is best to make the final reading at five or ten minutes.

Hemoglobin is a conjugated protein made up of heme (an iron-porphyrin complex) and globin (a water soluble basic protein) in the proportion of 1 part of heme to 26 parts of globin, and hence contains about 96.3 per cent of globin.

SILICONES AS SYRINGE LUBRICANT

To the Editor:—I have been using a small amount of "Dow-Corning Stopcock Grease" as a lubricant for my syringes used for giving parenteral medicaments. This is described commercially only as a "Silicone Lubricant." It functions well in giving a smooth action to the syringes. Are there any possible remote ill effects that might result, should some of this material find its way into the tissue?

Lyman C. Blair, M.D., Houston, Texas.

Answer.—The silicones represent such a new development in organic chemicals and are so highly numerous, at least potentially, that as yet real appraisal of toxicity is not available. Some may prove to be highly toxic and others wholly inert. Methyl silicate, an organic silicon compound, is extremely toxic, as determined under experimental conditions. "Silicone Lubricant," on the other hand, appears to be wholly inert. The only conceivable possibility of danger for use in syringes is related to the unlikely mishap from emboli.

TUMOR OF BREAST AND ESTROGEN THERAPY

To the Editor:—A woman aged 35 has noticed a slightly tender mass in her left breast for one week. Physical examination is normal except for a slightly tender, hard, easily movable mass about 1.5 cm. in diameter in the upper outer quadrant of her left breast about 4 cm. from the nipple. There is no retraction sign, dimpling or palpable axillary nodes. The remainder of the left breast and the right breast are normal. She is not pregnant, has never nursed, and there has not been any discharge from the nipple. Should this tumor be removed and sectioned? Could any benefit be expected from a course of estrogen therapy? Would estrogens be likely to cause malignant changes in a benign tumor or increase the malignancy of a carcinoma of the breast?

M.D., New Jersey.

Answer.—The tumor should be excised and a frozen section prepared in the operating room for microscopic study. There is no clear indication for estrogen therapy in this case. There is strong experimental evidence that under special conditions estrogens may stimulate and accelerate epithelial neoplasia in the breasts of animals. There have been some clinical observations supporting these findings, but they are not conclusive.

RADON OINTMENT FOR ARTHRITIS

To the Editor:—Please discuss the use of radon ointment for the treatment of arthritis. M.D., Michigan.

Answer.—Radon ointment has been used for the treatment of arthritis both here and in Europe for several years. The published reports sound encouraging. However, there has not been sufficient corroboration to evaluate with scientific accuracy the therapeutic effectiveness of this form of radiation therapy for arthritis.

References:

Lustig, F.: Radon and Physical Therapy, *M. Rec.* **158**: 225 (April) 1945.

Kestler, O.: A New Method of Local Treatment of Rheumatoid and Traumatic Affections of the Joints, *Geriatrics* **1**: 159 (March-April) 1946.

Jordan, H. H.: Alphatron Radon Ointment, *Indust. Med.* **14**: 964 (Dec.) 1945.

METHOD OF HEMOGLOBIN DETERMINATION

To the Editor:—What method for hemoglobin estimation is recommended for a small hospital? Are grams per hundred cubic centimeters blood or percentages recommended for reporting hemoglobin values?

Isabelle N. Edwards, Greenport, N. Y.

Answer.—A photoelectric colorimeter is recommended for routine hemoglobin determinations. The types of apparatus available may be obtained from a laboratory supply house. The various methods and relative advantages of calibrating the photoelectric colorimeter are discussed by Wintrobe (Clinical Hematology, ed. 2, Philadelphia, Lea & Febiger 1946, p. 259).

Because of the variation in the hemoglobin value in normal persons and because of the variation with age and sex, the expression of hemoglobin in grams per hundred cubic centimeters of blood is preferred.

COMBINED USE OF PENICILLIN AND SULFONAMIDES

To the Editor:—Is there any contraindication to using penicillin along with any of the sulfonamides in the treatment of severe infections for which either would be indicated? Does one drug inhibit or nullify the action of the other? R. A. Yerg, M.D., Reno, Nev.

Answer.—There is no contraindication to the use of penicillin and sulfonamide in combination. Neither drug inhibits or nullifies the action of the other. It is always better medical practice to use only one of the drugs for the treatment of infections. Exceptions can be made in the treatment of mixed infections in which some organisms are sensitive to penicillin and others are sensitive to sulfonamides.

RECURRENT ERYSIPELAS OR FUNGOUS INFECTION

To the Editor:—In the April 5, 1947 issue of The Journal, page 1043, there is an answer to a question concerning recurrent erysipelas. It seems to me that this answer misses the two most likely possibilities, namely (1) that fissures between the toes caused by a fungous infection are serving as ports of entry for the streptococcus or (2) that the recurrent attacks are really not erysipelas but an erysipelas-like dermatophytid. In the July 10, 1943 issue of The Journal there was a similar question to which a detailed answer was given, which went into the possibilities mentioned and also gives the pertinent literature to date. Since then there has been a review of this subject by Waisman entitled "Recurrent Fixed Erysipelas-like Dermatophytids" (*Arch. Dermat. & Syph.* **53**: 10 [Jan.] 1946. I think these two possibilities should be considered, for if either plays a role, treatment which does not eradicate the epidermophytosis focus will be fruitless.

Adolph Rostenberg Jr., M.D., Chicago.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. 134, No. 7 CHICAGO, ILLINOIS JUNE 14, 1947
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THE OBJECTIVES OF THE AMERICAN MEDICAL ASSOCIATION

President's Address

EDWARD L. BORTZ, M.D.
Philadelphia

In San Francisco one year ago the House of Delegates of the American Medical Association conferred the highest honor within its power on one of our nation's great medical statesmen, Dr. Olin West. It was a fitting climax in the life of a man who for more than twenty-five years had been a loyal servant to the medical profession. It is appropriate on the occasion of the Centennial Celebration to pay this word of tribute to that Southern gentleman who elevated his profession, served his nation and enriched his fellow man.

The American Medical Association is highly honored to have as its guests so many distinguished men from other nations of the world. Medical science extends beyond national frontiers. A discovery of importance in one nation ultimately becomes the property of all. The World Medical Association in the field of health is developing a program to facilitate the spread of medical knowledge to all parts of the world. The American Medical Association is cooperating in the program for extending the benefits of science beyond the frontiers of its native land.

THE FIRST MEETING

In Philadelphia in May 1847 a group of doctors stimulated by Nathan Smith Davis drew up plans for a national medical organization. Physicians with forward vision early recognized the need for stabilization in the training of doctors. The first objective for the new organization was a uniform and elevated standard of training leading to the degree of M.D. to be adopted by all the medical schools in the United States. Two hundred and fifty delegates representing some forty medical societies and twenty-eight medical colleges from twenty-two states and the District of Columbia attended the first meeting. Dr. Nathaniel Chapman, a Philadelphian, was elected the first President.

Medical science has progressed further in the last one hundred years than in the previous twenty centuries. Comparison of the medical training in 1847 with the highly organized system of medical education in 1947 indicates the long road which medicine has traveled. The first objective of the American Medical Association through the entire century has been a determined drive for a high standard of training.

At one time one hundred and sixty-five medical colleges in our country offered courses in medicine. Some schools admitted students directly from high school; others accepted young men with an elementary education. The training was for the most part sketchy.

Standardization on a high plane has resulted in an educational program for the development of doctors who are well instructed in the scientific treatment and understanding of disease.

Medical education has benefited greatly by the work of the Association of American Medical Colleges, the National Medical Examining Board, the Federation of State Licensing Boards and the Carnegie Foundation. Special credit is due Abraham Flexner and Nathan P. Colwell of the Council on Medical Education and Hospitals of the American Medical Association, who surveyed the medical schools of the nation soon after the turn of the century and made far reaching recommendations.

1897—THE HALF CENTURY MARK

In 1897 the really big news as carried in the history of this Association was the celebration of the Semi-Centennial in Philadelphia. A world famous surgeon was President, Dr. Nicholas Senn of Chicago. Four of the original founders were still alive: Drs. N. S. Davis of Chicago, Alfred Stille of Philadelphia, J. B. Johnson of St. Louis and D. F. Atwater of Massachusetts. Dr. Senn commented on the advancement of medical education, the improvement of American medical literature, the scientific work of the Association and the development of THE JOURNAL. He commented on the steady growth of the Association and praised the membership of 9,000, predicting that on the occasion of its hundredth anniversary the membership might increase to 75,000 or even 100,000. His estimates of success were sound: the membership of the Association now totals over 131,000 active members. Dr. Senn predicted that inventions and discoveries beyond the conception of his day would be reviewed by the hundredth President of the American Medical Association. The distinguished Senn looked for the growth of medicine and surgery into exact sciences and predicted that organized medicine would contribute liberally toward this end. His vision has proved correct. The dramatic triumphs in the field of public health, sanitation, and preventive and curative medicine have occurred with increasing rapidity as the exact methods of science have displaced empiricism and theory.

CHARLATANS AND PATENT MEDICINES

A review of the history of the Association which has appeared in THE JOURNAL during the past six months from the pen of its talented Editor describes the lively

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President's address before the American Medical Association at the Ninety-Sixth Annual Session, Atlantic City, June 10, 1947.

interest which the Association has always taken in running down pernicious nostrums and worthless patent medicines for which the public each year squanders millions, and the investigation of dangerous quacks who prey on the gullibility of the public, offering high hope of sure cure for the sole reason of financial gain. These busybodies might be ignored were it not for the cruelty inherent in their methods.

An energetic campaign of education of the public is making it increasingly difficult for charlatans to practice their nefarious trade.

The code of ethics which governs the practice of medicine endeavors to protect an uninformed public against the claims of the charlatan. It states that "it is unprofessional to promise radical cures; to boast of cures and secret methods of treatment and remedies; to exhibit certificates of skill or success in the treatment of disease, or to employ any methods to gain the attention of the public for the purpose of obtaining patients."

When a reputable physician is in doubt he promptly requests consultation. The sole aim of such consultation is the benefit to be derived by the patient.

MEDICAL RESEARCH

Spectacular advances have taken place since the turn of the century in various fields of science. Medicine is not slow to investigate each new discovery in the hope of uncovering some valuable lead for the control of disease. Ever since its inception the American Medical Association has established inducements of various kinds to encourage medical research. Grants are awarded from year to year, special studies are fostered, and every encouragement is given to the utilization of the vast resources of the Association, which are made available for research in all fields of pure science and the medical specialties. Medicine in truth is a branch of biology; today medicine looks to the fields of pure science, physics, chemistry, botany, general biology and other branches of science for assistance in charting new paths in the control of disease and the improvement of public health. More than $1,000,000 has been contributed by the American Medical Association for fundamental investigations; from time to time further assistance is being made available as opportunities arise.

PUBLIC EDUCATION

Early in the development of the American Medical Association doctors were urged to take an interest in informing the public of the affairs of medicine and how they affected the public weal. Benjamin Rush, a Philadelphian and a leader in medicine at the time of the American Revolution, urged a campaign for the education of the public. Almost continually since the creation of the Association interest in public education on health matters has been one of its activities. Lectures and campaigns with reference to the protection of vision, the control of venereal disease, the importance of early recognition of cancer and the desirability for universal vaccination have been fostered. In recent years the public health magazine *Hygeia* has been published; its circulation runs into the hundreds of thousands. The people of this nation write over half a million letters a year to the Association headquarters to inquire concerning various aspects of health problems. Today the nation looks to the Association for authoritative information.

PUBLIC HEALTH ACTIVITIES

Early in the affairs of the American Medical Association the members urged the formation of State Health Departments for the purpose of developing public health facilities throughout the entire nation. The Association recommended the creation of a United States Public Health Service. Throughout its entire career organized medicine has urged governmental bodies to utilize all proved scientific measures for the protection of public health. All the resources of the Association are at the command of the national and state departments of health for the promotion of research, the education of the public, the support of campaigns for the study and control of cancer, heart disease, tuberculosis, industrial health and other activities. The Association has demonstrated leadership in campaigns for accident control in the home, on the highway and in industry. From the outset the organization urged the use of reason and understanding rather than emotional blindness in combating fanatic antimedical groups whose policies, if followed, would have forbidden the discovery of antitoxin, insulin and a number of other valuable agents whose therapeutic properties were humanely demonstrated on laboratory animals. It might be noted here that at no time has the American Medical Association ever made an appeal for funds from any agency outside its membership.

DOCTORS AT WAR

When a national peril has arisen the doctors of the nation have been among the first to don the uniform. In World War I approximately 38,000 physicians were in uniform. The American Medical Association turned its interest in the support of the national program toward successful prosecution of the war. Through educational channels and by other important practical measures it contributed to an increase in the efficiency of medical service. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was a most important medium in the distribution of information on military affairs, and in stimulating physicians to maintain medical service for the armed forces at a high level of effectiveness. THE JOURNAL carried articles on practically all phases of military medical service. Discussions concerning the base hospitals and the formation of hospital units appeared. In 1917 THE JOURNAL carried important data in regard to training camps. After World War I Gen. Merritt W. Ireland wrote to the President of the Association concerning the possibility of studying the experiences of the members of the medical profession during the war. Unsolved problems at that time included the consideration of representation of the medical department on the General Staff, control by the medical department of its own personnel, supplies and building program and, finally, appropriate recommendation concerning the qualifications of officers.

During World War II over 60,000 doctors at one time or another were in uniform. It has been stated that 90 per cent of the medical work was carried on by the reserves of the nation. The American Medical Association promptly mobilized for action when the war clouds began to loom. The Association at all times has a classified directory of its membership. The superb editorial and publishing facilities of the Association created a magazine entitled *War Medicine,* which carried important articles bearing on significant developments in this field.

In view of the importance of having a highly effective medical program available in the face of another national catastrophe, the House of Delegates directed that a study be made of the experiences of doctors during the last war. From the investigations which the committee appointed by the Board of Trustees has conducted, certain definite conclusions have been drawn. In the event of another war, and it is almost too much to hope that the world has seen its last conflict, it will be of the utmost importance to have an overall coordinated program built on the predicted medical needs of all portions of the population. In view of the unsettled state of international relationships the need for this program is imminent. Such a plan should be worked out with the consideration of all aspects of medical service, including the need for premedical selection and deferment, the assignment of doctors in appropriate categories, flexibility of mobilization, rotation of personnel and due attention to research. Such a program is not the sole concern of military authorities. It vitally affects every person in the nation, and certainly the American Medical Association with its membership of more than 130,000 cannot escape its responsibility in facing this challenge to national security. The nation trains just so many physicians per year, and the limited supply makes it of paramount importance that their talents be effectively utilized.

THE SUPPLY OF DOCTORS

Considerable comment has been offered in recent years on the number of doctors which the country now needs and will require in the future. Before the war there were more doctors per population in the United States than anywhere else in the world. After the outbreak of war classes in the medical schools were enlarged, the programs were accelerated and students were graduated in three years. With this stepped-up program some medical schools graduated one, and others graduated two extra classes, producing over 10,000 extra doctors in the last six years. Recently three new medical schools have been organized, and more are under consideration, particularly in the South. Due caution should be urged in plans for the establishment of more schools, since there is no essential relationship between the number of medical schools and the distribution of physicians. Costs of medical education are rising enormously, while at the same time the financial support, particularly from private sources, has diminished with equal rapidity.

Statistics indicate that there are approximately 2,000 more physicians being graduated per year now than the annual number of deaths among members of the profession. It must be admitted that shortages of physicians exist in certain areas of the nation. The statement that there are a great many counties in the various states without any physician at all is not especially significant, because many such areas are entirely too sparsely populated to require even one doctor in residence. Further, adequate medical facilities in adjacent counties are usually available. Greatly improved traffic lanes and excellent transportation facilities have minimized the problem of obtaining medical service on demand in hospitals or health centers. The avidity with which large numbers of persons move from place to place for medical attention, even passing excellent hospitals to obtain service at a distant point, suggests that there may be some additional satisfaction in the travel angle.

Approximately 40 per cent of practicing physicians were in military service. With a reduction of doctors on the home front the nation's health was better than ever. From this aspect one might conclude that the fewer doctors, the better the health of the people. As rapidly as it can be safely accomplished, the medical branches of the armed forces have been releasing physicians to inactive status. Instead of promptly returning to practice and thereby alleviating the need for doctors on the home front, a large number of discharged officers are engaged in postgraduate study. Some authorities estimate that up to 20,000 physicians who will ultimately return to civilian practice are still in graduate training.

In addition to those who have been discharged, the Army and Navy have inducted a large number of recent graduates who ordinarily would have entered private practice after internship or residency. Within a year or two this practice will be largely discontinued so that doctors recently graduating from schools and hospitals will be entering civilian practice in addition to the large number of older men who will in two or three years have finished their graduate training. With this sudden release of physicians into civilian practice there may in reality be more physicians than the country requires. Is this in the public interest? On the surface it would appear so. However, authorities believe it would react in just the opposite manner. When doctors do not have sufficient practice to keep busy and thereby earn an income to meet their needs, professional deterioration will occur and the incentive for advanced study is gone. With the loss of professional proficiency medical service deteriorates.

Finally it was recently stated before a congressional committee that more physicians should be trained because the armed forces are unable to recruit a sufficient number of doctors for the regular medical corps. Training more physicians will not create professional incentive for a career with the armed forces. The experience of a large number of civilian doctors during the recent war gave them an opportunity to compare practice under governmental control with private practice. With the creation of adequate professional opportunities for practice, study and research the medical service of the armed forces would be in a position to attract graduates interested in military medicine as a career. This problem is an important one in the interests of national security.

MEDICAL PREPAREDNESS

In the event of another catastrophe the use of atomic energy, biologic products, chemical agents and psychologic propaganda will, in all probability, represent the main types of military aggression. The medical needs of the nation must be determined in the light of this new knowledge. The use of these new and widely destructive agents must be kept in mind in any adequate program for the future security of the nation.

Organized medicine should play a prominent role in the formulation of a medical program that will require the participation of every physician in the nation. A National Emergency Medical Service Administration made up of representatives of organized medicine and related groups should make an exhaustive study of national needs. Appropriate recommendations need to be drawn up and presented to the President of the United States and the Secretaries of War and of the Navy. Past experience demonstrates the need for a peacetime program that will minimize the isolationism between the military medical services and civilian medical practice. Military medicine has many attractive features. Whatever shortcomings exist may readily be corrected by an impartial study of basic requirements.

SPECIALIZATION AND CERTIFICATION

In recent years specialization has advanced to a point where the majority of younger members of the profession are looking forward to some form of specialized practice. A survey indicated that a few years ago 67 per cent of the men anticipated limiting their practice to a particular specialty. Discussions on the role of the family physician and the future of the practice of general medicine have engaged the serious attention of the House [illegible] recent meetings. The Council on [illegible] has been advised to consider the possibility of recommending that general practice be developed as a specialty.

At a recent meeting of the Joint Committee for Coordination of Medical Activities a significant report was offered. In recognition of the importance of general practice, this committee pointed out that a Section on General Practice of Medicine has been created as a part of the Scientific Assembly. This is a definite contribution as far as it goes. It would be rather difficult to crystalize the boundaries and the limitations of general practice. Ordinarily the general practitioner is capable of handling the majority of the ailments of his clientele. When he needs help he calls for the specialist. The modern family doctor has adequate facilities at his command in the form of current periodicals and authoritative works by distinguished teachers. Postgraduate courses are being conducted throughout the length and breadth of the nation by county and state medical societies for the instruction of all physicians regardless of affiliation. These extension courses, some of which have been carried on in collaboration with various organizations, have proved eminently successful.

With the rapid increase in medical knowledge and the continuing improvement in medical training, graduates from the seventy-seven approved schools of the nation, regardless of their ultimate special field of practice, will require hospital facilities for the study and treatment of a certain number of their clientele. It is probable that the medical needs of the nation could be satisfactorily met if approximately two thirds of graduates would plan for general practice and one third prepare themselves for special fields. There are about 21,000 specialists certified by specialty boards and around 131,000 other practicing physicians at present.

The certifying boards were created to insure that the highest standards of performance would be furnished the public. For the purpose of measuring the qualifications of candidates for special practice, various written and oral examinations have been given. At no time has any suggestion been made by the specialty boards to any medical institution, school or hospital that certification should be a prerequisite for appointment to the faculty or staff.

ECONOMIC RESEARCH IN MEDICINE

With the advance of medical science and the elaboration of complex procedures for diagnosis and treatment, the costs of medical services have become increasingly important. Expensive hospital procedures and long continued illness are costly items which, without previous planning, have frequently proved burdensome. The American Medical Association has long been cognizant of this problem. Since 1930 the Bureau of Medical Economic Research has been investigating various aspects and encouraging studies in particular areas for the purpose of arriving at a practical and satisfactory solution. Although the majority of common ailments do not create a serious financial burden, prolonged illness and major surgical operations frequently do. The prepayment medical care plans which are being promoted by the American Medical Association and under which approximately six million citizens are now covered are designed to give the American people a chance to choose between "budget and bludgeon."

At present the Bureau of Economic Research of the Association is expanding its studies in this field under a professional economist. Under various plans voluntary health insurance has proved valuable to some forty million of the nation's population, as estimated from enrolment statistics. The American Medical Association has approved the principle of voluntary health insurance for hospitalization and medical care. The criterion on which approval is based is the requirement that a high quality of medical service be made available without interfering with the physician-patient relationship.

The American Medical Association will promptly support any suggested alteration in furnishing medical care to the nation which will in reality guarantee a higher quality of service.

OPPOSING FORMS OF GOVERNMENTS

Two philosophies of government are striving for supremacy in world affairs today. One believes in the dignity and the emancipation of the individual. It endeavors to guarantee freedom and opportunity for human betterment, imposing only those conditions which are necessary for the protection of society. In this form of government the state serves the people and is responsible to them. With adequate safeguards and checks the nation under this philosophy has flowered and grown strong.

The other form of government, in which the state is supreme, restricts individual liberty and continually limits individual rights and privileges. The vast majority of physicians in this nation is definitely committed to the democratic principle and combats vigorously any attempts to regiment the members of the profession and to make them subservient to a bureaucracy. If the trend of national affairs should move in the direction of socialism, then the professions, industry and labor must realize that their regimentation will not be long delayed. Compulsory taxation cannot be termed insurance, nor can health be gained by governmental decree. American medicine is dedicated to the high interest of social progress and will cooperate for the creation of a program of expanding medical service to all portions of the population. It will determinedly resist any visionary schemes that would embarrass the medical profession in its endeavor to furnish a satisfactory service to those in need. Comparative statistics from other nations have not demonstrated medical service superior to that of this nation. Nowhere has sickness been reduced; wherever the government has intervened between physicians and patients complaints have greatly increased in number.

A recent estimate indicates that the creation of a political medical program for this country would involve sums so tremendous as to be staggering in their totality. American medicine is keenly alert to the dangers lurking in visionary promises for governmental participation of a paternalistic nature that would reduce the quality of service and stifle professional initiative.

COMMUNITY HEALTH NEEDS

At present the American Medical Association is conducting a number of important investigations on community health needs, the distribution of doctors and the rural practice of medicine. It is particularly interested in hospital facilities and the maintenance of standards of hospital service.

The hospital is an important instrument for the public welfare. It has potentialities for education of the public as well as the members of the medical and nursing staffs. More and more the practice of medicine is stressing details of hygiene, prevention and prophylaxis of disease and the importance of early diagnosis. From an educational point of view the hospital should be a teaching center for the maintenance of health, the early recognition of disease and, finally, treatment. Members of hospital staffs in effect are engaged in the group practice of medicine. Some staffs are highly organized and definitely so regarded, while others carry on the spirit of group practice but are not so incorporated.

The central feature of the modern hospital should be the diagnostic clinic with a staff of general practitioners plus specialists as determined by community needs. The better the facilities for the study and treatment of disease in its incipient stages, that is, when patients are ambulatory, the less need will there be for confining patients to hospital beds for mere routine study. This field of rich opportunity needs much more development than has taken place to date. Augmentation of hospital staffs will furnish increased opportunity for general practitioners to participate in conferences and follow their own patients through the channels of investigation and treatment. Finally, members of the hospital staffs should be sufficiently interested in furthering the study of disease to carry on investigations from time to time and to make reports on carefully controlled observations. In this way the influence of medicine will continue to expand in each community and the level of service there will continually grow in proficiency.

PUBLIC RELATIONS

The interpretation of medical activities bearing on the health of the nation in terms of public understanding is a prominent responsibility of the members of the medical profession. Support and confidence of the public is essential to satisfactory medical care. To keep the channels open for informing the American public of significant events in the world of medicine the American Medical Association has developed a number of valuable activities. News releases, the use of the radio, *Hygeia* and units of the Woman's Auxiliary have functioned admirably. The relationship between the profession and the fourth estate, the ladies and gentlemen of the press, has always been most amicable. Due credit here should be given to the high quality of accuracy with which medical news has been interpreted in the lay press. Science has a constant ally so long as truth can be revealed uninfluenced by political pressure.

Public relations at the individual, community or national level is largely a matter of friendly understanding. When a large amount of important information bearing on the public welfare becomes available, its widespread dissemination is the proper function of organized medicine. With this in mind the Association is taking energetic measures to keep the public informed of its problems and accomplishments.

Members of the profession have an obligation to inform communities in which they reside of the ideals toward which medicine is striving. Too few doctors have schooled themselves in the art of expression before lay groups. As members of a learned profession dedicated to the welfare of their fellow men, physicians are unusually experienced in matters of social importance. It would appear, therefore, that an active part in community civic affairs would extend the influence of the physician and aid in offsetting the influence of visionary planners who are out of touch with reality.

MEDICAL ALLIES

This is an appropriate occasion for the doctors of the nation to express their gratitude to their loyal colleagues who have done so much in advancing the common cause, the "Nightingales" of America, the nurses without whom the present high quality of medical service would have been impossible of attainment. Organized medicine is in close touch with the perplexing problems facing the nurses today and will furnish every assistance possible in reaching solutions to bring greater satisfaction and security to those engaged in one of the noblest of the arts.

Medicine requires libraries for education, precision instruments for performance and accurately assayed drugs for treatment. The story need be told of those groups who create the volumes, instruments, and drugs for the profession. In these fields a precision of technic is required which permits no inaccuracy. It is of the greatest importance that those articles which are the doctor's stock in trade should be of the best quality and usefulness.

The allies of the medical profession have the same goal as the physicians, the same triumphs and defeats. In a sense they complement one another; the success of one reflects credit on all.

Some of the finest research in the medical world at the present time is being carried on in laboratories of large pharmaceutical organizations. They have called into counsel leading authorities from the far ends of the earth. Any performance less than the best is not acceptable.

It should be emphasized that laboratories for medical research are not the sole concern of medical faculties or the foundations. High credit is due those organizations which have joined forces in exploring new fields in a search for more effective weapons in the control of disease.

In the enchanting field of research a number of allied groups are engaged, colleagues in the same cause, using the same blueprints and libraries for reference. Plans are worked out together, and when success crowns any project one group prepares the product and the physicians administer it.

The kinship of various groups allied in a common cause offers a guaranty of continued progress in the advancement of medical knowledge.

SOCIAL MEDICINE

Medical statesmen have a role to perform in helping to shape the destiny of national affairs. Doctors are interested not only in the physical health but, of even greater importance, in the peace of mind of their clientele. These turbulent times precipitate sharp clashes between individuals and their environment that are reflected in physical or mental ailments which send folks, heavyhearted, to their family physicians.

The medical practitioner today is studying not only the individual but his relationship and reaction to other members of his family and his community. Unstable society is likely to engender an increased number of neurotic reactions on the part of citizens. Family doctors in the role of shock troops of modern medicine study their patients in the light of these social problems. There is nothing essentially new in the story of social medicine and its pathology. Whereas individual pathology considers the disorders of the patient, social pathology reflects the disorders of his surroundings. While the terms are new the problems are old. The increasing number of patients with hypertension, peptic ulcer, thyroid disease, rheumatic disorders and the neuroses reflects the inability on the part of these patients to adjust to the tempo of modern society. Medicine's field of vision has expanded in accordance with the changing pattern of the diseases of modern civilization, and the physician is energetically inquiring into improving the methods of their control.

CHARTING NEW SEAS

Medical research has sharpened its weapons for probing the secrets of those common disorders which threaten human existence. The real zest of life is at the growing edge where the frontiers are expanding. Research workers probe into the terrain of the unknown and, in the last quarter century, have discovered new methods for the control of the anemias, diabetes, infectious and contagious diseases, nutritional deficiencies and for the correction of abnormalities which previously threatened life. With the onward march of medical science the diseases which exacted such a large toll in infancy and the early years have been brought under control.

Across the centuries many improvements have come through social progress. While no comprehensive measure or index is available, we can regard each specific accomplishment in the broad area of social progress as being reflected in the length of human life. Twenty centuries ago the life expectancy of Roman citizens of the upper class was approximately twenty-five years. In 1847, the year when the American Medical Association was founded, the average future lifetime at birth was approximately forty years. In 1947 it is estimated to be almost sixty-seven years. Hence on the occasion of this Centennial celebrating one hundred years of organized medicine, there can also be celebrated a century of phenomenal progress in man's fundamental attempt to avoid death. A gain of from approximately forty years to almost sixty-seven years as of June 1947 is indeed one of the greatest accomplishments in the history of mankind. We salute the American people on this great achievement in survival. Truly, we are today celebrating the century of the greatest social progress in the history of the human race.

The doctor of medicine has been the agency through which most of these fundamental improvements in man's environment and in the control of disease have actually reached the people. Organized medicine can look back on this century with the assurance of a great contribution to the efforts of the American public to continue living longer.

Great as has been the advance of medicine in the past twenty-five years, even more spectacular is the promise for medicine during the next quarter century. The American public can rest assured that the members of the medical profession in this land will carry on a never ceasing battle to bring the destructive agents under control and free the population from the hazards that interfere with the daily lives of so many. The scientific method indeed is paying rich dividends in probing the realm of the unknown; yet to be clarified are the major problems of today which influence and govern the conduct of each individual. In the words of Walter B. Cannon, "It is the inhumanity of human beings that spoils the achievements of science." If on the one hand the atomic age has brought the atomic bomb, on the other it offers highly effective weapons for the enhancement of human existence.

Civilization is at the crossroads and must decide in what direction to go. Cannon asks what can be done to improve human behavior and describes it as the supreme challenge, the most important frontier yet to be explored. The scientific method, the search for truth—therein lies the hope for more stable relationships. While the scientific method has had spectacular triumphs in revealing the mysteries of the physical world, its greater opportunity lies in the direction of probing those forces which control the activities of men.

There are potent biologic factors which shape human destinies, only a few of which have recently been evaluated. Progress has been made, however, in the realm of the endocrine glands. A cretinous youngster may be transformed into a normal child. Violent reactions of an emotional nature can be evoked or abolished at will by experimental means. Cannon has opened the door and indicated what lies within. He states that physicians are now beginning to learn more about the fundamental traits common to man and his humbler relatives. Possibilities now exist of becoming acquainted with powerful factors which may deeply affect human dispositions and reactions to external conditions. Medical science now is beginning to utilize the experimental method for understanding man's reactions and ways of influencing them.

Man is not a reasonable creature; he is ruled by his impulses and emotions. These determine his actions. In the interest of self preservation science today needs to study the basic fundamental traits that influence the dispositions and actions of men. Herein is the great challenge, the new frontier, the hope of mankind.

In an address before this Association in 1910 Dr. W. H. Welch, then President, described organized effort as a distinguishing mark of modern civilization, as essential for the advancement of science as for the promotion of commerce.

New knowledge has given the family physician a greater control of the disorders which threaten the health of his patients. Organized medicine is taking the lead in improving the conditions of the worker in home, school, field and factory. On the occasion of the Centennial Celebration, the American Medical Association experiences a just pride in the accomplishments of American medicine and in the contributions the Association has made in the spheres of medical education and public enlightenment. It enters its second century with abundant vitality and renewed vigor, steadfast in purpose and confident in its ability to attain even greater objectives for the benefit of mankind

TREATMENT OF DUODENAL ULCERS

Partial Gastrectomy versus Palliative Resection

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New York

In 1927 I presented, before the American Medical Association, a paper on partial gastrectomy versus gastroenterostomy in the surgical treatment of duodenal ulcers.[1] At that time the group of physicians performing gastroenterologic surgery at the Mount Sinai Hospital then headed by Dr. A. A. Berg was trying to introduce gastric resection with removal of the duodenal ulcer as an operation of choice.

The importance of this more radical operation for the avoidance of postoperative peptic ulcer was first emphasized by Haberer[2] in 1920. He pointed out that in order to achieve satisfactory results three criteria had to be met: (1) removal of the duodenal ulcer, (2) removal of the pylorus and (3) resection of at least 60 per cent of the stomach. The omission of the first two steps of this procedure cannot be compensated by increasing the extent of the resection toward the cardia.

At the outset the views of this group encountered widespread opposition. As time passed, however, a gradually increasing reversal of opinion was noted among many surgical colleagues. Today, advocacy of gastroenterostomy as the method of choice in the treatment of duodenal ulcer would probably be criticized as severely as was the recommendation of partial gastrectomy twenty years ago.

Though gastroenterostomy has lost most of its supporters as a method of choice, it is still used extensively in this country as a method of expediency. For instance, in 1944 surgeons at the Mayo Clinic[3] performed gastroenterostomies in 37 per cent of the cases of duodenal ulcers.

The terms subtotal gastrectomy and partial gastrectomy as applied to the operation for duodenal ulcer are apparently defined in a variety of ways by different surgeons. These variations have become so divergent that it seems wise to reiterate the proper definition of these terms. The expression subtotal gastrectomy was originally and correctly employed to describe the operation necessitated by the resection of extremely large gastric ulcers. It should be emphasized that this includes transection distal to the pylorus and the removal of four fifths of the stomach proximal to it.

In the early days of radical surgical intervention for duodenal ulcer (I use the word radical in contradistinction to local excision, pyloroplasty, gastroenterostomy, Eiselsberg or Finsterer operations) the term partial gastrectomy was used. Partial gastrectomy or gastric resection meant one thing then and should mean only one thing now, namely, removal not alone of two thirds of the stomach but of the pylorus and the duodenal ulcer as well. Operations which deviate from this technic should not be called partial gastrectomy for duodenal ulcer. For instance, if either the duodenal ulcer or the pylorus, in part or in toto, is left in situ, the procedure should be classified as palliative resection, a classification which has been employed by different authors for many years. If a surgeon removes part of the stomach and leaves the duodenal ulcer in its place, he is not warranted in calling the operation partial or, worse yet, subtotal gastrectomy. Unless a proper nomenclature is strictly adhered to, the records will be hopelessly confused. Unsatisfactory results will be attributed to partial gastrectomy in cases in which this operation had really never been performed (fig. 1).

The dangerous spread of a lax nomenclature even in some of the leading centers of surgical teaching is evident from a recent statement by McKittrick:[4] "At the Massachusetts General Hospital subtotal resection is the accepted operation for intractable duodenal ulcer. By subtotal resection we mean a removal of the distal two thirds of the stomach to or beyond the pyloric ring or the removal of all the distal two thirds except a small segment of the antrum from which the mucosa has been excised." McKittrick gives a good description of the so-called prepyloric and postpyloric resections, which were described by Finsterer[5] in 1918, a few years before Haberer showed the importance of the removal of the duodenal ulcer and the pylorus. The Finsterer operations may in rare instances be employed as makeshift operations in nonresectable ulcers. They should never be classified as subtotal gastrectomies. Finsterer considered his operations as methods of expediency for nonresectable duodenal ulcers in close proximity to the papilla of Vater, not as methods of choice. In ulcers situated in the first part of the duodenum (by far the most frequent location of the ulcers) he advised a typical gastric resection, both for anterior and posterior duodenal ulcers.

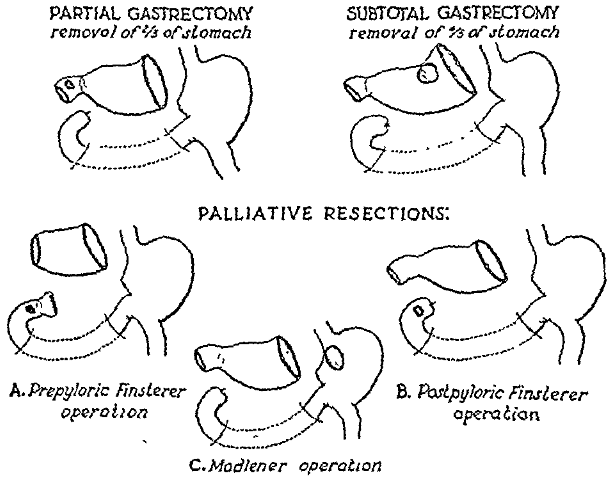
PARTIAL GASTRECTOMY
removal of 2/3 of stomach
SUBTOTAL GASTRECTOMY
removal of 4/5 of stomach
PALLIATIVE RESECTIONS:
A. Prepyloric Finsterer operation
B. Postpyloric Finsterer operation
C. Madlener operation

Fig. 1.—Different types of gastric resections for ulcer.

Rienhoff,[6] in reporting 260 gastrectomies for duodenal ulcer from the Johns Hopkins Hospital has stated that in over 75 per cent of the patients the ulcers were left in situ.

Even in the institution with which I am associated, this so-called conservative trend of leaving any not

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Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Lewisohn, R.: Gastroduodenal Ulcers: Partial Gastrectomy Versus Gastroenterostomy in Their Surgical Treatment, J. A. M. A. **89**: 1649 (Nov. 12) 1927.

[2] Haberer, H.: Anwendungsbreite und Vorteile der Magenresektion Billroth I., Arch. f. klin. Chir. **114**: 127, 1920.

[3] Counseller, V. S.; Waugh, J. M., and Clagett, O. T.: Report of Surgery of Stomach and Duodenum for 1944, Proc. Staff Meet., Mayo Clin. **21**: 17, 1946.

[4] McKittrick, L. S.; Moore, F. D., and Warren, A.: Complications and Mortality in Subtotal Gastrectomy for Duodenal Ulcer, Ann. Surg. **120**: 531, 1944.

[5] Finsterer, H.: Ausgedehnte Magensresektion bei Ulcus duodeni statt der einfachen Duodenalresektion bezw. Pylorusausschaltung, Zentralbl. f. Chir. **45**: 434, 1918.

[6] Rienhoff, W. F.: An Analysis of the Results of Two Hundred and Sixty Consecutive Cases of Chronic Peptic Ulcer of the Duodenum, Ann. Surg. **121**: 583, 1945.

easily resectable ulcer in situ is favored by the present group in charge of gastric surgery. Colp[7] recently reported about the material on his ward service (1937-1943) at Mount Sinai Hospital. He stated that among 173 resected cases only 102 specimens contained the ulcer. In addition 48 (21 per cent) gastroenterostomies were performed. In other words, his group performed a typical gastric resection with removal of the duodenal ulcer in less than half of the cases. On his service every gastric resection, whether the duodenal ulcer is removed or left in situ, is classified as subtotal gastrectomy. Other surgeons in this hospital have reserved the term of partial or subtotal gastrectomy for those cases in which the duodenal ulcer was removed. With this wide divergence in classification any accurate statistical evaluation of the material seems impossible. Naturally the same impasse will be reached in other institutions, unless a uniform nomenclature is adopted by every surgeon.

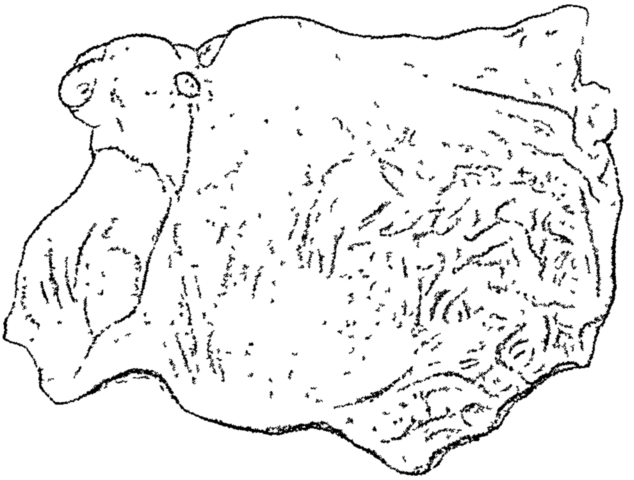

Fig. 2.—Duodenal ulcer in close proximity to the pylorus.

It is of the greatest importance to adhere closely to the correct technic in the treatment of duodenal ulcers. Removal of part of the stomach without removal of the ulcer will put the clock of progress back. It may present the mirage of an easy solution of a sometimes difficult technical problem, but it will fail to achieve good permanent results. For this reason the so-called postpyloric Finsterer operation was abandoned many years ago, except as a method of expediency in a relatively small group of cases. The recent attempt to revive this method will lead again to failure.

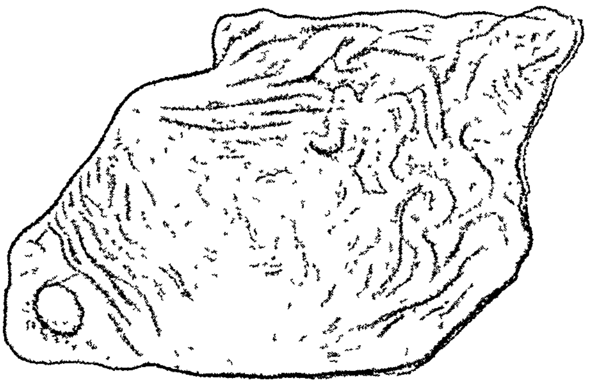

Fig 3.—Duodenal ulcer on the posterior wall penetrating into the head of the pancreas. Pronounced inflammatory reaction surrounding the ulcer.

It seems peculiar that the importance which the complete removal of the pylorus plays in insuring satisfactory end results after partial gastrectomy for duodenal ulcers does not seem to be appreciated by many American surgeons. It is evident that some surgeons in this country try to steer a middle road between partial gastrectomy and gastroenterostomy. Undoubtedly they overestimate the inherent risks of including the duodenal ulcer in the gastric resection. The fact that an ulcer is situated on the posterior wall of the duodenum or that it is adherent to neighboring organs like gallbladder, colon or pancreas is not sufficient reason to declare an ulcer not resectable. However, as in subtotal gastrectomies for large gastric ulcer on the posterior wall with dense adhesions to the pancreas, it is occasionally advisable to cut around the duodenal ulcer and leave its base on the pancreas.

Two technical points are of great importance in dealing with duodenal ulcer: (1) The line of dissection should be below, not above, the ulcer, and (2) a sufficient portion of normal duodenum should be freed on its posterior wall from the surrounding tissue, especially the pancreas, to allow a safe closure of the duodenum.

The frequent impossibility of leaving the duodenal ulcer in situ and simultaneously establishing a safe closure of the duodenum is well demonstrated in a number of drawings which I published in a paper entitled "Persistence of Duodenal Ulcers After Suture of an Acute Perforation."[8] These drawings show that it would have been impossible to exclude the ulcer from the resection without leaving the pylorus or part of the pylorus behind. In the first specimen the ulcer was located right at the pylorus (fig. 2). In the second case the punched-out ulcer was surrounded by an area of intensive inflammatory tissue, which fixed the ulcer to the pancreas (fig. 3). In order to free the ulcer properly a part of the pancreas had to be resected. The patient made an uneventful recovery. If the ulcer had been left behind, the surgeon would undoubtedly have left part of the pylorus and possibly part of the antrum in situ. Most duodenal ulcers are located on the posterior wall either as single ulcers or as so-called kissing ulcers just beyond the pylorus. The operation of partial gastrectomy was not devised to include only easily resectable ulcers on the anteroir wall of the duodenum.

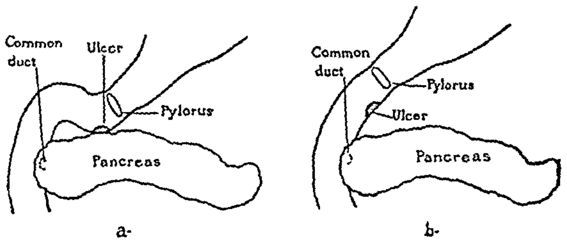

Fig 4.—Duodenal ulcer in its relation to the pancreas and common duct (*a*) before and (*b*) after the freeing of adhesions (diagrammatic)

An ulcer on the posterior wall may, at the outset, give the impression that its removal would not leave sufficient space below the ulcer for a safe closure of the duodenum. However, figure 4 shows that by properly freeing the ulcer from the pancreas the removal of a duodenal ulcer which seemed to offer considerable difficulty was transformed into a simple technical procedure.

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[7] Colp, R.; Klingenstein, P.; Mage, S., and Druckerman, L. J.: Subtotal Gastrectomy for Duodenal Ulcer, Ann. Surg. **120:** 170, 1944.

[8] Lewisohn, R.: Persistence of Duodenal Ulcers After Suture of an Acute Perforation, Surg., Gynec. & Obst. **64:** 172, 1937.

The statement is frequently made that cases of duodenal ulcer with pyloric obstruction can be satisfactorily managed by gastroenterostomy. This is based on the mistaken idea that pyloric stenosis is usually due to scar obstruction and that the active ulcer is healed. Actually many of these stenoses are due to the inflammation and edema present about one or more active duodenal ulcers (fig. 5). Unless such patients are subjected to adequate resection, the danger of subsequent jejunal ulcer is considerable

Success or disaster in gastric resection depends mainly on a safe closure of the duodenal stump. Even if it is possible to remove the pyloric ring in its entirety, the structures between the pylorus and the upper margin of the ulcer are usually so changed that a safe suture of the duodenum is impossible. In order to reach normal duodenal tissue the duodenal ulcer must be included in the resection The duodenum should be freed sufficiently far on the posterior wall to allow an adequate two layer suture. The most important layer of suture is the first layer. Unless this suture is inserted with the greatest care a leak may occur. A second row of sutures reenforces the first layer. In some instances a third row of sutures may fix the duodenal stump to the capsule of the pancreas, thus burying the entire stump. As a rule drainage is not only unnecessary but contraindicated.

Drainage of the abdomen through a stab wound in the right flank as a method of choice is advocated by many surgeons who leave the ulcer in situ. It is the best proof that they are not convinced of the safety of the duodenal closure. Surgeons who complete the duodenal closure distal to the ulcer and thus are able to establish a safe suture line, find the use of drainage unnecessary in most cases. When a leak occurs the postoperative course is inevitably prolonged. Those who advocate leaving the ulcer in situ should publish not only their mortality but their morbidity figures.

The only reason for the unnecessary ultraconservatism in dealing properly with duodenal ulcers is an unduly exaggerated fear of postoperative pancreatitis. It is surprising that in spite of the progress which has been made in the surgery of the pancreas in recent years, some surgeons seem afraid to remove duodenal ulcers which disclose definite adhesions to the pancreas which may require sharp dissection.

No experienced gastric surgeon will deny that one occasionally encounters nonresectable duodenal ulcers, mainly those which involve the common duct so intimately that radical removal with dissection from the duct cannot be safely performed. Furthermore, the general condition of the patient may be so precarious that any major operation is contraindicated. For these two groups of cases, which are indeed rare (certainly not more than about 5 per cent of the duodenal ulcer material), a simple gastroenterostomy is the best method.

The conviction still widely held, that resection for duodenal ulcer is inevitably accompanied by an inherent high mortality, is certainly not substantiated by the amazingly low mortality figures reported by some clinics. For instance, Lahey[9] and his associates have performed 530 consecutive gastric resections for duodenal, gastric and jejunal ulcers with a mortality of 1.5 per cent. Incidentally, it should be pointed out that gastroenterostomies or palliative resections for duodenal ulcer are seldom performed at the Lahey Clinic. Naturally, it is impossible to achieve such excellent results, unless a perfect organization representing surgery, medicine, gastroenterology, laboratory and x-ray departments cooperates. Furthermore, the surgeon must have acquired a perfect technic for the duodenal resection. This type of surgical intervention cannot be performed by the general surgeon with a small gastric material. His mortality figures will be unduly high.

While some surgeons may attempt to defend the practice of leaving the ordinary chronic duodenal ulcer in situ, even the most convinced proponent of this method must admit that the situation is quite different in an ulcer complicated by uncontrollable hemorrhage. For reasons which will be demonstrated later, it is particularly in this type of case that the operative experience acquired by the surgeon who habitually resects distal to the ulcer will prove its usefulness.

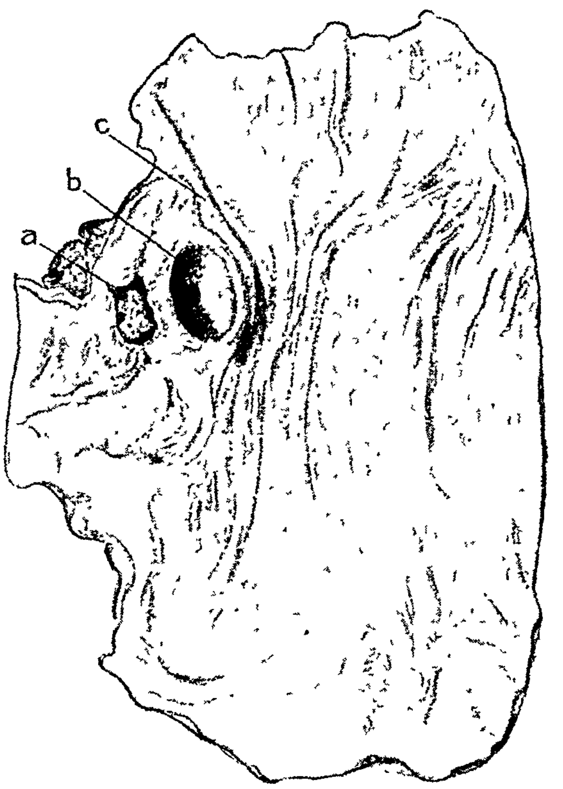

Fig. 5—Specimen showing a duodenal ulcer (*a*) on the posterior wall and a diverticulum (*b*) just beyond the pylorus (*c*).

At present considerable confusion exists as to the natural course and therapeutic indications of bleeding duodenal ulcers. This is largely due to a failure to differentiate and classify properly the various types of bleeding that are encountered. The situation will be considerably clarified if hemorrhage due to duodenal ulcer is divided into three groups: (1) mild hemorrhage of an ulcer which stops spontaneously after only slight loss of blood and with a *minimum* of constitutional symptoms; (2) severe bleeding which stops after a few blood transfusions, and (3) uncontrollable hemorrhage which remains unaffected after a number of blood transfusions. Obviously if the first group, which constitutes a large proportion of all cases, is grouped with the other two, an erroneous concept as to the potential dangers of the severer types of bleeding may be acquired. Group 3 may be small in number as compared with group 1 or 2. However, group 3 represents one of the most serious problems in the treatment of ulcers. In 1943, for instance, 52 patients were admitted with bleeding duodenal ulcers to the medical wards of Mount Sinai Hospital. In 21 cases the bleeding was so mild that the patients recovered without a transfusion. Thirty-one patients received one or more transfusions. These 31 cases represent hemorrhage of groups 2 and 3. Four patients died. It should be noted that other authors have reported considerably higher mortality figures.

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[9] Marshall, S F Recurrent Ulcer Resulting from Inadequate Gastric Resection, Lahey Clin Bull. 4: 182, 1945.

The mortality for severely bleeding ulcers would be even higher if those cases in which bleeding, though profuse, stops after a few transfusions were separated from those in which it continues after a number of transfusions. It is in this latter group that surgical procedures must supplant medical treatment, if the patient is to be saved. It is in this latter group that the mortality will be high unless, as Finsterer[10] pointed out, these patients are operated on before they are so hopelessly exsanguinated that the tissues have lost their recuperative power. It is in this latter group that supreme technical skill is needed in order to save the patient's life by a rapid gastric resection. The bleeding occurs in most cases in an ulcer situated on the posterior wall with an open vessel in the center of the ulcer. Transfixion or cauterization of the ulcer, as Rienhoff[6] has advised, often is technically impossible and may not prevent continuation of the hemorrhage with subsequent fatal issue. Attempts to tie off the afferent vessel will usually prove futile, as it is in most instances a branch of the pancreaticoduodenal artery which cannot be reached without prior removal of the duodenal ulcer.

In certain circles the opinion is apparently held that operation during the active stage of hemorrhage is practically always unwarranted. It is my opinion that a more aggressive attitude in the surgical treatment of bleeding duodenal ulcers will result in a lower mortality. Without such surgical intervention a number of patients in whom hemorrhage has not ceased after a series of transfusions will go on to a fatal issue. Age is not a definite criterion, though most of the fatal cases occur in the higher age groups (above 45).

SUMMARY

1. The term "partial gastrectomy for duodenal ulcer" should be used only when the gastric resection includes the removal of the duodenal ulcer.

2. If the duodenal ulcer is left in situ the operation should be classified as palliative resection.

3. The term "subtotal gastrectomy" implies that a small pouch of stomach remains after the gastric resection. It should never be used in describing gastric resection for duodenal ulcer, which does not remove more than one half or two thirds of the stomach.

4. In order to guarantee a complete removal of the pylorus and a safe closure of the duodenum, the resection should be carried below the ulcer.

5. I strongly advise against the technic which leaves the ulcer in situ. Such a procedure is apt to be followed by an increase in immediate postoperative complications and an increased incidence of jejunal ulcers.

6. Abdominal drainage is unnecessary and inadvisable in most cases. It indicates that the surgeon is not satisfied with the safety of the duodenal suture.

7. In most bleeding duodenal ulcers the hemorrhage stops spontaneously or after a few transfusions.

8. However, in a small percentage of these cases, partial gastrectomy must be employed as the only possible procedure in an attempt to save the life of the patient.

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ABSTRACT OF DISCUSSION

DR. FRANK H. LAHEY, Boston: I agree with practically everything that Dr. Lewisohn has said. I should think that he would get a great deal of satisfaction in presenting this subject, particularly in view of the difficulties that he and several others in this country who were pioneers in advocating subtotal gastrectomy had in gaining the acceptance of subtotal gastrectomy. That was the period of debate in regard to the value of gastroenterostomy versus subtotal gastrectomy and the mortality of gastroenterostomy as compared with the mortality of subtotal gastrectomy. Surgeons are now on the threshold of another comparison, and that is a comparison of the results with the method of treating gastric and duodenal ulcer by vagotomy with those of subtotal gastrectomy. The comparison of the results of subtotal gastrectomy with those of vagotomy is at a very early stage. It will be interesting to observe whether these results are compared and reported with greater tolerance, justice and consideration than were the comparisons between gastroenterostomy and subtotal gastrectomy. During the period while subtotal gastrectomy was being put on probation its opponents became stirred up and not a little unfair. Not only was this attitude an injustice to the men who strongly urged subtotal gastrectomy at that time but I am sure that the results with gastroenterostomy were not reported as scientifically and as justly as they should have been. As a result of these experiences reports on results and comparisons between subtotal gastrectomy and vagotomy as a method of treating peptic ulcer will be made much more scientifically and much more justly than was the comparison between gastroenterostomy and subtotal gastrectomy. There are certain things about vagotomy that all will watch with interest. One is, as the result of the atony which occurs after vagotomy, how many of these vagotomized patients, particularly those with duodenal ulcer, which so frequently produces some degree of obstruction, will need later gastroenterostomy? Since vagotomy only temporarily lowers acidity, if gastroenterostomies have to be performed, how many gastrojejunal ulcers will later follow this procedure? When one realizes that extremely active duodenal ulcers cicatrize when healing and frequently produce some degree of obstruction, the combination of cicatrix plus atony can and probably will make it necessary to follow vagotomy later by an as yet unproved number of gastroenterostomies. Because of this uncertainty, my position and that of my associates has been that we will reserve vagotomy for those patients with complicated ulcers in whom we consider that an operation as yet unseasoned is justified in terms of risk, such as the patients who have had high subtotal gastrectomies and in whom recurrent jejunal ulcers have later developed. In these cases we would be quite willing to perform vagotomies, because in spite of the gastrojejunal ulcer they will, with a large stoma, drain even though atony occurs. As yet I do not want to perform many vagotomies for duodenal ulcers in relatively young persons when there is an other well proved operation, tested over the years, that gives reasonably good results; however, I do feel that vagotomy is a real contribution, and it is of value to have another method of approach. I hope it works because it is technically much easier on the surgeon than a subtotal gastrectomy for duodenal ulcer which has to be taken off the common duct. When one compares the mortality between gastric ulcer, duodenal ulcer and jejunal ulcer, all operated on by subtotal gastrectomy, as shown in our series (85 gastric ulcers—

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[10] Finsterer, H.: Surgical Treatment of Acute Profuse Gastric Hemorrhage, Surg., Gynec. & Obst. 69: 291, 1939.

no mortality, 358 duodenal ulcers—mortality 2 8 per cent, and 87 jejunal ulcers—mortality 2 3 per cent), it may be seen that the mortality is highest in subtotal gastrectomies for duodenal ulcers This is due to the fact that so many of these ulcers are old, have become adherent to the common duct and have eroded into the head of the pancreas What has this to do with gastroenterologists? I strongly urge that the patient with a chronic duodenal ulcer that has recurred frequently be submitted to operative intervention earlier than has often been the case in the past, before the erosion of the pancreas, cicatrization and adherence to the common duct have taken place Many of these complications which produce the mortality with duodenal ulcer can then be technically avoided We at the Lahey Clinic have demonstrated, I think, as have all men who do much gastric surgery, that subtotal gastrectomies can now be performed with relatively low mortality We are seeking, all of us, to lower this mortality rate even more, and one method, particularly with the duodenal ulcers, by which this can be accomplished is their resection before they have become so cicatrized and have eroded so deeply into the pancreas

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GASTRIC OPERATIONS

Troublesome Postoperative Symptoms with Special Reference to Carbohydrate Ingestion

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and
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Boston

There has been a tendency to consider gastric operations successful if a recurrent benign or malignant ulceration does not develop While it has been recognized that after such procedures patients may have difficulty in regaining their preoperative weight and some may require treatment for a secondary anemia, it is doubtful if physicians at large have accepted the fact that 5 to 25 per cent of these patients have complaints which are related to the ingestion of food[1] These symptoms may occur as a mild or severe attack which includes some or all of the following. sensations of warmth, sweating, dizziness, faintness, palpitation, nausea and abdominal pain Extreme instances of syncope or convulsions are cited in the literature, whereas mild attacks may simulate hunger pains or the hot flushes of the menopause Attacks may come on either immediately after eating or several hours later A study of a group of patients who had had various types of gastric operations suggests that these symptoms are commoner than is generally realized and are related to a diet rich in carbohydrates

The cause of this syndrome has been the subject of considerable speculation In 1933 Lapp and Dibold[2] corroborated by Beckermann[3] called attention to the occurrence of spontaneous hypoglycemia with typical symptoms several hours after meals They found that dextrose tolerance tests performed in patients who had had gastric operations showed abnormally steep curves, with the blood sugar rapidly rising to levels above normal and subsequently falling to below normal. Inasmuch as a similar curve could be produced by injecting solutions of dextrose directly into the jejunum, it was assumed that the alteration in the curve reflected an increase in the rate of absorption of the sugar rather than a change in sugar tolerance and that it was presumably due to more rapid delivery of the sugar into the jejunum. The treatment of patients subject to such attacks should obviously be aimed at supplying sugar in some form well before the onset of this alimentary hypoglycemia.

Glaessner pointed out in 1940[4] that alimentary hypoglycemia was not responsible for all the symptoms in these patients. He showed that a diametrically opposite condition, which he termed hyperglycemic shock, was present following the administration of dextrose or sucrose in certain patients after gastric resection. This was associated with "nausea, vomiting, lumbar pains, visual disturbances, convulsions and cardiac disturbances." It was his belief that the rapid absorption of dextrose or sucrose accounted for these symptoms and that the hypoglycemia was a delayed and secondary effect He advocated the use of small doses of insulin before meals by patients who exhibited these symptoms.

Other investigators have expressed the view that there is no close correlation in these patients between the rate of sugar absorption and the symptoms. They believed the attacks to be the result of sudden, mechanical *distention of the unprepared jejunum.*[5] This has been called the dumping syndrome Custer and associates[1a] described it as occurring suddenly, either during or immediately after a meal, and listed four cardinal symptoms: "(1) profound nausea and weakness, (2) a generalized and unpleasant sense of warmth throughout the body, (3) a cold diaphoresis of the face, particularly of the forehead, and (4) cardiac palpitation." They found the incidence of this syndrome to be 5 per cent and 12 5 per cent in two groups of patients who had had gastric resection for benign peptic ulcer. Since the majority of the patients had a resection of the Polya type, they were inclined to relate the syndrome to the large gastrojejunal stoma · They considered that prevention of this complication was logically directed at creating smaller stomas in the future (as in a Hoffmeister type of resection) to delay gastric emptying They sought to slow down the emptying of the stomach by having the patients lie down immediately after meals, by giving ephedrine before meals and by the oral administration of dilute hydrochloric acid Although these writers did not believe that the size and nature of the feeding were important factors, they stated that one fifth of these patients implicated sweets, carbohydrate-rich foods and milk as initiating the attacks

Evenson[6] conducted a careful study of dextrose tolerance curves and gastric motility in normal controls, in patients with medically-treated gastric or duodenal ulcers, in patients with gastroenterostomy and in patients with gastric resection He was able to reach the following conclusions: 1. Gastric motility and speed of emptying is increased in patients who

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From the Surgical Clinic of the Peter Bent Brigham Hospital, Boston

Read before the Section on Gastro Enterology and Proctology at the Ninety Fifth Annual Session of the American Medical Association San Francisco, July 3, 1946

[1] (*a*) Custer, M D, Jr, Butt, M R and Waugh J M The So Called "Dumping Syndrome After Subtotal Gastrectomy, Ann Surg **123**. 410 418 1946 (*b*) Ingelfinger, F J Late Effects of Total and Subtotal Gastrectomy, New England J Med **231**: 321 327, 1944 (*c*) Jordan S M End Results of Radical Surgery of the Gastrointestinal Tract, J A M A **116**: 586-590 (Feb 15) 1941

[2] Lapp, F W and Dibold H Blutzuckerablauf in seiner Beziehung zum Resezierten Magen Klin Wchnschr **12**. 547 548 1933

[3] Beckermann F Ueber spontane Hypoglykamie nach Magenoperationen, Deutsche med Wchnschr **59**· 683 684, 1933

[4] Glaessner, C L Hyperglycemic Shock, Rev Gastroenterol **7**: 528 533, 1940

[5] Schwartz A, Rheingold, I, and Necheles, E Investigation of the Relationship Between Blood Sugar and General Complaints Following Subtotal Gastric Resection, Am J Digest Dis **9**: 151 154, 1942 Custer, Butt and Waugh[1a]

[6] Evenson, O K Alimentary Hypoglycemia After Stomach Operations and the Influence of Gastric Emptying on the Glucose Tolerance Curve, Acta med Scandinav, 1942, supp 126, pp 1 388, abstracted, Internat Abstr Surg **81**: 108 113, 1945

have had a gastric resection or a gastroenterostomy. 2. The dextrose tolerance curve is abnormal in the majority of patients with gastroenterostomy or gastric resection, showing a great and rapid primary rise and a subsequent rapid fall to low values. 3. The abnormal dextrose tolerance curves are the result of speedier absorption from the jejunum; this in turn is a consequence of rapid gastric emptying. In 1 case of unusual interest a gastroenterostomy of some years' standing was demounted, and normal gastroduodenal continuity was restored. With elimination of the gastroenterostomy, abnormal dextrose tolerance curves of the type referred to previously became normal, and the gastric emptying was found to be slowed.

TABLE 1.—*Sugar Absorption After Gastric Surgery*

Oral Dextrose Tolerance Tests

Blood Sugar Curve	No of Patients
Both hypoglycemia and hyperglycemia	10
Hyperglycemia only	7
Hypoglycemia only	4
Neither hyperglycemia nor hypoglycemia	4
	25

Hyperglycemia greater than 250 mg per hundred cubic centimeters
Hypoglycemia less than 65 mg per hundred cubic centimeters

The present study of bizarre symptoms after gastric operations is based on a group of 25 patients, a number of whom were selected because they had complaints related to eating. Of the 25 patients, 15 had submitted to various surgical procedures for duodenal ulcer, including gastroenterostomy, Billroth I resection, Polya resection and radical fundusectomy. Five patients had marginal ulcers in a previous gastroenterostomy, and 3 of these had subsequent resection. Two patients had resection for gastric ulcers. Three patients had resection for carcinoma, including 1 total gastrectomy. There were 21 men and 4 women in the group, and their ages varied from 26 to 65 years. The elapsed time following the operative procedure varied and was over twenty years in some cases.

These patients were given 100 Gm. of dextrose orally after they had fasted, followed by blood sugar determinations at frequent intervals for about three hours. Any complaints which developed during the period of observation were noted, and their character, severity and duration recorded. Most patients had two or more tests. In a few cases test meals of high carbohydrate, high protein or high fat content were used as well. For purposes of analyzing the group as a whole, a curve was regarded as showing hyperglycemia if the blood sugar level exceeded 250 mg. per hundred cubic centimeters in an hour or less, and as hypoglycemia if the blood sugar dropped below 65 mg. per hundred cubic centimeters after the first hour.

TABLE 2.—*Sugar Absorption After Gastric Surgery*

Symptoms During Dextrose Tolerance Test in Patients with Peptic Ulcer

Symptoms	No. of Patients	Curve *
Both early and delayed	5	5 had hyperglycemia and hypoglycemia
Early only	8	6 had hyperglycemia
Delayed only	1	1 had hypoglycemia
No symptoms	8	
	22	

Hyperglycemia greater than 250 mg per hundred cubic centimeters
Hypoglycemia less than 65 mg per hundred cubic centimeters

* Includes only portion of curve associated with symptoms

Ten of the patients had both hypoglycemia and hyperglycemia in one or more dextrose tolerance tests (table 1). Seven patients showed only hyperglycemia, while 4 showed only hypoglycemia. All but 4 patients in the entire group of 25 showed either hypoglycemia or hyperglycemia, or both, in one or more dextrose tolerance tests. This is in accord with the observations of others previously referred to, that abnormal curves are to be expected in this type of patient.

An analysis of the 22 patients with peptic ulcer (table 2) shows that 14 had some type of complaint, exclusive of a feeling of fulness or drowsiness, in the course of the dextrose tolerance test. Furthermore, in all but 2 of the 14 there were corresponding abnormalities in the blood sugar level. It should be emphasized, however, that the time of the complaint did not necessarily coincide with the extremes of the blood sugar level. Early symptoms frequently appeared before the greatest peak, and late symptoms in several cases lagged behind the first drop to hypoglycemic levels. Patients experiencing discomfort both early and late in the test invariably were asymptomatic in the interval.

TABLE 3.—*Sugar Absorption After Gastric Surgery*

Correlation of Clinical Symptoms with Dextrose Tolerance Test in Patients with Peptic Ulcer

No of Patients	*Complaint on Follow Up*	*Dextrose Tolerance Test*	
4	Symptoms within 30 minutes of eating	Early symptoms	4 –
		Hyperglycemia	3 *
6	Symptoms delayed an hour or more after eating	Delayed symptoms	3 †
		Hypoglycemia	5 †

Hyperglycemia greater than 250 mg. per hundred cubic centimeters
Hypoglycemia less than 65 mg per hundred cubic centimeters

* Does not include late phase of test
† Does not include early phase of test

Ten of the 22 patients with peptic ulcer gave a history of postoperative discomfort, which could reasonably be interpreted as of the type considered in this study (table 3). These symptoms are more frequently associated with breakfast than any other meal. The 10 patients can be divided into two groups: in one the symptoms appeared shortly after eating; in the other they came on after a latent period of one hour or longer. Table 3 demonstrates a fairly good correlation between the clinical complaints and the results of the dextrose tolerance test.

Certain features of the study may be brought out best by representative protocols. Chart 1 represents a patient who had a Billroth I resection. It shows that abnormal absorption of sugar and untoward symptoms do not depend on a direct connection between the stomach and jejunum. This is indirect evidence against the theory that sudden jejunal distention is the principal cause of symptoms. Chart 2 also demonstrates that symptoms may develop both shortly after the ingestion of sugar and after a latent interval. It indicates that abnormal absorption of sugar may persist for many years. Such abnormally rapid absorption is not restricted to patients who have been operated on for peptic ulcer. Chart 3 shows a steep curve, which represents the blood sugar levels following a high carbohydrate meal in a patient who had a total gastrectomy for carcinoma eight years previously. This observation has been made by others.[7] Charts 3 and 4 illustrate that individual susceptibility must play some role in the production of symptoms, since both show extremely steep curves with decided hyperglycemia but no reaction beyond sleepiness. Chart 5 shows the converse, because this patient showed early symptoms with the dextrose tolerance test although the blood sugar never rose to high levels. This patient learned to avoid sweets shortly after operation and was thus able to keep himself symptom-free in his daily life. Chart 6 represents an extremely susceptible patient who had learned to regulate his diet by avoiding sweets and eating frequent small meals. Note that the blood sugar levels after a meal rich in fats or proteins were little more than half of those following a carbohydrate meal. This emphasized the practical value to this patient of avoiding food with a high carbohydrate content.

COMMENT

There appear to be two distinct syndromes following gastric surgery which must be differentiated: one appearing shortly after the ingestion of food, the other occurring after a latent period of one hour or longer. Both types have been shown to occur in the same person. There can be little doubt that delayed symptoms are due in most instances to a demonstrable hypoglycemia.

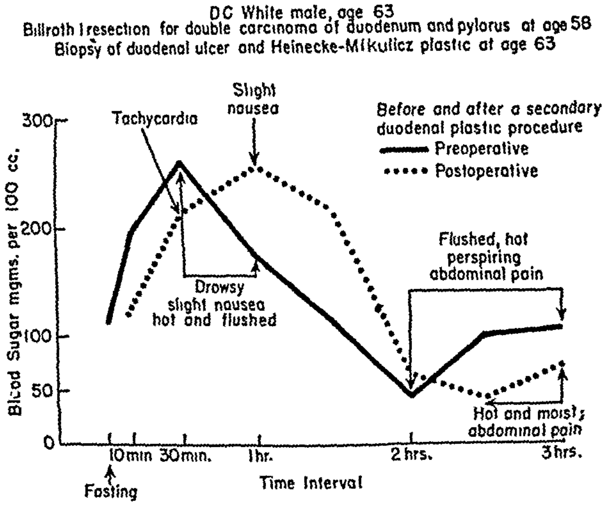

Chart 1—Oral dextrose tolerance tests (100 Gm) five years post operatively This patient showed symptoms both early and late after dextrose meals. He eats three meals daily, but has occasional mild epigastric pain which comes on several hours after meals and which is relieved by milk. Gastrointestinal roentgen examination shows no evidence of ulcer.

The cause and control of the other syndromes leave more room for disagreement. Hyperglycemia without regard to the rate of sugar absorption can hardly be the entire explanation, since a moderately elevated blood sugar level is well tolerated by many patients with diabetes. Furthermore, in a number of our cases the onset of symptoms preceded the rise of the blood sugar to its maximum level.

On the other hand, there are several important reasons why simple, sudden, mechanical distention of the jejunum is not a satisfactory explanation. Experimental work with distention of balloons at various levels in the gastrointestinal tract has failed to evoke symptoms comparable to the ones under consideration; this includes sudden distention of the upper part of the jejunum.[8] The syndrome has been shown to occur in patients who have no short-circuit from the stomach to the jejunum (as in a Billroth I resection). Finally, patients themselves notice the influence of different types of food and avoid concentrated sweets. The different effects can be observed in the same patient by the use of test meals rich in fat, protein or carbohydrates, as illustrated in chart 6.

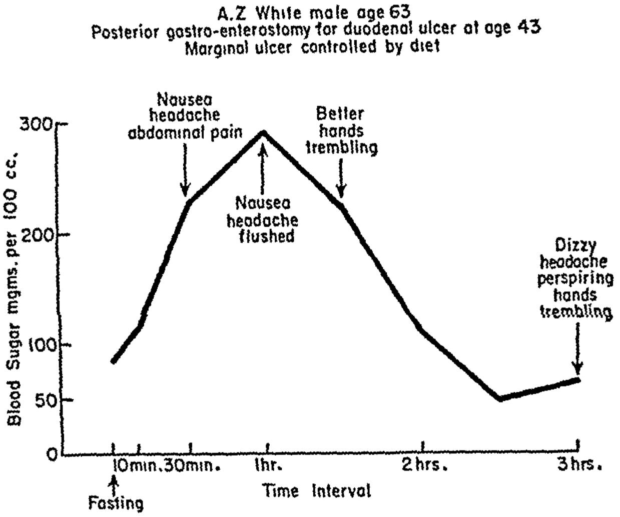

Chart 2—An oral dextrose tolerance test (100 Gm.) twenty years postoperatively exhibited an abnormal curve, in a patient with an intermittently active marginal ulcer. He experienced symptoms both in the hyperglycemic and hypoglycemic phases of the curve, with a symptom-free period between.

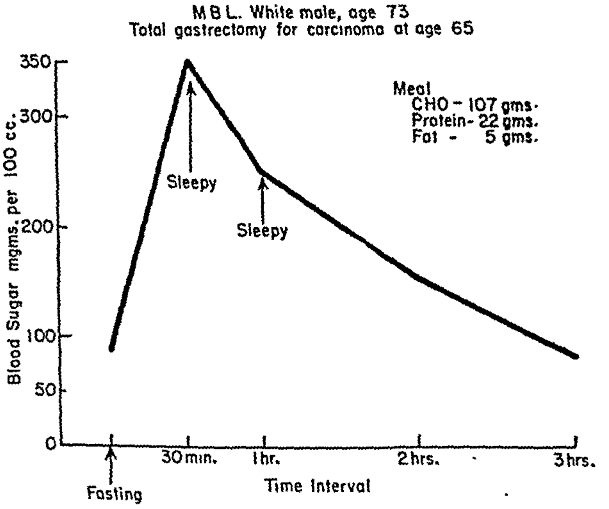

Chart 3.—High carbohydrate test meal eight years postoperatively; Drowsiness was the only symptom in a decidedly abrupt and pronounced hyperglycemia This patient eats three full meals daily and has no digestive complaints.

Whatever the exact mechanism, one may postulate a contributory role played by several different factors: (1) increased gastric motility (a relatively constant finding); (2) an abnormally rapid delivery of food into the jejunum, usually aided by a short-circuit around the duodenum; (3) failure of normal dilution of hypertonic solutions of sugar in the stomach as a result of the first two factors mentioned; (4) abnormally rapid absorption of sugar from the jejunum as the result of hypertonic solutions and a larger delivery of food than normal; (5) possible effects of distention of the jejunum by direct irritation of the mucosa by undiluted food, and (6) the susceptibility of the individual patient.

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[7] Farris, J M; Ransom, H. K, and Coller, F A Total Gastrectomy: Effects upon Nutrition and Hematopoiesis, Surgery 13: 823-833, 1943.

[8] Devine, J.: Personal communication to the authors.

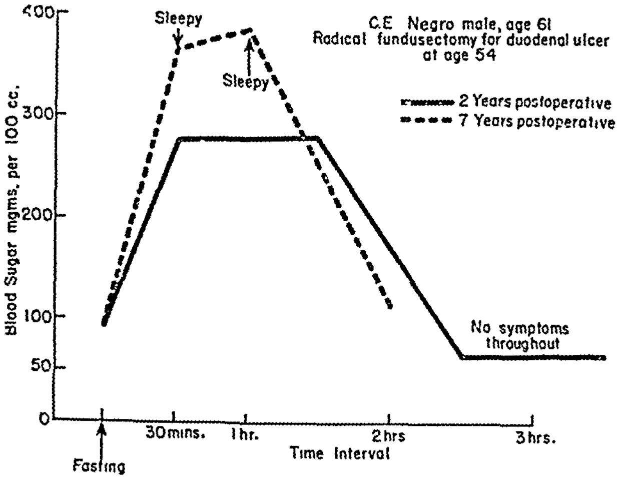

Chart 4.—Oral dextrose tolerance tests This patient is a stolid Negro who experienced nothing beyond drowsiness despite a decided hyperglycemia He eats three full meals daily and has no digestive complaints but spontaneously avoids sweets and meats

If various factors play a role, an attack on any one of them may help to alleviate symptoms. Thus, it is entirely logical to attempt to slow down gastric emptying by any means available, since this is bound to affect the other factors mentioned Since this may be difficult to accomplish, it is also reasonable to reduce the carbohydrate content and concentration of the feedings in an effort to slow down the rate of absorption of sugar and the possible irritative action on the jejunum.

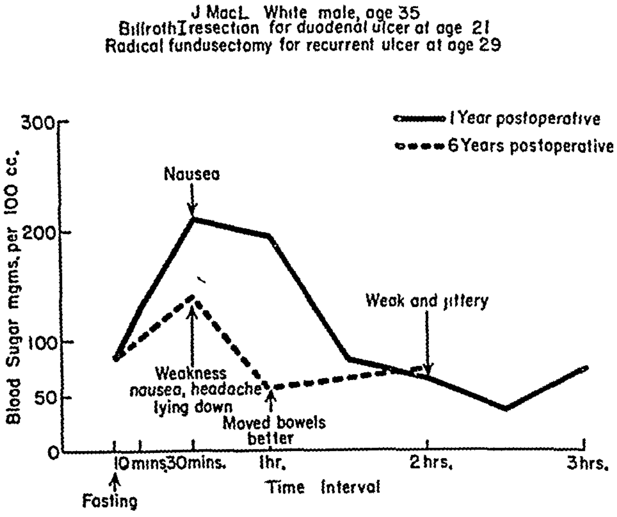

Chart 5.—Delayed hypoglycemia is shown in two oral dextrose tolerance tests (100 Gm) five years apart, in a patient who experienced both early and delayed symptoms This patient eats three full meals daily and has no digestive complaints, but he found out shortly after operation that he could not eat excessive sweets, pastries or custards and was nauseated by milk, consequently he avoids these foods because of their immediate rather than their delayed effect.

SUMMARY AND CONCLUSIONS

1. The present study confirms the belief that abnormal sugar absorption takes place in many patients who have had gastric operations. This abnormality consists of a rapid rise of blood sugar to high levels and a precipitous fall, often to hypoglycemic levels.

2. This phenomenon may be observed after a variety of gastric procedures, both for ulcer and for carcinoma, and may persist for years.

3. Unpleasant symptoms may occur shortly after the ingestion of a meal rich in carbohydrates, which is the hyperglycemic phase, or after several hours—the hypoglycemic phase.

4 The intensity of these reactions depends on the given patient's susceptibility.

5. Although the mechanism involved in the production of early symptoms is not yet clearly understood, smaller and more frequent feedings, with calories derived from fat or protein, are suggested as one means of controlling the symptoms. This is in accord with the observation that many patients who have had gastric operations appear unable to tolerate concentrated sweets well and tend to avoid them spontaneously. Test meals low in carbohydrates evoke reactions of lesser degree in susceptible patients.

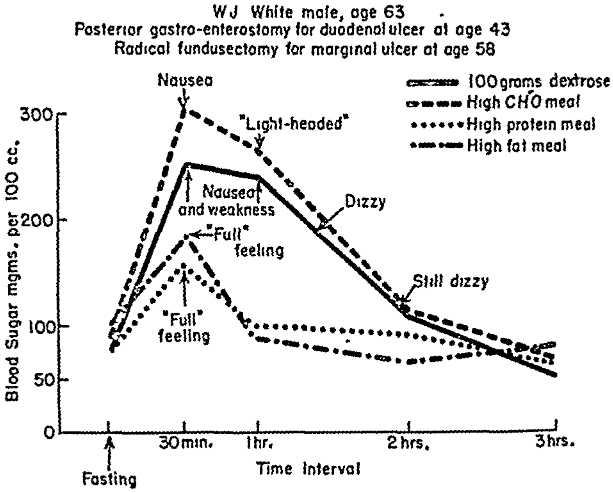

Chart 6 - Test meals five years postoperatively were given on successive days and, except for the dextrose meal, were of equivalent bulk The sharpest and most prolonged reaction came from the dextrose meal, the high protein and high fat meals, by way of contrast, gave the patient only a feeling of fulness, the same feeling which prevents his eating a complete meal.

6. The patient who has symptoms several hours after eating may require food to combat hypoglycemia.

7. It is believed that many patients who have submitted to gastric surgery can be benefited by the regulation of their carbohydrate intake.

ABSTRACT OF DISCUSSION

DR. H GLENN BELL, San Francisco: The question arose in reading this paper, whether Drs. Zollinger and Hoerr have a different type of patient in the East than we have in San Francisco. I have not seen the severe reactions that he has described I have seen some of the milder symptoms. They come on early in the postoperative course and may last for several months. It has been the practice to advise these patients that they should eat frequently and in small amounts. Symptoms have been explained as resulting from the dumping effect of the stomach directly into the upper jejunum, with a sudden dilatation of the jejunum. The study with the balloons in the gastrointestinal tract tends to discredit this idea. Tactfully, however, it does work. Since all patients are followed indefinitely, it is observed that these symptoms tend to disappear in a few months There are patients who have an idiosyncrasy for carbohydrates, particularly sugar, and so I have met patients of this type who have other surgical conditions outside of the gastrointestinal tract. When the surgeon tries to build these patients up with a high carbohydrate diet preparatory for surgical intervention, they say that they cannot take carbohydrates because they become nauseated, and some of them actually will vomit. If this same condition is present in a patient who had to have a gastric resection, I can see where they might have added postoperative difficulty.

Dr. Sidney A. Portis, Chicago: I could not follow Dr. Zollinger's line of thought when he was talking about the question of hyperglycemia and hypoglycemia in the same breath. In the early symptoms of this clinical condition, I don't think the question of hyperglycemia is involved at all. I consider the symptoms entirely due to a disturbed physiologic balance, which is associated with rapid emptying of the stomach and overdistention of the small intestine. I can, however, go along with him on the question of hypoglycemia. I reported in this section in 1944 that I thought there was a definite relation between the pain in ulcer and the levels of sugar in the blood. The pain which came on one to three hours after eating may be associated with a hypoglycemic phase. This also may account for the early morning pain long after the intake of food. This hypoglycemic phase can be completely abolished by the use of atropine and frequent feedings, particularly if atropine is given before bedtime. Vagotomy, as has been reported, completely abolishes the insulin response and does, from a surgical point of view, what one pharmacologically attempts to do with atropine. In 1944 I published a diet for an ulcer patient which was devoid of free sugar but allowed complex carbohydrates to remain in the diet. The explanation for the avoidance of free sugar was given at that time and needs no repetition here. The postdigestive hyperinsulinism with an intact parasympathetic nervous system can produce a hyperacidity, which may be responsible for the symptoms of which the ulcer patient complains.

Dr. Asher Winkelstein, New York: During the past twenty-five years there has been conducted a careful follow-up of the patients who have had a subtotal gastrectomy for peptic ulcer at the Mount Sinai Hospital. The postoperative symptomatology has been studied in four groups of symptoms after subtotal gastrectomy has been encountered. The first group is the group with recurrent ulcer (proved roentgenologically) and the presence of free hydrochloric acid. The second group has ulcer-like symptoms, including occasional hemorrhage, without free acid and with negative roentgenologic observations. In this group the symptoms are probably due to gastritis with erosions. A third group has symptoms which are chiefly intestinal. They have abdominal distention, cramplike pains, constipation and, rarely, diarrhea. In this group the symptoms are probably due to the dumping action, which is frequently cited as the explanation of all except ulcer symptoms after subtotal gastrectomy. The fourth is the group on which Dr. Zollinger has so ably reported. This group consists of patients who have dizziness, faintness, perspiration and weakness, usually occurring within the first hour after a meal. These patients learn to help themselves in two ways: (1) they eat solids at the beginning of the meal and (2) they restrict their dextrose intake. The late Dr. Glaessner studied with me in my gastrointestinal clinic a series of patients who had these symptoms after meals. We gave them 300 cc. of 50 per cent dextrose and studied the blood sugar curve every fifteen minutes for the next three hours. In the patients who had had symptoms spontaneously there also developed symptoms after the intake of this sugar at the time when there was a marked hyperglycemia. The patients often had blood sugar levels of 250 to 400 mg. per hundred cubic centimeters. This was characterized as hyperglycemic shock. Often, in addition to the dizziness, perspiration and faintness of these patients, mental symptoms developed. They became loquacious, disoriented and in some cases had alternate spells of laughing and crying. The neurologists may be interested in studying this hyperglycemic reaction in relation to the hypoglycemia which they institute in the therapy of certain mental diseases.

MODERN PHYSIOLOGIC CONCEPTS

Their Application to the Treatment of Disease of the Liver

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Treatment of hepatic disease until recent years was largely symptomatic. Diets low in all constituents were prescribed to spare the diseased liver as much as possible. As ascites was often the first clinical manifestation of chronic hepatic disease, the attack was primarily against this by means of purges, restriction of fluid and salt and, in more recent times, the administration of acid-forming salts and organic mercurial diuretics. Undoubtedly much damage was done by the enthusiastic therapeutist. Little attention was given to methods of supporting the liver, and little was known of the factors leading to ascites. In the twenties attention began to be directed to the condition of the liver based on new knowledge of its physiology and the experimental production of hepatic disease. Since then progressive changes in therapeutic practice have occurred. Results remain difficult to evaluate, but a scientific clinical approach has been developed.

In an attempt at orientation in current conceptions of hepatic therapeutics the subject may be conveniently considered under the following headings: (1) current concepts of hepatic physiology; (2) experimental production of hepatic disease; (3) results of application of new data to clinical practice, and (4) criteria for evaluation of results of this application.

CURRENT CONCEPTS OF PHYSIOLOGY OF THE LIVER

The liver, which is the largest organ in the body, possesses remarkable reserve and regenerative capacity. Removal of 80 per cent of the organ in animals leaves a portion adequate to carry on necessary functions, and the liver rapidly regenerates. It regains normal size in six to eight weeks. The polygonal cell is the characteristic cell of the liver. The functions of the liver largely depend on this cell, which is the site of injury in pathologic processes. Each cell performs specific functions as part of the organ in addition to its own basic protoplasmic functions. The functions of the liver are many (more numerous than those of any other organized tissue) but they may be grouped under a few headings; namely, production of bile, detoxification and participation in general metabolism. While these functions of the liver are interrelated, nevertheless the seriousness of hepatic disease depends principally on the degree of impairment of its metabolic activities.

Carbohydrate Metabolism.—The liver stores ingested carbohydrate as glycogen, an easily available source of energy, though the amount stored varies greatly. Starvation rapidly depletes the stores of glycogen, but the liver seldom is devoid of it. On the other hand, as much as 20 per cent of the weight of the liver may be glycogen. When such an amount is present, it causes impairment of some of the functions of the liver. In addition to monosaccharides, glycogen may be formed from lactic acid produced in the muscles, from protein and from the glyceride of fat. This transformation

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

This paper and the succeeding papers by Dr. Osgood, Drs. Giansiracusa and Althausen, Dr. Capps, Captain Sborov and Dr. Barker, and Dr. Wilbur are part of a symposium of eleven papers on "Diseases of the Liver." The other six papers in the symposium will be published in The Journal next week.

occurs chiefly if not wholly in the liver and is particularly prominent in carbohydrate starvation. When adequate carbohydrate is available, protein will not be called on to supply carbohydrate for fuel. This function is known as "the protein sparing function of carbohydrate." When excess glucose is available, it is converted to fat and is deposited in the fat depots. There is no evidence that the reverse is true: namely, that fat is converted to glucose when the supplies of the latter are low. Under this condition fat will be mobilized and partly broken down by the liver to ketone bodies. Carbohydrate inhibits this breakdown (antiketogenic activity).

The liver converts glycogen to glucose to maintain a certain level of glucose in the blood and to supply the needs of body tissues. This regulation of blood sugar is an important function of the liver, although it is modified by many substances and processes of a fundamental nature, such as the endocrine factors. Thus, the liver stores glycogen when the blood sugar is increased after ingestion, and reconverts glycogen to glucose when the body requires it. In other words, the glycogen stores are mobile.

Removal of the liver in animals produces a characteristic train of symptoms accompanied by a progressive hypoglycemia. Dextrose is specific for these manifestations, but the administration of increasing amounts, up to 1 Gm. per kilogram of body weight per hour, is required. Then another group of symptoms leading to death of the animal appears; for these the administration of dextrose is of no avail, and as yet no explanation for their occurrence is known.

Glucose furnishes glucuronic acid for conjugation with phenol derivatives and acetyl groups for acetylation of para-aminobenzoic acid and sulfanilamide. The rate of these processes of detoxification is based on the concentration of glycogen in the liver. The glycogen stores in the liver are decreased by various toxic agents, such as chloroform, and anoxemia and deposition of fat follow. Livers with adequate stores of glycogen are less susceptible to these toxins. Animals with a damaged liver require a higher level of blood sugar than normal animals before glycogen will be stored. Amounts of dextrose that will maintain the blood sugar at normal levels in a hepatectomized animal will not cause a damaged liver to store glycogen.

Protein Metabolism.—The products of protein digestion come to the liver as amino acids, which are worked over and from which new proteins required for the maintenance of tissues and normal growth are formed. The liver is concerned in the elaboration and maintenance of the plasma proteins, among which are albumin, globulin, fibrinogen and prothrombin. A portion of the newly synthesized protein is stored in the liver and is extremely labile. It can be mobilized more quickly and can be utilized more easily than proteins of other tissues. The liver appears to regulate the supply of proteins to the tissues by regulation of the plasma proteins. Protein is also necessary for the formation of cholic acid, and certain proteins accelerate its formation. The liver is the major site of deaminization; the nitrogenous portion of the amino-acid molecule is converted to urea and excreted; the remainder of the molecule is metabolized as d-glucose and fat.

Fasting decreases the protein content of the liver, and fat is deposited; if fasting is long continued, hypoalbuminemia develops. In disease of the liver the level of the serum albumin is often considerably lowered, the concentration of serum fibrinogen is decreased and the formation of prothrombin is affected. These changes apparently result from decreased ability of the liver to fabricate these proteins. A liberal protein diet, which insures adequate stores of labile protein in the liver, protects the organ from the effects of various toxins, such as chloroform, carbon tetrachloride, arsenic and selenium. That this is not due to the formation of glycogen from protein is indicated by the fact that a liver high in glycogen and fat but low in protein is susceptible to injury from chloroform. How protection is afforded is uncertain. According to one theory sulfur is readily available in certain amino acids for combination with toxins; another theory states that protection is due to the lipotropic effects of amino acids. There is some evidence that the quality of proteins is important. Observations on dogs with Eck fistulas have shown that meat or its extractives produce intoxication, whereas milk, bread and cereals do not. Bollman and Mann[1] have shown on dogs with cirrhosis secondary to obstruction or to administration of carbon tetrachloride that substitution of meat for a carbohydrate diet led to the formation of ascites.

Metabolism of Fat.—Fat circulates in the blood as neutral fat (glyceride), phospholipids and cholesterol esters and exists in the liver in these forms. It originates from the ingestion of fat, mobilization from the depots and synthesis of fat by the liver from carbohydrate and protein. The liver harbors fat in varying amounts but is not a storehouse for fat. Fat is constantly being mobilized to the liver, worked over and moved out. Phosphorylation is an important part of this metabolic process and, although the phospholipid content of the liver varies little normally, the rate of phospholipid turnover does vary. In the liver there may be rearrangement of the fatty acids in the molecules and there may be limited shortening or lengthening of the fatty acid chain and introduction of double bonds into saturated chains. The liver also is the principal if not the only site of formation of ketone bodies.

The amount of fat in the liver is fairly constant when the intake of carbohydrate and protein is adequate; it averages from 2 to 4 per cent of the weight of the liver. On hunger the liver gives up fat, but the fat content is constantly replenished from the fat depots. Under certain conditions 50 per cent of the liver by weight may be fat, and this condition produces impairment of some hepatic functions. A liver containing increased amounts of fat is particularly susceptible to the effects of hepatic toxins. Although a liver which is high in glycogen stores is resistant to these toxins, one in which stores of both glycogen and fat are high is susceptible. Increase in the rate that fat is supplied to the liver occurs during ingestion of a high fat diet, during starvation and after the administration of the antiketogenic fraction of the anterior part of the pituitary. Decrease in the rate at which the liver disposes of fat occurs as a result of the action of various toxins, such as halogenated hydrocarbons and phosphorus, feedings of cholesterol, pancreatectomy and deficiency of choline. Experimentally fatty livers have been produced by these and other means. They differ somewhat in response to lipotropic agents and possibly in the type of the fat. In the human being, pathologic accumulations of fat occur particularly in the so-called alcoholic fatty liver. Though few analyses of the fat in the liver have been made in human beings, such evidence as is available indicates that the increase is chiefly in the neutral fat fraction.

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[1] Bollman, J. L., and Mann, F. C.: The Physiology of the Impaired Liver, Ergebn. d. Physiol. 38: 445-492, 1936.

Lipotropic Factors.—A lipotropic substance is one which prevents the deposition of fat in the liver or increases the rate of its removal. The term lipotropic substance was originally applied to lecithin and its effect in preventing the fatty infiltration of the liver of depancreatized dogs which were being maintained on insulin. Choline was later shown to be the constituent of lecithin that was active in this respect. Other agents with lipotropic action have been identified: lipocaic, inositol and certain amino acids.

Choline participates in a reversible transmethylation process. It furnishes a methyl group for homocystine, which originates in the diet or is present in the tissues from previous demethylation of methionine, to synthesize methionine. On the other hand choline is formed from nitrogenous precursors, such as amino-ethanol, amino-acetic acid and betaine, by the addition of a methyl group supplied by methionine. Thus both choline and methionine contribute methyl groups in these metabolic processes. Some of these methyl groups go to the formation of creatine and are then lost to the bodily metabolic economy. Though choline can be synthesized, there seldom is a deficiency of it, as it is supplied in the diet as free choline or phospholipids. Choline deficiency may be interpreted in broader terms; namely, as an inadequate supply of methyl groups. The lipotropic action of methionine is indirect: it supplies methyl groups for the synthesis of choline; and protein is lipotropic through its methionine content.

The lipotropic action of choline is due to its promotion of synthesis of phospholipid in the liver as well as in the intestine. This synthesis is necessary for the transportation of fat from the liver, and the effect is chiefly on the neutral fat fraction. The methyl groups apparently are not necessary for, and do not take an active part in, the process of phosphorylation; the whole molecule participates as a unit.

Vitamins.—The liver is intimately associated with the metabolism of vitamins. In disease of the liver this power may be disturbed by failure of proper absorption, failure of storage in the liver and defects in intermediary metabolism. Jaundice with deficiency of bile salts in the intestine gives rise to failure of adequate absorption of the fat-soluble vitamins. Though vitamin A is absorbed, carotene is not. The liver is the only important site of conversion of carotene to vitamin A, and it stores vitamin A. Moreover, the stores can be depleted rapidly. In cirrhosis the vitamin A content of the liver is only 10 per cent of normal. The defective dark adaptation of cirrhosis is little benefited by the administration of vitamin A. Vitamin D also is largely stored in the liver, and this storage can occur in the presence of jaundice if vitamin D is given parenterally. However, the action of vitamin D is less efficient in the presence of hepatic disease than at other times. Osteoporosis may occur in cirrhosis, but vitamin D is not effective in its control. Vitamin K is necessary for the formation of prothrombin by the liver. A deficiency of vitamin K may arise from inadequate absorption, as in acholia. However, numerous water-soluble analogues are available and can be used when a deficiency arises, with excellent results. Faulty utilization of vitamin K occurs when hepatic damage is sufficiently extensive. The liver is rich in known and unknown factors of the vitamin B complex, acting as a storehouse for these substances. Several of these play an important part in the oxidation of carbohydrate and also in the synthesis of fat from carbohydrate and protein by participation in enzyme systems. Extra intake of carbohydrate may exhaust these, and this suggests the advisability of an extra intake of the vitamin B components when large amounts of carbohydrates have been given. Neuritis and pellagra have been reported in varying frequency in cirrhosis, but it is uncertain how much the disease of the liver may contribute to the production of these deficiencies. Fundamentally, the disturbances of metabolism of vitamins in hepatic disease are intrinsic; failure of intake and absorption are secondary influences. The changes induced as a rule are little influenced by administration of the vitamins.

The liver is a storage depot for the erythrocyte maturing factor. There is some evidence that the amount of this factor stored in chronic disease of the liver is decreased. How significant this is in the development and treatment of macrocytic anemia in cirrhosis is uncertain.

Ascites.—Ascites develops frequently in both acute and chronic liver disease, and the explanation for the process is not clear. Portal hypertension has long been considered the most important causative factor. The presence of portal hypertension, however, cannot be demonstrated in all cases. Lowering of the serum proteins, disproportionate decrease in the serum colloid osmotic pressure, dietary factors, disturbance of ability of the liver to handle water and altered permeability of capillaries are other important influences in the occurrence of this manifestation. Because of some of these factors much has been written concerning the oral or intravenous use of various protein hydrolysates for the control of ascites. Theoretically, permanent benefit will come only when the liver has recovered sufficiently to maintain adequate concentration of proteins in the plasma.

More recently, Ralli and associates[2] have reported the presence of increased amounts of an antidiuretic substance, apparently produced by the hypophysis, in the urine in cases of hepatic disease with ascites. The diseased liver apparently fails to destroy this antidiuretic substance. With improvement in the function of the liver, destruction of this substance is accomplished and spontaneous diuresis occurs. Confirmation of this work will be awaited with interest.

EXPERIMENTAL PRODUCTION OF HEPATIC DISEASE

It is well known that a variety of agents are capable of producing degeneration and necrosis of liver cells. The continued or repeated action of these agents leads to the development of changes characteristic of cirrhosis; namely, degeneration, necrosis and regeneration of cells and proliferation of fibrous tissue. Fatty livers and eventually cirrhosis develop in dogs after pancreatectomy and maintenance with insulin. In recent years emphasis on the relation of nutrition to the production of experimental cirrhosis has been increased. Patek and Post[3] suggested that there may be a correlation between the dietary deficiency encountered in alcoholism and cirrhosis. Connor[4] emphasized the importance of fatty livers in the development of cirrhosis in diabetes and in chronic alcoholism. He and his associate[5] found support for this hypothesis in the production of cirrhosis in dogs by a high fat diet and the administration of alcohol and by the feeding of a high fat diet alone. György and Goldblatt[6] observed hepatic injury in young rats kept on a diet devoid of a portion of the vitamin B complex. Rich and Hamilton[7] produced cirrhosis in rats, as did Spellberg and Keeton[8] in guinea pigs and rabbits, on a nutritional basis. From the various studies it is evident that diets moderately high or high in fat, low in protein and deficient in choline will produce changes in the liver. These can be prevented by the administration of choline and yeast, choline and cystine or choline alone. Extra cystine in the diets of rats has accentuated the development of cirrhosis. Lillie, Daft and Sebrell[9] produced cirrhosis in rats by low protein, low fat, choline-deficient diets with cystine added. Cirrhotic changes were prevented by the administration of choline, casein and methionine singly or in combination; their prevention can be explained on the basis of the lipotropic action of the supplements given. Most work has indicated that cystine aggravated the hepatic changes, particularly necrosis, which was often accompanied by hemorrhages. Hemorrhages also were encountered in the kidneys of young rats. György,[10] however, stated that choline was more effective from a protective point of view when cystine was also given. He pointed out that in experimental studies in which choline alone prevented hepatic injury the diets contained a certain amount of cystine.

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[2] Ralli, E. P.; Robson, J. S.; Clarke, D., and Hoagland, C. L.: Factors Influencing Ascites in Patients with Cirrhosis of the Liver, J. Clin. Investigation **24**: 316-325 (May) 1945.

[3] Patek, A. J., Jr., and Post, J.: Treatment of Cirrhosis of the Liver by a Nutritious Diet and Supplements Rich in Vitamin B Complex, J. Clin. Investigation **20**: 481-505 (Sept.) 1941.

Although choline prevents infiltration of the liver with fat from high fat-low protein feeding, it only partially prevents the changes induced by cholesterol feeding or by the administration of pituitary extracts. Lipocaic and possibly inositol apparently are more effective in the prevention of hepatic changes under these circumstances, though this is still subject to discussion. Choline has little effect in preventing lipoid deposition in the liver on injury from chloroform or carbon tetrachloride but does increase the rate of disappearance of fat during recovery. Once cirrhosis has been produced by these dietary methods, choline and methionine supplements aid regeneration of the liver cells, but the fibrosis is unaffected. Cirrhotic livers produced by diet are characterized by the presence in the phagocytic cells of ceroid, which does not disappear on recovery following high protein diet or administration of methionine and choline supplements. It has not been observed in cirrhotic livers of human beings. These dietary experiments are essentially of two types: (1) short term, in which fatty livers are prevented or are corrected by doses of choline and methionine and (2) long term, in which cirrhosis also results, and in which the fibrosis is not cured by the lipotropic agents.

RESULTS OF APPLICATION OF NEW DATA TO CLINICAL PRACTICE

The modern physiologic concepts previously mentioned, on which present-day practice is based, indicate that a liver which contains adequate stores of glycogen, protein and vitamins and normal amounts of fat, and which can maintain these stores because the intake of essential food is sufficient manifests the greatest resistance to toxins. Furthermore, these concepts indicate that after hepatic disease is established an increased intake of carbohydrate and protein is necessary to maintain the stores in the liver and to promote regeneration. The experiments of Opie and Alford[11] in 1914 led to the application of a high carbohydrate diet in clinical practice. The work of Ravdin and Whipple and their co-workers[12] led to the use of increased amounts of protein. Excessive deposition of fat appears characteristic of many hepatic diseases and increases the susceptibility of the liver to further injury. The advisability of a low intake of fat is not settled. A diet low in fat is difficult to prepare in an appetizing manner that will appeal to the patient, who often has anorexia and even nausea. A diet low in fat tends to be low in calories, fat-soluble vitamins and essential unsaturated fatty acids. Furthermore, there is no good evidence that moderate amounts or even large amounts of fat in the diet are harmful if given with adequate protein and carbohydrate.

In the application of the physiologic data to hepatotherapy an evolutionary process has been noticeable first, in the institution of a high carbohydrate intake and then, in the addition of protein to the diet, at first in moderate amounts and then in large amounts. Later supplementary vitamins, yeast and extract of liver were added to the diet, and finally the lipotropic agents, choline and methionine. The fundamental principle in treatment has been and still is the administration of these diets. It is essential that the food prescribed be eaten. Secondary considerations occur when patients cannot take adequate amounts of the food or when specific results are desired. Thus, tube feeding and intravenous infusions of dextrose, preparations of amino acids, plasma, serum or whole blood, as well as the various dietary supplements have been used. Numerous papers have been published on the results of the use of these programs in hepatitis and cirrhosis. In 1936 Jones[13] reported decided lowering of the mortality rate in 32 cases of hepatic insufficiency following the use of a high carbohydrate diet which was frequently supple-

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4. Connor, C. L.: Fatty Infiltration of the Liver and the Development of Cirrhosis in Diabetes and Chronic Alcoholism, Am. J. Path. **14:** 347-364 (May) 1938.

5. Chaikoff, I. L., and Connor, C. L.: Production of Cirrhosis of the Liver of the Normal Dog by High Fat Diets, Proc. Soc. Exper. Biol. & Med. **43:** 638-641 (April) 1940.

6. György, P., and Goldblatt, H.: Experimental Production of Dietary Liver Injury (Necrosis, Cirrhosis) in Rats, Proc. Soc. Exper. Biol. & Med. **46:** 492-494 (March) 1941.

7. Rich, A. R., and Hamilton, J. D.: The Experimental Production of Cirrhosis of the Liver by Means of a Deficient Diet, Bull. Johns Hopkins Hosp. **66:** 185-198 (March) 1940.

8. Spellberg, M. A., and Keeton, R. W.: The Production of Fatty and Fibrotic Livers in Guinea Pigs and Rabbits by Seemingly Adequate Diets, Am. J. M. Sc. **200:** 688-697 (Nov.) 1940.

9. Lillie, R. D.; Daft, F. S., and Sebrell, W. H., Jr.: Cirrhosis of the Liver in Rats on a Deficient Diet and the Effect of Alcohol, Pub. Health Rep. **56:** 1255-1258 (June 13) 1941. Daft, F. S.; Sebrell, W. H., and Lillie, R. D.: Production and Apparent Prevention of a Dietary Liver Cirrhosis in Rats, Proc. Soc Exper. Biol. & Med. **48:** 228-229 (Oct.) 1941.

10. György, P.: Experimental Hepatic Injury, Am. J. Clin. Path. **14:** 67-88 (Feb.) 1944.

11. Opie, E. L., and Alford, L. B.: The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform, J. A. M. A. **62:** 895-896 (March 21) 1914; Influence of Diet on the Toxicity of Substances Which Produce Lesions of the Liver or the Kidney, ibid. **63:** 136-137 (July 11) 1914.

12. (*a*) Johnson, J.; Ravdin, I. S.; Vars, H. M., and Zintel, H. A.: Effect of Diet on Composition of the Liver in the Presence of Obstruction of the Common Bile Duct, Arch. Surg. **40:** 1104-1115 (June) 1940. (*b*) Ravdin, I. S.; Thorogood, E.; Riegel, C.; Peters, R., and Rhoads, J. E.: The Prevention of Liver Damage and the Facilitation of Repair of the Liver by Diet, J. A. M. A. **121:** 322-324 (Jan. 30) 1943. (*c*) Miller, L. L., and Whipple, G. H.: Liver Injury, Liver Protection and Sulphur Metabolism: Methionine Protects Against Chloroform Liver Injury Even When Given After Anesthesia, J. Exper. Med. **76:** 421-435 (Nov.) 1942. Miller, L. L.; Ross, J. F., and Whipple, G. H.: Methionine and Cystine, Specific Protein Factors Preventing Chloroform Liver Injury in Protein-Depleted Dogs, Am. J. M. Sc. **200:** 739-756 (Dec.) 1940.

13. Jones, C. M.: The Treatment of Acute Hepatic Insufficiency and Its Relation to Prognosis, Am. J. Digest. Dis. **3:** 624-628 (Nov.) 1936.

mented with solutions of dextrose given intravenously. In 1943 Ravdin and associates[12b] reported on the use of high protein intake. More recent studies include the report of Barker, Capps and Allen,[14] who in a careful study of 421 cases of infectious hepatitis in the Mediterranean theater of war were impressed with the value of a high protein, high carbohydrate, low fat diet. They gave as much as 200 Gm of protein daily, chiefly as beef, milk and cheese. In their opinion it was uncertain whether the chief benefit was from the high protein, high carbohydrate, low fat diet or from the better caloric intake. The same authors[15] reported on 76 cases of chronic infectious hepatitis. One group of their patients received a diet of 250 Gm. of protein, 350 Gm. of carbohydrate and 40 Gm. of fat and were kept at complete rest in bed. The other group was given a similar diet except for a reduction in the protein to 85 Gm., and they were kept at only moderate rest in bed. The first group progressed better. The authors could not determine whether this greater progress was due to the increased amount of protein, calories or rest in bed.

The first report of the use of methionine in toxic hepatitis is that of Beattie, Herbert, Wechtel and Steele.[16] They treated a soldier who had accidentally swallowed 30 to 40 cc. of carbon tetrachloride A casein digest and methionine were cautiously given intravenously. The clinical symptoms improved and the size of the liver decreased. Recurrence of symptoms and enlargement of the liver on the third day were controlled by similar treatment, and the patient recovered. Reports by Eddy,[17] Peters and associates,[18] and Beattie and Marshall[19] have followed. Some investigators[20] have reported no benefit from the addition of 5 Gm. of methionine to the diet in cases of infectious hepatitis. Hoagland and Shank[21] studied the effects of giving 5 Gm. of methionine daily in 16 cases, 5 Gm. of choline daily in 25 cases and of crude liver extract in 34 cases of infectious hepatitis. None of these procedures produced any changes in the duration of illness, weight curve or those functions of the liver which were studied, which were different from those in a control group.

Patek and Snell and their associates[22] were the first to report lessened mortality and morbidity in cirrhosis after treatment by highly nutritious diets with the addition of vitamins. Reports on the use of choline or methionine in the treatment of cirrhosis have been made by Brown and Muether,[23] Yater,[24] Russakoff and Blumberg,[25] Barker,[26] Wade,[27] Beams[28] and Morrison.[29]

From these data it is impossible adequately to evaluate the benefit of the individual factors, such as intake of calories, protein or carbohydrate, and the effects of vitamin supplements or lipotropic factors, as all were used in various combinations and to varying extents. Other factors, such as ability of the patient to take the prescribed diet, cessation of alcoholic intake and degree of rest enforced, enter the picture. However, all workers have been more or less agreed that adequate caloric intake, especially of proteins and carbohydrates, is a most important factor.

CRITERIA FOR EVALUATION OF RESULTS OF APPLICATION OF NEW METHODS

In the clinical application of these physiologic concepts certain more or less obvious but fundamental facts must be kept in mind. Some of these will be considered in detail.

Nature of the Disease.—Because of its structure, the liver is limited in the way it will respond to injury. Knowledge of etiologic factors in hepatic disease is as yet circumscribed. Various factors may lead to acute hepatitis, such as numerous toxins and the viruses of infectious hepatitis and serum jaundice, but many cases of acute hepatitis occur, in which the etiologic factor is unknown. Nevertheless, the course of acute hepatitis in many cases is self limited, and full recovery occurs. The pathogenesis of cirrhosis is obscure and will remain so until information is obtained concerning its early stages. Though the etiologic role of alcohol is uncertain, the cessation of its use might play a significant part in recovery. However, evaluation of this factor is difficult. Many investigators claim that cirrhosis is the late stage of fatty infiltration of the liver. This may be correct in many cases, but it is not yet proved that cirrhosis always begins in fatty livers. Spontaneous remissions of symptoms occur in cases in which hepatic insufficiency is associated with large, perhaps fatty, livers and also in cases of cirrhosis. These remissions make it more difficult to evaluate any therapeutic procedure correctly. It is generally agreed that the enlarged liver responds better to therapy and carries a more encouraging prognosis than does cirrhosis in the small liver. Treatment of cirrhosis does not affect the fibrosis. Benefit will come only in promoting the efficiency and regeneration of parenchymal cells. The earlier treatment is instituted the better the results should be. Undoubtedly in many cases an irreversible stage is reached, after which treatment is unavailing. In some cases treatment is unavailing even though started early. In general, treatment must consist largely of attempts to arrest the progress of hepatic disease by facilitating functional activities, repair and regeneration, and by decreasing the vulnerability of the liver cell.

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[14] Barker, M H; Capps, R B, and Allen, F W Acute Infectious Hepatitis in the Mediterranean Theater, Including Acute Hepatitis Without Jaundice, J A. M. A **125:** 997 1003 (Aug 4) 1945

[15] Barker, M. H, Capps, R. B, and Allen, F W Chronic Hepatitis in the Mediterranean Theater· A New Clinical Syndrome, J A M. A. ***129:** 653 659 (Nov 3) 1945*

[16] Beattie, J; Herbert, P H; Wechtel, C, and Steele, C W.· Studies on Hepatic Dysfunction· I. Carbon Tetrachloride Poisoning Treated with Casein Digest and Methionine, Brit M J **1:** 209 211 (Feb 12) 1944.

[17] Eddy, J H, Jr.· Carbon Tetrachloride Poisoning A Preliminary Report on the Use of Methionine in Hepatitis, J A M A **128:** 994 996 (Aug 4) 1945, Methionine in the Treatment of Toxic Hepatitis, Am. J M. Sc **210:** 374 380 (Sept) 1945

[18] Peters, R. A, Thompson, R H S, King, A J; Williams, D I, and Nicol, C S Sulphur Containing Amino Acids and Jaundice, Nature, London **153:** 773 (June 24) 1944

[19] Beattie, J, and Marshall, J. Methionine in the Treatment of Liver Damage, Nature, London **153:** 525 (April 29) 1944

[20] Higgins, G, O'Brien, J R P.; Peters, R A, Stewart, A, and Witts, L J Treatment of Infective Hepatitis with Methionine, Brit. M J **1:** 401 402 (March 24) 1945 Wilson, C, Pollock, M R, and Harris, A D Therapeutic Trial of Methionine in Infective Hepatitis, ibid **1:** 399 401 (March 24) 1945

[21] Hoagland, C L, and Shank, R E Infectious Hepatitis A Review of Two Hundred Cases, J A M A **130:** 615 621 (March 9) 1946

[22] Fleming, R G, and Snell, A M Portal Cirrhosis with Ascites: An Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment Am J Digest Dis **9:** 115 120 (April) 1942 Patek and Post[3]

[23] Brown, G O, and Muether, R. O· Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol, J A. M. A. **118:** 1403 (April 18) 1942.

[24] Yater, W M, in discussion on Greene, C H· Physiologic Considerations in the Treatment of Portal Cirrhosis, J. A M A. **121:** 715 (March 6) 1943.

[25] Russakoff, A H, and Blumberg, H Choline as an Adjuvant *to the Dietary Therapy* of Cirrhosis of the Liver, Ann. Int. Med **21:** 848-862 (Nov) 1944

[26] Barker, W H· The Modern Treatment of Cirrhosis of the Liver, M. Clin North America **29:** 273 293 (March) 1945.

[27] Wade, L. J· Recent Advances in the Therapy of Cirrhosis of the Liver, M. Clin. North America **29:** 479 488 (March) 1945

[28] Beams, A J.· The Treatment of Cirrhosis of the Liver with Choline and Cystine, J. A M A. **130:** 190 193 (Jan 26) 1946

[29] Morrison, L M: The Response of Cirrhosis of the Liver to an Intensive Combined Therapy, Ann Int. Med **24:** 465 478 (March) 1946.

Possible Influence That New Methods Could Have on Course of Liver Disease.—In acute stages of hepatic diseases, for a priori reasons the so-called liver diet cannot be used in a preventive way unless the dietary standards of the nation are to be changed. From a preventive point of view, however, persons exposed to industrial chemicals which are hepatotoxic, those receiving therapeutic agents which may have similar action and those who have biliary or pancreatic disease should have this diet. Some attempts have been made along this line. Beattie and Marshall[10] recently reported lessened frequency of hepatic injury in arsenical treatment of syphilis after the addition of casein and cystine or methionine to the diet. From a curative point of view, the liver diet could aid regeneration in toxic and infectious hepatitis and in cirrhosis. However, in advanced cirrhosis in which the condition approaches that of the Eck fistula, from a vascular point of view proteins of a certain quality may be detrimental. In less advanced cases, proteins of a certain quality may be conducive to the formation of ascites. These effects have been observed in the experimental animal, but whether they occur in the human being is not known.

Relation of Experimental Disease to Human Disease.—Types of experimental hepatic disease include those produced by various hepatotoxins, those resulting from pancreatectomy and from maintenance of the animals with insulin and those due to diets deficient in certain respects. Infiltration of the liver with fat probably plays a role in all of these. Acute toxic hepatitis of human beings resembles that of animals, but it is seldom that the toxins used for producing cirrhosis in animals play a causative role in the cirrhosis of human subjects. The fatty livers of depancreatized dogs maintained on insulin develop while the animals are on a diet of lean meat, sucrose and no fat. Infiltration of the liver with fat, and occasionally cirrhosis, are seen in certain cases of diabetes and chronic pancreatitis among human beings; but to date my colleagues and I have not been able to demonstrate fatty infiltration of the liver or cirrhosis in cases in which partial or total pancreatectomy has been performed. These factors are at best infrequent causes of cirrhosis in human beings.

Distorted diets, such as those used to produce experimental cirrhosis, would seldom be followed by human beings. Nutritional deficiencies encountered clinically usually are multiple, whereas restriction of a single dietary essential has usually been employed to produce a deficiency syndrome in experimental animals. Experimental cirrhosis also differs from that encountered clinically by the presence of ceroid. There is some circumstantial evidence that deficient diets may play a part in the cirrhosis of human beings. The disease occurs with higher incidence in certain regions where nutrition is poor and nutritional diseases are endemic. The role of alcohol is uncertain and remains debatable. The diet of alcoholic addicts is deficient, particularly in proteins and vitamins, and the disease of the liver may be a manifestation of this deficiency, as are other nutritional defects. However, only about 5 per cent of persons with alcoholism show hepatic damage, and in many cases of cirrhosis seen at necropsy no history of alcoholism is obtained. Some further evidence that dietary deficiency may cause hepatic disease in human beings is the incidence of liver disorders among the nutritional disturbances encountered in the repatriated prisoners of war, whose limited diet was largely carbohydrate. On the other hand, hepatic disease is encountered infrequently in the undernutrition of anorexia nervosa, of long-continued organic gastrointestinal disease or from prolonged use of eccentric diets. Moreover, most patients who have cirrhosis of the liver are well nourished at the onset of the disorder. Furthermore, the fact that the fatty liver with varying degrees of hepatic insufficiency or cirrhosis in human beings may show improvement or remission of symptoms on modern dietary management is no indication that a dietary deficiency is etiologically significant. The chemical changes as well as some deficiencies encountered in cirrhosis could as likely be secondary manifestations depending on the inability of the liver to perform its normal metabolic processes. At present the question whether impaired nutrition is a factor in the production of cirrhosis in man must be left in abeyance for continued investigation.

Lipotropic Substance in the Therapeutic Program.—Choline is found in large amounts in liver, white wheat flour, polished rice, skimmed milk, dried yeast, soybean meal, peanut meal, cheddar cheese, butter and eggs. The methionine content of the proteins of milk, eggs, meat, fish and whole corn varies from 3 to 4 per cent by weight. The daily requirement of methionine is about 3 Gm. A diet of 120 Gm. of protein, 500 Gm. of carbohydrate and 60 Gm. of fat contains about 3.5 Gm. of methionine. Diets now advocated for disease of the liver have a content of 100 to 200 Gm. of protein, 300 to 500 Gm. of carbohydrate and 50 to 175 Gm. of fat. Such diets obviously contain adequate amounts of choline and methionine. From this there would appear to be little rationale in giving these as supplements, except to patients who are unable to maintain an adequate dietary intake. The published results of the use of these supplements have not contained convincing evidence of their effectiveness. Many studies have given negative results, and most of the others have been inconclusive.

Necessary Criteria.—Criteria for judging the benefit derived from the various dietary procedures have varied. Some studies have been based on the clinical improvement, and the validity of the results depended on the judgment of the investigator. Duration of hospitalization, mortality rate, severity of disease and depth of jaundice, the time required for jaundice to subside so that an arbitrary level of serum bilirubin near normal was obtained, weight curve, duration of anorexia, changes in size and tenderness of the liver, duration of biliuria and frequency of relapses were factors on which judgment of benefit was based. In some studies no controls were established. In others, groups of patients who received a therapeutic agent which was not given to the control group were studied. Some of the patients who served as controls, however, presented other variables. In general, in cases of toxic or infectious hepatitis in which adequate controls were established negative results were obtained when choline or methionine were added to the program of treatment. In cirrhosis it is extremely difficult to establish adequate controls. The chronicity of the disease, variability of the size of the liver and spleen, presence or absence of jaundice and its intensity, presence or absence of ascites and spontaneous remission of symptoms have much influence on the results of any treatment. Changes in the various biochemical disturbances induced by therapeutic agents have been utilized in the evaluation of results but are not too satisfactory. Blood sugar usually is normal and hypoglycemia is a rare occurrence in cirrhosis, whether the glycogen content of the liver is normal or abnormal. The amount of fat in the blood may be normal, increased or decreased, but little is known of variations in the content of fat in the liver. It is not known whether an increased quantity of fat in the liver is due to increased mobilization from the depots of fat to the liver or decreased ability of the liver to work fat over and move it out, or to both factors. Lipotropic agents have little effect on an abnormal level of fat in the blood in cases of cirrhosis. Chemical studies of the fat content of the liver before and after the use of lipotropic agents have not been made, nor has a study of the rate of turnover of lipoids with radioactive phosphorus or other methods. The concentration of proteins in the blood is often decreased, particularly in the more advanced stages of the disease, and responds poorly to the increased administration of protein or to other therapeutic agents. When manifestations of vitamin deficiencies occur, administration of extra amounts of these factors often fails to give improvement. These evidences of resistance to therapy may indicate approach to the stage of irreversibility, but absence of measurable improvement does not necessarily mean that high caloric intake, particularly of carbohydrate and protein, may not be beneficial.

SUMMARY AND CONCLUSIONS

Modern treatment of hepatic disease has developed from the application of advances in knowledge of the physiology of the liver and from the results of experimental production of hepatic disease While the known functions of the liver are many and are interrelated, the seriousness of hepatic disease depends largely on impairment of the metabolic activities Evolution of the present treatment of hepatic disease has been largely along nutritional lines and has included the step by step addition of high intake of carbohydrate, then proteins and vitamins and, finally, lipotropic agents.

In the clinical application of the newer data of physiology, it is important that adequate controls be established. This is advisable not because the experimental data may be inaccurate but because they are in the borderline zone of advancing knowledge and cannot necessarily be viewed in their proper perspective at the present time. It is essential that the varying nature of the disease, together with such factors as cessation of alcoholic intake, degree of rest and ability of the patient to take the prescribed nutritive elements, as well as the possible influence of the dietary factors themselves, be constantly considered from a preventive and curative point of view. Evidence indicates that the high caloric intake, particularly of carbohydrate and protein, has been a distinct advance. The question of intake of fat remains unsettled. Administration of certain of the vitamins is probably advantageous. Lipotropic agents were hailed on theoretic grounds to be potentially important adjuncts, but experience to date has not substantiated this supposition or at best has only been suggestive of it. Absence of measurable results, however, does not necessarily mean that some benefit may not be obtained.

INTERPRETATION OF LIVER FUNCTION TESTS

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Since a comprehensive discussion of liver function tests would require much more time than is available in this symposium, this article is limited to a presentation of the indications for doing the tests, of specific recommendations of the most satisfactory technics of certain principles and limitations in their interpretation and of references to the most recent authoritative literature. Those interested in a more detailed discussion may consult several excellent recent reviews.[1]

From the point of view of an internist teaching both physical and laboratory diagnosis, I want to emphasize that liver function tests, in fact all laboratory tests, are a valuable supplement to but no substitute for a well taken history and a thorough physical examination. The intelligent interpretation of the tests depends on an understanding of the underlying physiologic principles as outlined in the preceding discussion,[2] of the common sources of error in the methods[3] and of the

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro Enterology and Proctology and the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946

[1] (*a*) Lichtman, S S Diseases of the Liver, Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1942, pp. 15 906 (*b*) Tumen, H. J, in Bockus, H. L Gastro-Enterology, Philadelphia, W. B Saunders Company, 1946, vol 3, pp 1-716 Ivy, A C, and Roth, J A Why Do a Liver Function Test? Gastroenterology **1:** 655 (July) 1943 Hoagland, E L., and Shank, R E. Infectious Hepatitis, J A M A **130:** 615 (March 9) 1946 Cantarow, A, and Trumper, M. Clinical Biochemistry, ed 3, Philadelphia, W B Saunders Company, 1946, pp 408 472 Watson, C J The Bile Pigments, New England J. Med **227:** 665 (Oct 29); 705 (Nov 5) 1942

[2] Weir, J F Application of Modern Physiologic Concepts to Treatment of Disease of the Liver, this issue, p 579

[3] (*a*) Osgood, E E. Laboratory Diagnosis, ed 3, Philadelphia, The Blakiston Co, 1940, pp 133 160, 356 378 and 410 413 (*b*) Malloy, H T, and Evelyn, K A The Determination of Bilirubin with a Photoelectric Colorimeter, J Biol Chem **119:** 481 (July) 1937 Watson, C J Some Newer Concepts of the Derivatives of Hemoglobin, Blood **1:** 99 (March) 1946 Watson, C J, and Ducci, H The Quantitative Determination of the Serum Bilirubin with Special Reference to the Prompt Reacting and the Chloroform Soluble Types, J Lab & Clin Med **30:** 293 (April) 1945. (*c*) Watson, C J, Schwartz, S, Sborov, U, and Bertie, E Studies of Urobilinogen V. A Simple Method for the Quantitative Recording of the Ehrlich Reaction as Carried Out with Urine and Feces, Am. J Clin Path **14:** 605 (Dec.) 1944 (*d*) Schwartz, S, Sborov, U, and Watson, C J Studies of Urobilinogen IV The Quantitative Determination of Urobilinogen by Means of the Evelyn Photoelectric Colorimeter, ibid. **14:** 598 (Dec) 1944 (*e*) Bockus, H. L. Gastroenterology, Philadelphia, W B Saunders Company, 1946, vol 3, pp 467 515 (*f*) Gellis, S S, and Stokes, J The Methylene Blue Test in Infectious Hepatitis, J A M A **128:** 782 (July 14) 1945 (*g*) Foord, A G, and Baisinger, C. F. Comparison of Tests for Bilirubin in Urine, Am J Clin Path **10:** 238 (March) 1940 Hawkinson, U, Watson, C J, and Turner, R. H: A Modification of Harrison's Test for Bilirubin in the Urine, J A M A. **129:** 514 (Oct 13) 1945 (*h*) Osgood, E E, and Wilhelm, M M· Reticulocytes, J. Lab & Clin Med **19:** 1129 (July) 1934 Osgood,[3a] p 406 (*i*) Osgood, E E, and Ashworth, C Atlas of Hematology, San Francisco, J W Stacey, Inc., 1937, pp 458-506 Osgood,[3a] pp 161 279 (*j*) Shank, R E, and Hoagland, C L A Modified Method for the Quantitative Determination of the Thymol Turbidity Reaction of Serum, J Biol Chem **162:** 133 (Jan) 1946. MacLagan, N F The Thymol Turbidity Test as an Indicator of Liver Dysfunction, Brit J Exper Path **15:** 234 (Dec.) 1944. (*k*) Watson, C J. Rappaport, E M, Hawkinson, V, and Greberhain, M A Comparison of the Results Obtained with the Hanger Cephalin Cholesterol Flocculation Test and the MacLagan Thymol Turbidity Tests in Patients with Liver Disease, J Lab & Clin Med **30:** 983 (Dec) 1945 Hanger, F M The Flocculation of Cephalin Cholesterol Emulsions by Pathological Sera, Tr A Am Physicians **53:** 148, 1938; Serological Differentiation of Obstructive from Hepatogenous Jaundice by Flocculation of Cephalin Cholesterol Emulsions, J Clin Investigation **18:** 261 (May) 1939 (*l*) Mateer, J G, Baltz, J, Marian, D F, Hollands, R. H, and Yagle, E M· A Comparative Evaluation of the Newer Liver Function Tests, Am J Digest Dis **9:** 13 (Jan) 1942 (*m*) Quick, A J An Appraisal of the Hippuric Acid Test After Twelve Years of Clinical Trial, Marquette M Rev **10:** 63 (March) 1945. (*n*) Hoffbauer, F W, Evans, G T, and Watson, C J Cirrhosis of Liver, with Particular Reference to Correlation of Composite Liver Function Studies with Liver Biopsy, M. Clin North America **29:** 363 (March) 1945 Sherlock, S Hippuric Acid Synthesis Test of Liver Function, Lancet **1:** 159 (Feb 2) 1946. (*o*) Bassett, A M; Althausen, T L., and Coltrin, G. C. A New Galactose Test for Differentiation of Obstructive from Parenchymatous Jaundice, Am J Digest Dis **8:** 432 (Nov) 1941 (*p*) Aggeler, P. M, Howard, J, Lucia, S P, Clark, W., and Astoff, A:

(Footnote 3 continued on next page)

skill and reliability of the persons collecting the samples and doing the tests.

Table 1 lists the symptoms and signs which indicate the desirability of liver function tests. Table 2 gives the liver function tests arranged in four groups. When any of the symptoms or signs listed in table 1 are present the tests listed in group *A* of table 2 should be performed. If any of the tests in group *A* give abnormal results or if the symptoms and signs suggest hepatocellular damage, the tests in group *B* of table 2 should be performed. If these indicate severe hepatocellular damage the tests in group *C* are worth while, not so much for diagnosis as for evaluation of the severity of the damage, since this group of tests gives abnormal results only in the severest diffuse impairment of function. If tests in group *A* or *B* are positive and a diagnosis has still not been reached, the more difficult and time-consuming tests listed in group *D* may add useful information provided facilities are available for performing them. However, these tests give abnormal results in many diseases in which the liver and biliary tract are not involved.

TABLE 1.—*Indications for Liver Function Tests*

- Jaundice
- Enlarged liver
- Tender liver
- Small liver
- Nodular liver
- Spider nevi
- Light or dark stools
- Deep amber urine
- Fetor hepaticus
- Anorexia
- Pruritus
- Nausea or vomiting
- Fatty stools
- Flatulence
- Splenomegaly
- Dietary deficiency
- Alcoholism
- Hyperthyroidism

The second column in table 2 gives the specific information sought for in performing the test. The third column lists only simple tests which should be available to every physician. These occasionally give misleading results, so when the results fail to check with the rest of the evidence or when the facilities of well equipped laboratories are available, the tests listed in the last column should be performed as checks or as the preferred technic. When two or more tests for the same purpose are listed in the same column the first is the simpler and more useful for screening purposes, and the last is the more reliable. The footnote numbers refer to the most useful articles on the technic but not necessarily to the original description, which will be found in the references cited.

Table 3 outlines the only classification of jaundice which, in my opinion, it is possible to make by laboratory methods. It includes the normal values and typical results of only the simplest recommended methods. Clinical and laboratory experience and careful study of the literature have failed to reveal any test which will differentiate reliably the jaundice of intrahepatic disease from the jaundice of extrahepatic obstruction. Each type of jaundice may occur without hepatocellular damage, and hepatocellular damage may occur in the absence

TABLE 2.—*Tests Recommended for Evaluation of Diseases of the Liver and Biliary Tract*

Group	Test For	Simplest	Most Reliable
A	Serum bilirubin, amount	Icterus index [3a]	Malloy and Evelyn [3b]
	Serum bilirubin, type	Qualitative van den Bergh [3a]	1′, 15′ and 30′ [3b]
	Urine urobilinogen	Wallace and Diamond [3a] Watson and associates [3c] Inspection	Schwartz, Sborov and Watson [3d]
	Fecal urobilinogen	Watson and associates [3c]	Schwartz, Sborov and Watson [3d]
	Fecal bilirubin	……	*Duodenal drainage* [3e]
	Urine bilirubin	Stained linen Methylene blue [3f] Rosenbach [3a]	Modified Harrison [3g]
	Hematogenous jaundice	*Reticulocyte count* [3h]	*Complete hematologic study* [3i]
B	Abnormal proteins	Thymol turbidity [3j]	Cephalin flocculation [3k]
	Excretory function (in nonjaundiced)	Sulfobromophthalein [3a]	Serial sulfobromophthalein [3l]
	Aminoacetic acid formation	Hippuric acid (oral)[3m]	Hippuric acid intravenously [3n]
C	Glycogen formation	Oral galactose tolerance [3a]	Intravenous galactose tolerance[3o]
	Prothrombin formation	……	Prothrombin time 24 hr. after 2 mg menadione intramuscularly[3p]
	Extreme diffuse impairment	*Fasting hypoglycemia* [3a] Tyrosinuria (Osgood,[3a] p 305, Weir.[3] Lichtmen,[1a] pp. 312 314)	
D	Alkaline phosphatase	……	King and Armstrong [3q] Binkley, Shank and Hoagland [3r]
	Total cholesterol; cholesterol esters	……	Schoenheimer and Sperry [3s]
	Plasma proteins	……	Kingsley, G. R.: J Lab. & Clin Med. **27**: 840, 1942

TABLE 3.—*Classification of Jaundice*

	Normal	Latent	Regurgitant or Obstructive Partial	Regurgitant or Obstructive Complete	Retention or Hematogenous
Serum bilirubin Icterus index	4 to 6	7 to 15	16 to 100	40 to 300	7 to 100
Qualitative van den Bergh	0 indirect	Indirect or biphasic	Direct or biphasic	Direct	Indirect or biphasic
Bilirubinuria	0	0 to 1+	1+ to 4+	2+ to 4+	0
Urobilinogen Urine	0 to 1 10	1:20 to 1:80	1 20 to 1:320	0 in 1:10	1:20 to 1:100
Feces	Normal	Normal ±	Decreased	Absent	Increased
Reticulocytes	0 5 to 4 0%	0 5 to 10%	0 5 to 4 0%	0 5 to 4 0%	2 0 to 90%

Standardization of [illegible] Test, Blood **1**: 220 (May) 1946 Quick, A J.. Tl [illegible] Springfield, Ill, Charles C Thomas, Publisher, [illegible] ia, S P, and Aggeler, P M Clinico-Pathologic [illegible] atic Damage and the Plasma Prothrombin Concentration, Am J. M Sc **203**: 665 (May) 1942 (*q*) King, E J, and Armstrong, A. R. A Convenient Method for Determining Serum and [illegible] Activity, Canad M A J **31**: 376 (Oct) 1934 (*r*) [illegible] R. E, and Hoagland, C L. Modification of the [illegible] for the Determination of Phosphate, J. Biol Cher [illegible] 44 (*s*) *Schoenheimer, R, and* Sperry, W. M A Micromethod for the Determination of Free and Combined Cholesterol, ibid **106**: 745 (Sept) 1934.

of jaundice or in association with the laboratory results typical of any one of the types of jaundice listed. Therefore, notwithstanding the widespread use of the term, it seems wise to accept the facts, discard the term hepatocellular jaundice and speak of patchy or diffuse hepatocellular damage without jaundice or with latent, partial obstructive, complete obstructive or hematogenous jaundice, as the case may be at that particular time in that particular patient.

Table 4 shows typical results of the simpler tests useful in evaluating the functional status of the characteristic cell of the hepatic parenchyma in health and in patchy and diffuse disease of the liver. It clearly reveals the limitations of these tests which are due to the tremendous reserve and the great regenerative capacity of the liver. Until this reserve and any functional regenerated cells are reduced to about 20 per cent of those in the normal liver, patchy lesions may show no evidence of impairment to liver function tests, and even the most extensive destruction by patchy lesions seldom shows more impairment to function tests than does mild diffuse damage. The tests are arranged roughly in the order of decreasing sensitivity. Since the tests in the lower half of table 4 are positive only in severe, diffuse hepatocellular damage, such as typically occurs in association with the pathologic picture of acute or subacute hepatic necrosis, they are of value not for diagnosis but for prognosis, guiding therapy and evaluating the severity of damage, in cases in which the tests in the upper half of the table are strongly positive. Failure to appreciate this has led many physicians to discard them as of no value.

TABLE 4.—*Classification of Hepatocellular Damage*

		Patchy		Diffuse	
Tests	Normal	<80%	>80%	Mild	Severe
Sulfobromophthalein, 5 mg./Kg. dose 30'	<5%		Trace—15%		>15% retention
Thymol turbidity	0 to 4 units		5 to 10 units		11 to 35 units
Hippuric acid after 6 Gm. sodium benzoate	4.2 to 5.9 Gm./4 hr.		3 to 5 Gm./4 hr.		0 to 3 Gm./4 hr.
Galactose tolerance after 40 Gm. orally	Under 3 Gm./5 hr.		2 to 5 Gm./5 hr.		Over 5 Gm./5 hr.
Prothrombin time 24 hr. after menadione 2 mg. intramuscularly	Normal		Improves		No improvement
Hypoglycemia	Absent		Slight or absent		Pronounced
Tyrosinuria	0		0		+ to ++++

The sulfobromophthalein sodium test is of most value in the nonjaundiced patient, as it is seldom negative in a person who has clinical icterus. A high concentration of urobilinogen in the urine in the absence of complete obstructive or hematogenous jaundice also suggests hepatocellular damage. Although the thymol turbidity and cephalin flocculation tests are tests for an abnormal lipoglobulin and failure of protection of normal gamma globulin by an adequate amount of normal albumin, respectively, these flocculation tests are probably the most sensitive and generally useful tests in calling attention to the probability of intrahepatic disease. The hippuric acid test is probably the most useful in the evaluation of the severity of moderate degrees of impaired hepatic function when impaired renal function, which commonly is associated with severe impairment of the liver's function, is excluded by a simultaneous phenolsulfonphthalein test.[3n] The galactose tolerance test is the most useful test for evaluating the course of severe, diffuse damage to hepatic cells.

The more frequently encountered groups of causes of the different types of jaundice are listed in table 5, and those of the different types of hepatocellular damage in table 6 with the commoner causes at the top and the less common causes at the bottom of the columns. Not only is there considerable overlapping of causes, but many patients may exhibit two of them at the same time. Furthermore, these lists are incomplete; there are many subdivisions to many of the groups, and there is evidence to suggest that there are diseases of the liver which are as yet unnamed and undescribed. More complete lists will be found in the reviews cited.[1] The diagnoses of some of these diseases are discussed in more detail in subsequent papers in this symposium.

TABLE 5.—*Common Causes of Jaundice*

Latent	Obstructive		
Jaundice	Partial	Complete	Hematogenous
Early, mild and recovery phases of all causes	Stone Early, and moderate diffuse, hepatocellular damage All patchy lesions Cirrhoses except biliary Passive congestion Early with all causes of complete Severe, late, hematogenous	Carcinoma of ampulla or head of pancreas Fibrosis Stone (intermittent) Severe, diffuse hepatocellular damage Lymphadenopathy at hilus Biliary cirrhosis Terminal cirrhoses Patchy lesions at hilus	Internal blood destruction High gastrointestinal or internal hemorrhage Hemolytic icterus Erythroblastosis fetalis Malaria Pernicious anemia Hemorrhagic infarcts Sickle cell anemia Hemolytic transfusion reaction Hemolytic infection Hemolytic poisons or allergens

Far more valuable in diagnosis than the clinical observations on any one date is the time-intensity curve of the characteristic course of the jaundice and damage to the liver, as illustrated in charts 1 to 8. Note that in each of these figures the position of the curve indicates the type of jaundice to be expected in a typical case at any stage in the course of the disease. The cross hatching indicates the presence of hepatocellular damage detectable by the liver function tests now available. The severity of the impairment of liver function

TABLE 6.—*Causes of Hepatocellular Damage*

Patchy Lesions	Diffuse Lesions
Carcinoma Primary Secondary Cirrhoses Laennec's Biliary (6 types) Congestive Postnecrotic Pigmentary Syphilitic Fatty Wilson's hepatolenticular degeneration Abscesses Amebic Pylephlebitic Cholangitic Pyemic Boeck's sarcoid Hodgkin's disease Lymphosarcoma Leukemias Polycystic liver Amyloidosis Echinococcus cysts	Epidemic hepatitis Homologous serum jaundice Poisons causing hepatic damage Carbon tetrachloride Chloroform Phosphorus Phenylhydrazine Organic arsenicals Cinchophen and neocinchophen Sulfonamide compounds Spirochetal jaundice Hyperthyroidism Eclampsia Ascending hepatitis secondary to cholangitis Severe or prolonged hematogenous jaundice Passive congestion Anoxia Virus pneumonia Infectious mononucleosis Yellow fever

is roughly indicated by the spacing of the cross hatches, far apart if mild and close together if severe. The time scale is in percentage of the total duration of the disease. The typical age of onset is indicated below each figure at the left and the approximate typical duration at the right. Obviously there are wide individual variations from case to case, so each curve should be visualized as having a broad band on either side of it and the cross hatching as showing considerable variation in the spacing and point of starting and ending.

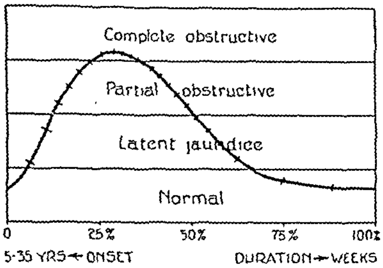

Chart 1.—Infectious hepatitis.

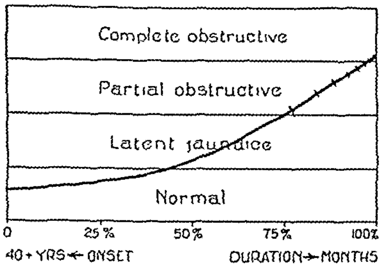

Chart 2.—Metastatic carcinoma.

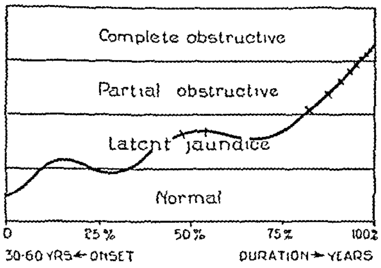

Chart 3.—Laennec's cirrhosis.

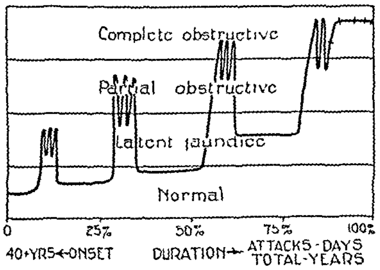

Chart 4.—Cholecystitis with cholelithiasis.

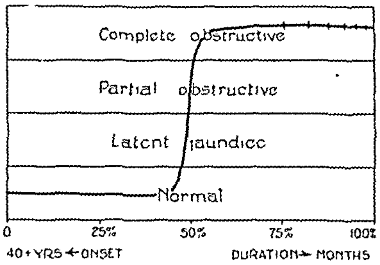

Chart 5.—Carcinoma obstructing common bile duct.

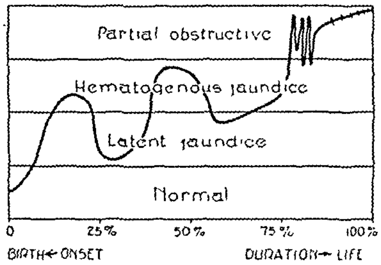

Chart 6.—Hemolytic icterus.

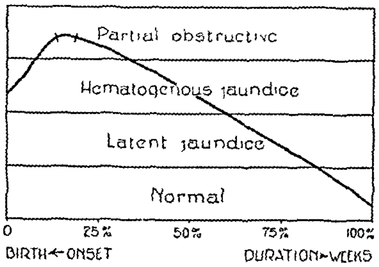

Chart 7.—Erythroblastosis fetalis.

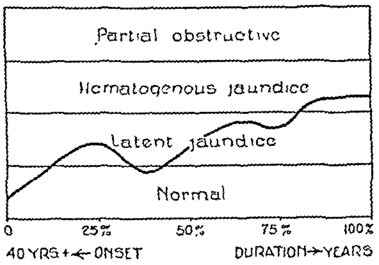

Chart 8.—Pernicious anemia.

Charts 1 to 5 are typical of predominantly obstructive jaundice and charts 6 to 8 of predominantly hematogenous jaundice.

Chart 1 is typical of the diffuse hepatic damage group, and only minor variations from this picture would be found in homologous serum jaundice or hepatic damage due to poisoning or to idiosyncrasy to a drug.

Charts 2 and 3 illustrate characteristic observations in patchy lesions of the liver and charts 4 and 5 of predominantly partial obstructive and predominantly complete obstructive jaundice, respectively. Although identical laboratory observations could be found on some one day in the course of any of the diseases of which these five are prototypes, the character of the curve over a period of time would serve to distinguish them.

Charts 6, 7 and 8 illustrate different forms of hematogenous jaundice. Since latent jaundice is merely subclinical jaundice, in this group of conditions the laboratory tests in the subclinical stage approach those of hematogenous jaundice, whereas in the conditions illustrated by charts 1 to 5 they approach the picture of partial obstructive jaundice.

Occasionally the observations in partial obstructive jaundice, hepatic damage and hematogenous jaundice are of almost equal intensity, as (1) when a patient has two diseases or (2) when extensive internal hemorrhage has occurred from prothrombin deficiency in a patient with a cause for liver damage and obstructive jaundice or (3) when severe hepatic anoxia from anemia and pigment-thickened bile add the obstructive picture to an initially predominantly hematogenous jaundice. Such combinations are the rule in spirochetal disease and yellow fever, are common in severe cases of erythroblastosis fetalis and during the acute crises of hemolytic anemias, and may result from overdosage of drugs, such as phenylhydrazine, that are both hemolytic and hepatoxic.

SUMMARY

Liver function tests alone can never be expected to establish a diagnosis.

They will indicate the presence of disease affecting every liver cell and of patchy disease when more than 80 per cent of the parenchyma is involved.

They will detect subclinical jaundice and classify clinical jaundice as partial or complete obstructive, or hematogenous.

Since hepatocellular damage may occur in the absence of jaundice or in association with any type of jaundice, the term hepatocellular jaundice should be discarded.

An ideal diagnosis as a basis for treatment should indicate specifically the exact anatomic site of each lesion; the nature, stage and extent of the pathologic process; the agent responsible for this specific pathologic process, and the nature and degree of the functional disturbance resulting from the pathologic process. Such a diagnosis can be made only by correlating all the data from the history, physical examination, the tests herein considered and specific tests for the determination of the underlying cause.

DIAGNOSTIC MANAGEMENT OF PATIENTS WITH JAUNDICE

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In spite of recent advances in our knowledge of hepatobiliary disease, a significant proportion of patients with jaundice still present a baffling problem in differential diagnosis. The importance of this problem is accentuated by the necessity of a decision in a large majority of such cases as to whether surgical intervention is indicated. For this reason we have analyzed 100 recent cases of jaundice which presented problems in differential diagnosis and in which the diagnosis was definitely established by operative intervention, autopsy or clinical course (table 1).

Data from the history, physical examination and laboratory study of these patients which proved of practical diagnostic value will be contrasted with data which are usually considered pertinent but which contributed little to the solution of the problem in our patients. Finally, since a certain number of cases defy all attempts at clinical differentiation, we shall outline a program for the effective handling of patients with jaundice in whom no definite diagnosis as to the type of jaundice can be made, with the object both of avoiding the danger of exploratory operation in the greatest possible number of patients with hepatitis and of guarding the patients from the harmful effects of prolonged extrahepatic obstruction.

The conventional classification of jaundice into hemolytic, obstructive and parenchymatous types according to the original cause of jaundice is followed in this paper. We are cognizant of the fact that mixed types of jaundice, especially obstructive plus parenchymatous are present in most cases after either type of jaundice has existed for several weeks.

In the following analysis the main stress is laid on the differentiation between obstructive and parenchymatous jaundice because patients with hemolytic jaundice seldom present a difficult problem. This is true for two reasons. First, patients with chronic hemolytic icterus as a rule are not very ill and have only mild jaundice, so that surgical intervention in the right upper quadrant of the abdomen is seldom considered. Second, the presence of several characteristic clinical features usually enables the clinician to distinguish hemolytic from other types of jaundice. These features are a familial history, repeated painless attacks of jaundice with an icterus index under 50 units, normal stools, absence of bilirubin in the urine and reticulocytosis.

RESULTS

I A. *Data of Value in the History*—Sex: In our series data of value in the history (table 2) revealed that obstructive jaundice was twice as common in men as in women. This was due to the fact that men with carcinoma of the pancreas obstructing the common biliary duct comprised 91 per cent of all such cases. The sex of our patients was of some assistance also in the diagnosis of hepatic cirrhosis, since 66 per cent of cases of this disease were encountered in men and 34 per cent in women, giving a ratio of 2 to 1. Studies in the literature[1] reveal an almost 4 to 1 preponderance of obstructive jaundice in men.

Past History of Cholecystic Disease: There was a past history of cholecystic disease in 85 per cent of our patients with choledocholithiasis and in 30 per cent of patients with jaundice due to other causes. Our data in this respect are in general agreement with those found in the literature.

Biliary Colic: Seventy-five per cent of our patients with typical biliary colic had obstructive jaundice and 25 per cent had parenchymatous jaundice. However, only 40 per cent of our patients with stone in the common bile duct had biliary colic. Lichtman[2] and Kiefer[3] described colicky pain in the right hypochondrium in a considerable number of patients with obstruction due to carcinoma of the pancreas or biliary ducts, while Weiss[4] stated that hepatitis may be ushered in by severe epigastric pain radiating to the right shoulder. Biliary colic, then, may be present in all types of jaundice but is seen most frequently in choledocholithiasis. A positive history is of more diagnostic significance than a negative one.

Table 1—*Distribution of Cases According to Types of Jaundice*

Obstructive jaundice	
Common duct stone	20
Carcinoma of the pancreas	23
Lymphosarcoma	1
Stricture of the common duct	2
	46
Parenchymatous jaundice	
Portal cirrhosis	24
Biliary cirrhosis . .	2
Xanthomatous biliary cirrhosis .	1
Acute hepatitis	22
Acute yellow atrophy of the liver	2
Primary carcinoma of the liver .	1
	52
Hemolytic jaundice	
Congenital hemolytic icterus	2
Total..........	. 100

Table 2—*Data of Value in the History for the Differential Diagnosis of Jaundice*

	Obstructive Jaundice, %	Carcinoma, %	Common Duct Stone, %	Parenchymatous Jaundice, %	Cirrhosis, %
Sex					
Male	(66)*	(91)	.	..	(66)
Female	(34)	(9)			(34)
	..	.	(85)†		..
	75	..	(40)	25	
Chills and fever . .	70	..	50	30	..
Alcoholism . . .	12		.	88	(64)
Weight loss over 10 Kg	88	66 (55)		12	..

* Figures in parentheses indicate the percentage of patients with a given diagnosis in whom this observation was made

† Thirty per cent of all other patients had a past history of cholecystic disease.

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946

[1] (*a*) Green, C H Physiologic Considerations in the Treatment of Portal Cirrhosis, J. A M A. **121:** 715 (March 6) 1943 (*b*) Patek, A J, and Post, J Treatment of Cirrhosis of the Liver by a Nutritious Diet and Supplements Rich in Vitamin B Complex, J Clin Investigation **20:** 481 (Sept) 1941 (*c*) Ratnoff, O D, and Patek, A J The Medical History of Laennec's Cirrhosis of the Liver An Analysis of Three Hundred and Six Cases, Medicine **21:** 207 (Sept) 1942

[2] Lichtman, S Diseases of the Liver, Gall Bladder and Bile Ducts, Philadelphia, Lea & Febiger, 1942

[3] Kiefer, E D Carcinoma of the Pancreas, Arch Int Med **40:** 1 (July) 1927

[4] Weiss, S Diseases of the Liver, Gall Bladder, Ducts and Pancreas Their Diagnosis and Treatment, New York, Paul B. Hoeber, Inc, 1935

Chills and Fever: Chills and fever are common symptoms accompanying jaundice and are usually considered of little diagnostic value, since they may usher in an attack of hepatitis or may be associated with cholangitis in obstructive jaundice.[2] However, we found them of some significance, since 70 per cent of our patients with chills and fever had obstructive jaundice and 50 per cent had a stone in the common bile duct.

Alcoholism: Eighty-eight per cent of patients who admitted moderately severe to severe alcoholism had parenchymatous jaundice. Such an alcoholic history was present in 64 per cent of our patients suffering from hepatic cirrhosis with jaundice. Recent studies of cirrhosis of the liver without reference to jaundice revealed an incidence of alcoholism of between 38 per cent [1a] and 87 per cent.[1b]

Loss of Weight: Most types of jaundice are frequently accompanied by loss of weight. In cirrhosis of the liver [1b] and in choledocholithiasis [5] the loss of weight is usually slow and associated with digestive disturbances, whereas in carcinoma of the pancreas it often is not only well defined but also rapidly progressive.[6] Among patients in this series who lost 10 Kg. or more in weight, 88 per cent had obstructive jaundice, and in 66 per cent this loss of weight was due to carcinoma of the pancreas. In 11 per cent of cases the severe loss of weight was associated with hepatitis. Twelve patients reported not only a pronounced but also a rapidly progressive loss in weight, and all of them were found to have carcinoma of the pancreas. A positive history is again more significant than a negative one, since only 55 per cent of our patients with pancreatic carcinoma had a weight loss exceeding 10 Kg.

Table 3.—*Physical Observations of Value in the Differential Diagnosis of Jaundice*

	Obstructive Jaundice, %	Carcinoma, %	Common Duct Stone, %	Parenchymatous Jaund'ce, %	Hepatitis, %	Cirrhosis, %
Marked hepatomegaly	27	..	..	73	..	..
Ascites	9	..	..	91	15	76 (69)*
Collateral circulation	9	..	..	91	9	82 (38)
Angiomas	0	..	..	100	12	88 (29)
Palpable gallbladder	100	89 (35)	11	0	..	..
Splenomegaly	26	..	..	74	..	..

* Figures in parentheses indicate the percentage of patients with a given diagnosis in whom this observation was made.

I B. *Data of Little Value in the History.*—Age: The incidence of age usually plays a prominent part in statistical studies of hepatic disease. For example, in Flood's series,[5] 80 per cent of patients with obstructive jaundice were over 40 years of age and 80 per cent of patients with parenchymatous jaundice were under 40 years of age. The average age of our patients with obstructive jaundice was 57 years and that of our patients with parenchymatous jaundice, 46 years, thus allowing no useful diagnostic conclusions in individual cases. Our 2 patients with acute yellow atrophy of the liver were 62 and 79 years of age.

Prodromal Symptoms: Anorexia, nausea, epigastric distress, malaise and symptoms referable to the upper part of the respiratory tract are frequently described as the preicteric stage of acute hepatitis.[7] In our series such prodromal symptoms were of minor importance in differential diagnosis, since they were present not only in patients with acute hepatitis but also in 2 of 5 patients with obstructive jaundice.

Pain in the Abdomen and Back: Exclusive of biliary colic, pain in the abdomen and back occurred in nearly one third of our patients, of whom 58 per cent had obstructive jaundice and 42 per cent had parenchymatous jaundice. The type or exact location of pain experienced by these patients was of no greater value in differential diagnosis than the incidence of pain. This was not unexpected, since both inflammatory and obstructive lesions of the hepatobiliary system are capable of causing distention of Glisson's capsule or of the biliary apparatus and in this manner causing pain.

Relationship of Onset of Jaundice to Onset of Pain: Weiss [4] stated that jaundice appears within a matter of hours after the impaction of a gallstone in the common duct, whereas it takes several days for jaundice to be established after the onset of hepatitis. Berk [6] found that in 15 of 18 patients with carcinoma of the pancreas, in whom the order of appearance of these two symptoms could be established, pain occurred before jaundice. We were able to ascertain the order of appearance of these two symptoms in 26 of our 60 patients with pain but were unable to draw any useful diagnostic conclusions. Among 18 patients with biliary obstruction and pain, the pain preceded the jaundice in 6 cases and coincided with it in 12. Among 8 patients with hepatitis and pain, the pain preceded the jaundice in 3 instances, coincided with it in 3 and followed it in 2.

Absence of pain as a characteristic of obstructive jaundice due to malignant tumors versus the presence of pain as a characteristic of obstructive jaundice due to choledocholithiasis was at one time emphasized more than it has been since the publication of several papers dealing with this subject.[8] In our series the jaundice was painless in 43 per cent of patients with carcinoma of the pancreas, in 42 per cent of patients with hepatitis and in 40 per cent of patients with stone in the common bile duct. Obviously the absence of pain offers no help in the differential diagnosis of jaundice.

Pruritus: Itching is a common symptom of jaundice which is often considered to favor the diagnosis of biliary obstruction.[9] In this study pruritus was of no diagnostic significance, since patients complaining of it had parenchymatous jaundice in 53 per cent of cases and obstructive jaundice in 47 per cent of cases. In Lichtman's experience [2] itching was also independent of the type and severity of jaundice.

II A. *Physical Observations of Value.*—Hepatomegaly: Among the physical observations of value (table 3), palpable enlargement of the liver was present in 59 per cent of our patients and was found with equal frequency in cases of obstructive and of parenchymatous jaundice. Decided hepatomegaly with the edge of the liver 7 cm. or more below the costal margin was present three times more frequently in jaundice associated with parenchymatous disease than in obstructive jaundice. Among patients with obstructive jaundice

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5. Flood, C. A.; Seegal, D.; Spock, B., and Loeb, R. F.: The Differential Diagnosis of Jaundice, Am. J. M. Sc. **185**: 358 (March) 1933.

6. Berk, E. J.: Diagnosis of Carcinoma of the Pancreas, Arch. Int. Med. **68**: 525 (Sept.) 1941.

7. Weiss.[4] Flood, Seegal, Spock and Loeb.[5]

8. (*a*) Rives, J. D.; Romano S. A. and Sandifer, F. M.: Carcinoma of the Pancreas, Surg., Gynec. & Obst. **65**: 164 (Aug.) 1937. (*b*) Weir, J. F., and Paitch, W. T.: The Relationship of Pain to Jaundice, Ann. Int. Med. **4**: 1509 (June) 1931. (*c*) Flood, Seegal, Spock and Loeb.[5] Berk.[6]

9. Murchism, C.: Clinical Lectures on Diseases of the Liver, London, Longmans, Green & Co., 1885, p. 702. Snell, A. M., and Keyes, H. C.: Pruritus of Jaundiced Patients: Its Incidence and Treatment, M. Clin. North America **16**: 1455 (May) 1933.

and enlargement of the liver a large majority (73 per cent) of cases were due to carcinoma of the pancreas. It appears that the rapidly progressive and complete obstruction which results from this cause is more likely to produce enlargement of the liver than is the incomplete and often intermittent obstruction due to choledocholithiasis. Data in the literature on the size of the liver in various diseases which lead to jaundice vary considerably.[10] The hazards of attaching too much significance to hepatic enlargement have been shown by Rives, Romano and Sandifer,[8a] who were able to confirm at autopsy the clinical finding of hepatomegaly in less than one half of their cases. One of us (T. L. A.) had a patient in whom the lower edge of the liver, which was subsequently proved to be normal, was pushed down to the level of the umbilicus by advanced pulmonary emphysema.

Ascites: Free fluid in the abdomen is an observation of great diagnostic value. Ninety-one per cent of our patients with ascites had parenchymatous jaundice, and in 76 per cent of cases it was due to cirrhosis of the liver. Sixty nine per cent of our patients with hepatic cirrhosis and jaundice had clinically demonstrable ascites. Studies by other clinicians are in agreement with these observations.[11]

Collateral Subcutaneous Venous Circulation: Ninety-one per cent of patients with collateral subcutaneous venous circulation had parenchymatous jaundice. In 82 per cent of cases it was due to cirrhosis of the liver. However, only 38 per cent of patients with cirrhosis and jaundice and only 47 per cent of patients with cirrhosis, jaundice and ascites showed evidence of collateral circulation. In the literature collateral circulation is reported in from 23 per cent to 76 per cent of patients with hepatic cirrhosis.[11b] The conclusion appears justified that the presence of collateral circulation strongly points to the existence of parenchymatous jaundice, which in most cases will be due to cirrhosis of the liver.

Angiomas: Angiomas of the acquired arterial spider type were found in this series only in patients with parenchymatous jaundice due, with 1 exception, to cirrhosis of the liver. However, Bean [12] in a series of 232 patients with hepatic disease also found such angiomas in 2 instances of obstructive jaundice. Eighty per cent of his patients with angiomas were suffering from cirrhosis of the liver. The observation of acquired spider angiomas, then, is good evidence of parenchymatous jaundice, which in a large majority of cases is due to hepatic cirrhosis.

Palpable Gallbladder: In 89 per cent of our patients with a palpable gallbladder the jaundice was due to carcinoma of the pancreas and in 11 per cent to choledocholithiasis. On the other hand, only 35 per cent of our patients with carcinoma of the pancreas had a clinically enlarged gallbladder. These figures are generally in accord with those in the literature.[13] Flood [5] also occasionally found a palpable gallbladder in patients with catarrhal jaundice. Therefore, notwithstanding some exceptions, Courvoisier's law is still valid when a palpable gallbladder is present.

Splenomegaly: A palpably enlarged spleen was associated in this series with parenchymatous jaundice in 60 per cent of cases, with hemolytic jaundice in 14 per cent and with obstructive jaundice in 26 per cent. Therefore, 3 of 4 patients with splenomegaly had nonsurgical types of jaundice. According to published data splenomegaly is mainly present in cirrhosis of the liver and in acute hepatitis but occasionally also in choledocholithiasis with cholangitis and in carcinoma of the pancreas.

II B. *Physical Observations of Little Value.*—Bradycardia: Slowing of the pulse rate figures prominently in most textbook discussions on jaundice. Most authors find it predominantly in catarrhal jaundice.[14] On the other hand, MacKenzie [15] stated that he never met with bradycardia in jaundice. We observed a significant slowing of the pulse rate in only 2 patients in this series and therefore cannot consider it of any diagnostic help.

Fever: Low grade, chronic fever was present in 39 per cent of cases in this series. It was observed with approximately equal frequency in cases of obstructive and of parenchymatous jaundice. Other authors reported approximately the same incidence of low grade fever in patients with jaundice.[16] One of these reports has stated that patients with carcinoma of the pancreas seldom have any fever.

TABLE 4.—*Laboratory Tests of Value in the Differential Diagnosis of Jaundice*

	Obstructive Jaundice, %	Carcinoma, %	Parenchymatous Jaundice, %	Cirrhosis, %
Gastrointestinal series	..	(46)*	..	(36)
Serum proteins	25	..	75	71
Intravenous galactose test				
Positive	(3)	..	(73)	..
Negative	(97)	..	(27)	..
Response to vitamin K				
Positive	(89)	..	(6)	..
Negative	(11)	..	(94)	..

* Figures in parentheses indicate the percentage of patients with a given diagnosis in whom this observation was made.

Hepatic Tenderness: A tender liver was found in only 13 per cent of our patients but was of some diagnostic significance when present, since in fully 10 per cent of the cases it was due to parenchymatous disease of the liver. Reports in the literature [17] indicate a higher incidence of hepatic tenderness in jaundice than we found and state that it occurs most frequently in acute hepatitis, less frequently in choledocholithiasis, and seldom in cirrhosis of the liver or in carcinoma of the pancreas.

III A. *Laboratory Tests of Value.*—Gastrointestinal Series: An analysis of the value of laboratory tests (table 4) showed that roentgenologic studies of the gastrointestinal tract can be useful in the differential diagnosis of jaundice in the following manner: (1) by suggesting the presence of a pancreatic carcinoma when widening of the duodenal loop, partial obstruction of the third part of the duodenum or deformity of the pylorus or duodenum due to infiltration by tumor are present; (2) by indicating the probability of hepatic cirrhosis when varices are found in the esophagus, and (3) by calling attention to the possibility of metastatic involvement of the extrahepatic or intrahepatic biliary ducts when a primary tumor of the gastrointestinal tract, usually of the stomach, is discovered.

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[10] Meyer, K. A., and Steigman, K.: Surgical Jaundice—Diagnostic Considerations, Surg., Gynec. & Obst. **67**: 640 (Nov.) 1938. Lichtman.[2] Berk.[6]

[11] (*a*) Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites—An Analysis of 200 Cases with Speci[illegible] and Treatment, Am. J. Digest. Dis. **9**: 115 [illegible] and Post.[1b] Ratnoff and Patek.[1c]

[12] Bean, W. B.: *The Cutaneous Arterial Spider: A Survey*, Medicine **24**: 243 (Sept.) 1945.

[13] Weiss.[4] Berk.[6]

[14] Rolleston, H.: Diseases of the Liver, Gall Bladder and Bile Ducts, London, The Macmillan Company, 1929. Eppinger, H., in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg, 1920, vol. 62. Hoagland, C. L., and Shank, R. E.: Infectious Hepatitis—A Review of Two Hundred Cases, J. A. M. A. **130**: 615 (March 9) 1946. Weiss.[4]

[15] MacKenzie, J.: The Study of the Pulse, London, Y. T. *Pentland, 1902*, p. 134.

[16] Ratnoff and Patek.[1c] Flood, Seegal, Spock and Loeb.[5]

[17] Ratnoff and Patek.[1c] Weiss.[4] Flood, Seegal, Spock and Loeb.[5]

In our series characteristic changes in the duodenum were found in 45 per cent of patients with cancer of the pancreas. Esophageal varices were detected in 36 per cent of patients with cirrhosis of the liver and jaundice. Berk[6] reported positive roentgenologic observations in 37 per cent of 367 collected cases of pancreatic carcinoma.

Serum Proteins: A serum albumin of 3.5 Gm. per hundred cubic centimeters or less occurred with equal frequency in patients with obstructive and with parenchymatous jaundice. On the other hand, 75 per cent of patients who had a low serum albumin level with a high serum globulin determination were suffering from parenchymatous jaundice, usually due to cirrhosis of the liver. The importance of hyperglobulinemia in addition to the hypoalbuminemia for the differential diagnosis of jaundice has not been stressed by writers on this subject.[18]

Intravenous Galactose Test: The value of galactose in the differential diagnosis of jaundice lies in the observation that, unlike most other functions of the liver, the ability to metabolize galactose is impaired relatively little by obstructive jaundice of even several months' duration. In a previous paper[19] one of us (T. L. A.) called attention to the unreliable results with the conventional oral galactose test, which is influenced not only by the ability of the liver to metabolize galactose but by the rates of intestinal absorption and renal excretion of this sugar. At the same time there was described a method of administering galactose intravenously and of measuring the unused portion of galactose in the venous blood at the end of the test, which rendered the galactose test more useful for the differentiation of obstructive from parenchymatous jaundice. In this paper, 82 per cent of 33 unselected patients with obstructive jaundice of less than six months' duration had less than 20 mg. of galactose per hundred cubic centimeters in the blood seventy-five minutes after the intravenous injection of 1 cc. of a 50 per cent solution of galatose per kilogram of body weight, while 81 per cent of 26 unselected patients with parenchymatous jaundice had more than this amount of galactose in the blood.

In the present series all patients with uncomplicated obstructive jaundice due to stone in the common bile duct had less than 20 mg. of galactose per hundred cubic centimeters in the blood at the end of the test. Six patients with choledocholithiasis and superimposed biliary cirrhosis had higher values for galactose. All the latter patients had a long history of repeated attacks of biliary colic associated with jaundice, chills and fever; hence, it was easy to distinguish this group clinically from patients with uncomplicated obstructive jaundice. In all these patients the clinical diagnosis of biliary cirrhosis was confirmed by operative procedures and in half of them it was also confirmed by biopsy of the liver.

In all but 1 patient with uncomplicated obstructive jaundice due to carcinoma of the pancreas the blood galactose level was under 20 mg. per hundred cubic centimeters. In the 1 exception the borderline figure of 25 mg. per hundred cubic centimeters was obtained. Three patients with carcinoma of the pancreas had higher values for galactose. Two of them also had cirrhosis of the liver, as shown by operation and biopsy, and the third patient had massive metastatic growths in the liver. Two patients with jaundice due to benign postoperative stricture of the common duct had a normal galactose tolerance.

In summary, practically all (97 per cent) patients with uncomplicated obstructive jaundice were identified correctly by the intravenous galactose test. If we are to include in the group of obstructive jaundice the cases complicated by hepatic cirrhosis and the case with massive metastases to the liver, we still get a correct answer in 78 per cent of the cases. The mean galactose blood level of all patients with obstructive jaundice was 15 mg. per hundred cubic centimeters.

Seventy-nine per cent of patients with cirrhosis of the liver had more than 20 mg. of galactose per hundred cubic centimeters in the blood. All these patients had an icterus index over 50 units. Twenty-one per cent of patients with cirrhosis of the liver had a galactose level of less than 20 mg. per hundred cubic centimeters in the blood, and all of them had an icterus index under 50 units. In addition to the mild degree of icterus, which usually robs the case of urgency because surgical intervention is not contemplated, in most of the latter cases the presence of other signs which pointed to parenchymatous hepatic disease, such as ascites, spider angiomas and cutaneous collateral circulation, made the diagnosis clear.

Seventy-three per cent of patients with acute hepatitis had a galactose blood level in excess of 20 mg. per hundred cubic centimeters. Twenty-seven per cent had less than 20 mg. of galactose per hundred cubic centimeters in the blood. In the latter group, in all but 1 case the hepatitis was mild (with an icterus index under 50 units) or of short duration and was undergoing rapid improvement when the test was performed.

Two patients with acute yellow atrophy of the liver had a striking inability to metabolize galactose. Their blood galactose levels were 129 and 145 mg. per hundred cubic centimeters. The highest figure for galactose in the blood which we observed in acute hepatitis with recovery was 116 mg., and the highest figure obtained in cirrhosis of the liver was 92 mg., per hundred cubic centimeters. This limited experience suggests that galactose levels over 125 mg. per hundred cubic centimeters are of grave prognostic significance. This information is of all the more value, since the 2 instances of extremely high values for galactose were obtained by us before other indications of the gravity of the situation appeared and while the patients had few subjective complaints. In 1 of these cases the outcome of the test was instrumental in bringing a close relative from a distant part of the country to the patient's bedside before death occurred.

In summary, 77 per cent of all patients with parenchymatous jaundice were identified correctly by means of the intravenous galactose test. Were we to exclude from our material patients with mild jaundice (with an icterus index under 50 units) or with jaundice lasting less than a week, the accuracy of the test in parenchymatous jaundice would rise to 98 per cent.

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[18] Post, J., and Patek, A. J.: Serum Proteins in Cirrhosis of the Liver, Arch. Int. Med. 69: 67 (Jan.) 1942. Snell, A. M.: The Plasma Proteins and Liver Disease, Am. J. Digest. Dis. 4: 258 (June) 1938.

[19] Bassett, A. M.; Althausen, T. L., and Coltrin, G. C.: A New Galactose Test for the Differentiation of Obstructive from Parenchymatous Jaundice, Am. J. Digest. Dis. 8: 432 (Nov.) 1941.

The mean galactose level of the blood was 56 mg. per hundred cubic centimeters. King and Aitken[20] as well as Maclagan[21] obtained comparable results with the intravenous galactose test. Combining the results of the intravenous galactose test in all cases of jaundice, it is seen that the outcome of the test alone made the differentiation between obstructive and parenchymatous jaundice in our series in 3 of 4 cases. When certain simple additional clinical data are taken into consideration, it becomes possible to determine correctly the type of jaundice in almost all cases

Prothrombin Response to Vitamin K: Maintenance of a normal prothrombin level in the plasma is one of the functions of the liver. This function can be fulfilled only in the presence of an adequate supply of vitamin K from the intestine. Obstructive jaundice lowers the prothrombin level by interfering with the intestinal absorption of vitamin K and by creating a vitamin K deficiency. Such a deficiency hypoprothrombinemia is corrected rapidly (often in six hours) by the parenteral administration of vitamin K. Parenchymatous jaundice produces hypoprothrombinemia by interfering with the ability of the liver to form prothrombin. Consequently in the latter the administration of vitamin K either does not raise the prothrombin level at all or does so only slowly. This difference, as has been repeatedly pointed out,[22] can be used for the differential diagnosis between obstructive and parenchymatous jaundice.

In the present study the prothrombin level was determined by the method of Quick[23] The patient was then given an injection of the contents of one ampule of a vitamin K preparation, menadione sodium bisulfite ("hykinone" Abbott), and the prothrombin level was determined again twenty-four to forty-eight hours later. Elevation of the prothrombin level was considered significant only if the original level was 70 per cent or less and the increase 20 per cent or more.

Among our patients with obstructive jaundice 89 per cent responded with a significant increase of an initially low prothrombin concentration. Among those who failed to respond superimposed biliary cirrhosis accounted for one half of the cases. Allen[24] also found that the presence of cholangitis with fever impaired the prothrombin response In the group of our patients with parenchymatous jaundice 94 per cent showed no increase in the prothrombin level. These figures indicate a satisfactory accuracy on the part of the prothrombin response to vitamin K in the differentiation of the obstructive from the parenchymatous type of jaundice. There was also excellent correlation between the results of the intravenous galactose test and the response of prothrombin to vitamin K.

III B. *Laboratory Tests of Little Value.*—Cholecystography: Cholecystography was of limited value in differentiating between cases of obstructive and of parenchymatous jaundice in this series. It can be said that normal visualization of the gallbladder tends to rule out cholecystic disease. However, since the gallbladder was not visualized in 77 per cent of our cases of jaundice due to cholecystic disease, acute hepatitis, hepatic cirrhosis and benign or malignant obstruction of the common duct, this procedure was of little value in differential diagnosis.

Intravenous Hippuric Acid Test: The test based on the ability of the liver to provide aminoacetic acid for the formation of hippuric acid from sodium benzoate has proved itself a sensitive general liver function test. In the series here reported excretion of sodium benzoate was impaired in 82 per cent of patients with obstructive jaundice, regardless of the duration of jaundice and in 90 per cent of patients with parenchymatous jaundice. These figures correspond to our previously reported observations[19] and to the experience of other workers.[25] They indicate that the test is so sensitive that it records the relatively slight hepatic injury caused by regurgitation of bile in obstructive jaundice on a par with the more serious injury incident to various forms of hepatitis. For this reason it is not suitable for differentiation of these two types of jaundice.

Other Liver Function Tests: Several other tests, including the qaulitative van den Bergh, total cholesterol, cephalin flocculation, alkaline phosphatase and roughly quantitative urobilinogen determinations by the method of Wallace and Diamond,[26] were performed in a portion of the cases included in this series. Except in isolated instances we found them of no great value in differentiation between cases of obstructive and of parenchymatous jaundice. This was also the reported experience of other investigators.[27]

EXPECTANT MANAGEMENT OF JAUNDICE

In any sufficiently large series of patients with jaundice in spite of the best efforts of the clinician there is likely to remain a small residual number of cases in which the most meticulous history, careful physical examination and extensive laboratory investigation fail to produce a satisfactory identification of the type of jaundice present. In such cases the attending physician can substitute intelligent management for a definite diagnosis. Such management consists of supportive and symptomatic treatment for a period of two months from the onset of jaundice and serial determinations of bilirubinemia by means of the icterus index or the quantitative van den Bergh test at intervals of two weeks. If at the end of this period there is no consistent diminution in the intensity of jaundice, exploratory operation should be advised.

It has been shown that most cases of acute hepatitis begin to clear up before the end of two months. Most patients with subacute or acute atrophy of the liver will also either show definite improvement or die during this period. This leaves practically only patients with obstructive jaundice who can be either cured by removal of a benign obstruction from the common bile duct or relieved by a palliative anastomosis of the gallbladder to the duodenum or stomach if the obstruction is due to a malignant tumor.

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[20] King, E J, and Aitken, R S· An Intravenous Galactose Tolerance Test, Lancet **2**: 543 (Nov 2) 1940

[21] Maclagan, N F Laboratory Tests in the Diagnosis of Liver Disease, Brit M J. **2**: 363 (Sept 14) 1944

[22] (*a*) Allen, J G The Diagnostic Value of Prothrombin Response to Vitamin K Therapy as a Means of Differentiating Between Intrahepatic and Obstructive Jaundice, Internat Abstr Surg **76**: 401 (May) 1943 (*b*) Lord, J W, and Andrus, W D Differentiation of Intrahepatic and Extrahepatic Jaundice, Arch Int Med **68**: 199 (Aug) 1941. (*c*) Olwin, J H Differentiation of Surgical Jaundice from Severe Damage of Liver, Arch Surg **43**: 633 (Oct) 1941 Allen, J G, and Julian, O C Prothrombin and Hepatic Function, Arch Surg **45**: 691 (Nov) 1942 Lucia, S P, and Aggeler, P M The Influence of Liver Damage on the Plasma Prothrombin Concentration and the Response to Vitamin K, Am J M Sc **201**: 326 (March) 1941

[23] Aggeler, P M, Howard, J, Lucia, S P, Clark, W, and Astaff, A Standardization of the Quick Prothrombin Test, Blood **1**: 220 (May) 1946.

[24] Allen, J G The Clinical Value of the Functional Tests of the Liver, Gastroenterology **3**: 490 (Dec) 1944

[25] Snell, A M, and Plunkett, J E The Hippuric Acid Test for Hepatic Function—Its Relation to Other Tests in General Use, Am J Digest Dis **2**: 716 (Feb) 1936 Lord and Andrus[22b]

[26] Wallace, G B, and Diamond, J S. The Significance of Urobilogen in Urine as Test of Liver Function, Arch Int Med **35**: 698 (June) 1925

[27] Pohle, F. J, and Stewart, J. K The Cephalin Cholesterol Flocculation Test as an Aid in the Diagnosis of Hepatic Disorders, J. Clin. Investigation **20**: 241 (March) 1941 Cantarow, A, and Nelson, J., Serum Phosphatase in Jaundice, Arch Int Med **59**: 1045 (June) 1937. Lord and Andrus[22b]

The objection to an exploratory operation before the end of two months is the high operative mortality of patients with hepatitis, especially when hypoprothrombinemia is present. On the other hand, expectant treatment for two months in the presence of obstructive jaundice, especially when supportive treatment is used, causes relatively little harm, since even complete obstruction of the common duct is tolerated fairly well for several months,[28] while obstruction permitting the leakage of 15 to 20 per cent of the normal amount of bile into the intestine is compatible with fair health indefinitely.[29] It is also useful to recall here, as pointed out by Watson,[30] that obstruction of the common bile duct due to gallstones is practically never complete. Complete obstruction of the common bile duct is usually caused by carcinoma of the head of the pancreas or of the bile ducts, and the prognosis is definitely poor in any case. Even with these precautions, on infrequent occasions a patient with prolonged hepatitis may be subjected to exploratory laparotomy. However, this risk must be accepted in order to avoid the development of biliary cirrhosis in case of further delay in a far greater number of patients with obstructive jaundice, especially when the obstruction is of a benign nature.

At present with the aid of the intravenous galactose test and the prothrombin response to vitamin K we find it necessary only in rare instances to resort to the expectant management of patients with jaundice. However, before the advent of these two tests one of us (T. L. A.) had considerable experience with such management, and the results were gratifying.

SUPPORTIVE AND SYMPTOMATIC TREATMENT OF JAUNDICE

1. The diet should be high in protein (125 Gm.) and carbohydrate (360 Gm.) and low in fat (60 Gm.). Alcohol must be excluded totally and meat limited to one meal a day. If the patient is unable to eat sufficient food at meal time, interval feedings should be instituted. Intravenous infusions of dextrose and amino acids are useful only when for some reason, such as vomiting, the patient is unable to take sufficient nourishment orally.
2. A generous supplement of vitamins A and B complex, ascorbic acid, vitamins D and K should be prescribed.
3. Hypochromic anemia, if present, should be treated with preparations of iron. For hyperchromic macrocytic anemia, liver extract or folic acid should be administered.
4. Calcium is prescribed to help prevent osteoporosis.
5. For itching, 0.5 mg. of ergotamine tartrate can be injected subcutaneously once a day for several days. Advanced age and weak or absent pulsations of the arteries of the foot are contraindications to this drug.
6. Insulin should be given only for coexisting diabetes mellitus.
7. Salts of bile acids are of questionable value.

COMMENT

The chief data in the history, physical examination and laboratory study which are of diagnostic value in jaundice have been discussed. The data of little differential value have also been mentioned.

In many patients with jaundice the correct diagnosis can be made from the history and physical examination alone. For example, a middle-aged patient in whom, after a prolonged period of malaise and nausea, there develops jaundice with decided pain in the right upper quadrant referred to the back, pruritus and low grade fever may be suffering from either obstructive or parenchymatous jaundice. In such cases, an additional history of alcoholism would point to cirrhosis of the liver or hepatitis; male sex with definite progressive loss of weight would strongly suggest carcinoma of the pancreas; a history of cholecystic disease, of biliary colic or of chills and fever would favor a diagnosis of stone in the common bile duct. A physical examination may reveal a palpable gallbladder, which would suggest carcinoma of the pancreas, or disclose one or more of the following signs: extremely large liver, ascites, collateral subcutaneous circulation, spider angiomas or splenomegaly, which would point to parenchymatous jaundice and probably cirrhosis of the liver. However, in many instances the history and physical examination do not yield information of a decisive nature. The laboratory study may then answer the crucial question whether the jaundice is due to extrahepatic block and surgical intervention is necessary or whether it is due to parenchymatous disease of the liver and medical treatment alone is indicated. The gastrointestinal series of tests may furnish presumptive evidence of carcinoma of the pancreas or of hepatic cirrhosis. A low serum albumin level with a high serum globulin determination favors parenchymatous jaundice. However, in our experience final recourse is usually to liver function tests. Here it must be remembered that liver function tests involving the ability of the liver to excrete certain substances, such as dyes or bilirubin, are useless in patients with jaundice. It is also well to bear in mind that the most sensitive liver function tests are not always the best for a given purpose. For example, the high sensitivity of the hippuric acid test makes it useless for the differential diagnosis of jaundice. The most decisive factor in differentiation between obstructive and parenchymatous jaundice is the ability of the liver to metabolize galactose and to produce prothrombin following an injection of vitamin K. If these functions of the liver are not impaired, or are impaired only slightly, the case is in the domain of the surgeon. If they are greatly impaired the case is almost always strictly a medical problem. If the results are inconclusive or conflicting, supportive treatment and serial determinations of bilirubinemia are indicated for a period of two months from the onset of jaundice. During this period the large majority of patients with parenchymatous disease of the liver are either on the way to recovery or have died from acute yellow atrophy of the liver. Those remaining unimproved, with few exceptions, have obstructive jaundice and should be subjected to exploratory laparotomy.

SUMMARY

1. One hundred cases of jaundice which presented diagnostic problems and in which the diagnosis was confirmed by operation, autopsy or clinical course are analyzed.
2. The relative value of data obtained from the clinical history, physical examination and laboratory study in the differentiation between obstructive and parenchymatous jaundice is pointed out.
3. The usefulness of the intravenous galactose test is demonstrated by the fact that, when taken alone, it

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[28] Wangensteen, O. H.: How Long May Man Live with Obstructive Jaundice? J. A. M. A. **90:** 1683 (May 26) 1928.

[29] Whipple, A. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2:** 440 (July) 1922.

[30] Watson, C. J.: Studies of Urobilinogen: III. The Per Diem Excretion of Urobilinogen in the Common Forms of Jaundice and Disease of the Liver, Arch. Int. Med. **59:** 206 (Feb.) 1937

made the differentiation between obstructive and parenchymatous jaundice in 3 out of 4 cases. When taken in conjunction with certain simple additional clinical data, this test made it possible to identify the type of jaundice in almost all cases.

4. The diagnostic accuracy of the prothrombin response to vitamin K is shown by the fact that it was present in 9 of 10 patients with obstructive jaundice and was absent in the same proportion of patients with parenchymatous jaundice.

5. A program is outlined for the effective handling of the small number of patients with jaundice in whom no definite diagnosis as to the type of jaundice can be made in spite of all efforts.

THE DIAGNOSIS OF INFECTIOUS HEPATITIS

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Interest in infectious hepatitis has been greatly increased by the large number of cases occurring in our armed forces during the war. Whether there has been a corresponding rise in incidence among civilians in the United States is not known since it is not generally reportable; but it is worthy of note that a significant rise in the civilian rate has been reported in several other countries.[1] We have already pointed out that this disease is more serious than was previously thought and have emphasized the importance of its prompt recognition and proper treatment.[2] However, the diagnosis of sporadic cases, especially the nonicteric types, offers difficulties not encountered during epidemics. Because of these difficulties we feel justified in presenting a detailed report of the practical problems involved in the clinical diagnosis.

MATERIAL AND METHODS

Our experience, gained largely in the army, is based on the observation of approximately 8,000 cases of infectious hepatitis, of which 2,000 were systematically studied. These include postvaccinal hepatitis seen in 1942, epidemic hepatitis in the Mediterranean theater,[2a, b] a recent series of varied types studied in this country in an army general hospital and cases seen in civilian practice since the war. Almost all the available methods for the study of hepatic function have been extensively employed. The procedures referred to in this paper are as follows. Bilirubinuria has been determined by the methylene blue test[2a] and by Hawkinson, Watson and Turner's so-called strip test.[3] The serum bilirubin has been measured by the acetone icterus index[4] or by Ducci and Watson's modification of the van den Bergh test.[5] Watson, Schwartz, Sborov and Bertie's new quantitative method has been used for urobilinogen.[6] Cholesterol esters have been determined by the Sperry and Schoenheimer technic.[7] Standard methods have been employed for other tests.[2a, b].

GENERAL CONSIDERATIONS

At the outset it must be recognized that there is no specific test for this disease. So far it has proved impossible to develop an immunologic or bacteriologic method for specific identification. Acute hepatic injury may be caused not only by the virus of infectious hepatitis but also by other infectious agents, notably virus pneumonia, infectious mononucleosis, acute brucellosis, amebiasis and malaria, as well as by certain hepatotoxins such as carbon tetrachloride, arsenic, phosphorus, cinchopen and probably the sulfonamide drugs.[8] However, in the absence of other satisfactory etiologic explanation and in the presence of a compatible clinical picture it appears safe to assume that acute hepatitis is almost always due to the virus of infectious hepatitis or a closely allied strain.

The clinical course of this disease is characterized by an acute febrile nonicteric prodromal period lasting about seven days followed by an acute icteric stage of about three weeks' duration. Frequently, clinical jaundice fails to develop after the febrile prodromes, and this is referred to as acute hepatitis without jaundice.[2a] Finally, about 10 per cent of acute cases progress to so-called chronic hepatitis.[2b] Since the diagnostic problems, as well as the diagnostic criteria and methods, are different in each of these stages or types, it is necessary to discuss them separately.

Of general diagnostic value is a history of other cases of the disease in the family or neighborhood or a history of exposure to blood or blood products parenterally. In this regard transfusions, plasma, convalescent serum[9] or any type of hypodermic injection[10] in the previous four months is a possible source

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946

[1] (*a*) Stowman, K.: The Epidemic Outlook in Europe, J. A. M. A. **128:** 185 (May 19) 1945. (*b*) Havens, W P., Jr. Infectious Hepatitis in the Middle East: Clinical Review of Two Hundred Cases Seen in Military Hospitals, ibid **126:** 17 (Sept. 2) 1944, correction, ibid **126:** 782 (Nov. 18) 1944.

[2] (*a*) Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater, Including Acute Hepatitis Without Jaundice, J. A M. A. **128:** 997 (Aug 4) 1945; (*b*) Chronic Hepatitis in the Mediterranean Theater A New Clinical Syndrome, ibid. **129:** 653 (Nov. 3) 1945. (*c*) Capps, R. B., and Barker, M. H.: The Management of Infectious Hepatitis, Ann Int Med **26:** 405, 1947.

[3] Hawkinson, V.; Watson, C. J., and Turner, R. H A Modification of Harrison's Test for Bilirubin in the Urine Especially Suited for Mass and Serial Usage, J. A. M. A. **129:** 514 (Oct. 13) 1945.

[4] Newburger, R. A.: Determination of the Icteric Index by the Acetone Method, J. Lab. & Clin. Med. **22:** 1192 (Aug.) 1937.

[5] Ducci, H., and Watson, C. J.: The Quantitative Determination of the Serum Bilirubin with Special Reference to the Prompt Reacting and the Chloroform Soluble Types, J. Lab & Clin Med **30:** 293 (April) 1945.

[6] Watson, C. J.; Schwartz, S; Sborov, V., and Bertie, E.: Studies of Uroporphyrins: A Simple Method for the Quantitative Recording of the Ehrlich Reaction as Carried Out with Urine and Feces, Am. J Clin. Path **14:** 605 (Dec) 1944.

[7] Schoenheimer, R, and Sperry, W. M: A Micromethod for the Determination of Free and Combined Cholesterol, J. Biol. Chem. **106:** 745 (Sept) 1934.

[8] Watson, C. J.: The Effec [illegible] in the Liver, editorial, Surgery **5:** 616 (April) [illegible] nd Andersch, M. A.: Hepatic Damage Assoc [illegible] Therapy in Infants and Children. Morphologic [illegible] Med. **19:** 609 (Oct) 1943 Herbert, P. A., and [illegible] iffuse Hepatic Necrosis Caused by Sulphadiazine, [illegible] **10:** [illegible] (Aug.) 1945.

[9] Murphy, H. M.: Transmission of Infectious Hepatitis by Blood Transfusion, Gastroenterology **5:** 449 (Dec.) 1945. Grossman, S., and Saward, E. W.: Homologous Serum Jaundice Following Administration of Commercial Pooled Plasma, New England J. Med. **234:** 181 (Feb. 7) 1946 Beeson, P. B; Chesney, G, and McFarlan, A. M.: Hepatitis Following Injection of Mumps Convalescent Plasma: Reports from American Red Cross-Harvard Field Hospital Unit; Use of Plasma in Mumps Epidemic, Lancet **1:** 814 (June 24) 1944. Rappaport, E. M.: Hepatitis Following Blood or Plasma Transfusions: Observations in Thirty-Three Cases, J. A. M. A. **128:** 932 (July 28) 1945.

[10] Syringe Transmitted Hepatitis, editorial, J. A. M. A. **129:** 278 (Sept. 22) 1945. Capps, R. B.; Sborov, V., and Scheiffley, C. S.: A Syringe Transmitted Epidemic of Infectious Hepatitis, with Observations Regarding the Incidence of Infectious Donors, to be published.

of infection. At the same time it is desirable to rule out exposure to such common substances as carbon tetrachloride, chloroform, arsenic and various commercial solvents. Although such exposure may constitute the sole cause of an acute hepatitis it may also act as a secondary aggravating factor in what is primarily an infectious hepatitis.

TABLE 1.—*Diagnostic Significance of Observations in the Prodromal or Preicteric Stage of Infectious Hepatitis*

Presumptive Observations	Suggestive Observations
1. Liver large and tender	1. Liver tender but not enlarged
2. Hyperbilirubinemia	2. Splenomegaly
3. Bilirubinuria	3. Low cervical adenopathy
	4. Leukopenia with atypical lymphocytes
	5. Other liver function tests moderately to strongly positive

PRODROMAL STAGE

The diagnosis of infectious hepatitis in the prodromal stage is infrequently more than presumptive. The symptomatology cannot be clearly distinguished from that of other acute febrile illnesses. Furthermore, the presence of fever introduces the possibility of transitory secondary hepatic changes which diminish the significance of liver function tests. The characteristic feature of infectious hepatitis is that the distinctive physical and laboratory observations persist for some days after the abatement of fever and usually become more pronounced.

The diagnosis should be suspected when anorexia and nausea with or without vomiting are prominent and persistent. Moderately severe headache, a few loose stools with excessive flatus, and distress in the right upper quadrant of the abdomen are also common and important symptoms. Although fever as high as 104 F. may be present for several days, shaking chills are seldom seen. In the homologous serum type of hepatitis and in about 10 per cent of cases of the epidemic hepatitis type there is an insidious and relatively afebrile onset.

The more important physical and laboratory diagnostic observations are listed in table 1. We do not believe that a presumptive diagnosis should be made at the prodromal stage without at least one of the criteria in that column being present. Unfortunately, all three are often absent. It is to be noted that the appearance of bilirubin in the urine is not only an early observation but may occur without abnormality in the serum bilirubin or in the presence of such a small rise in the prompt direct type of serum bilirubin that the icterus index is not significantly altered.[11]

If other liver function tests are rather strongly positive this fact is decidedly suggestive of primary hepatitis. The flocculation and the quantitative urine urobilinogen tests are the most helpful and practical in this respect. Moderate elevation of the latter, however, must be discounted in the presence of fever. It is ordinarily not practical to use the sulfobromophthalein sodium test at this point, although a moderate degree of dye retention is significant.

The diagnosis is seldom established until after the initial febrile period has passed and either frank jaundice appears or positive observations persist.

ACUTE STAGE

The diagnosis of infectious hepatitis in the acute icteric stage is relatively easy and is adequately discussed in all standard texts. Acute hepatitis without jaundice is, however, a relatively new concept.[2a] The diagnosis is based on the persistence of the prodromal observations after the subsidence of fever. Symptoms of decided lassitude, anorexia, mild looseness of the stools, intestinal cramps, headache and aching in the right upper quadrant of the abdomen and right lumbar region are present.

In the absence of fever, results of liver function tests have increased significance. As shown in table 2, bilirubinemia, bilirubinuria or moderate sulfobromophthalein sodium retention are diagnostic if present. However, the first two are often so transitory that they are missed. A positive flocculation test or quantitative urobilinogen determination associated with characteristic clinical observations are also adequate for diagnosis.

An important point in the history is the characteristic aggravation of symptoms, especially the pain in the right upper quadrant of the abdomen, after physical exertion or jolting activities such as rough automobile rides. Patients that have been exercising and do not have an enlarged tender liver do not have acute hepatitis. On the other hand, the physical examination of patients with acute infectious hepatitis who have been at rest in bed often reveals a normal liver.

CHRONIC HEPATITIS

Chronic hepatitis is a condition which develops in certain instances following acute hepatitis either with or without jaundice.[2b] For prognostic and therapeutic reasons it is of value to distinguish two types, even though they probably represent different phases of the same disease.[12] Chronic active hepatitis is characterized by recurrent bouts of extreme lassitude, easy fatigue, looseness of the stools, intestinal cramps, increased flatus, anorexia, headaches and pain in the right upper quadrant and the right lumbar region. Jaundice may occur. The liver is enlarged and tender. Symptoms and observations are all aggravated by

TABLE 2.—*Diagnostic Significance of Observations in Acute Hepatitis Without Jaundice After the Acute Febrile Prodomes Have Subsided*

The Persistence of Observations Associated with Suitable Symptoms Is Most Significant

Diagnostic Observations	Confirmatory Observations
1. Large tender liver	1. Same physical observations as in prodromal stage
2. Hyperbilirubinemia	2. Leukopenia with atypical lymphocytes
3. Bilirubinuria	3. Other liver function tests only slightly positive
4. Positive sulfobromophthalein sodium excretion test	
5. Other liver function tests at least moderately positive	

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[11] (*a*) Neefe, J. R.; Stokes, J., Jr.; Rheinhold, J. G., and Lukens, F. D. W.: Hepatitis Due to the Injection of Homologous Blood Products in Human Volunteers, J. Clin. Investigation **23:** 836 (Sept.) 1944. (*b*) Capps, R. B.: Unpublished data.

[12] Capps, R. B., and Barker, M. H.: The Management of Infectious Hepatitis, to be published.

physical exertion or jolting. Inactive hepatitis, on the other hand, is associated with relatively few symptoms and is not aggravated by exercise. Fat intolerance, flatus and moderate ease of fatigability may be present. The liver may be enlarged, but it is not tender. Objective evidence of hepatic dysfunction is obtained from laboratory procedures. Low grade bilirubinemia of the indirect type may be found.

TABLE 3.—*Diagnostic Observations in Chronic Infectious Hepatitis*

A history of acute infectious hepatitis preferably with jaundice is, of course, essential. In the active form this should be followed by residual or recurrent symptoms, whereas in the inactive form symptoms are minimal or absent

Chronic Active Hepatitis	Chronic Inactive Hepatitis
1 Tender enlarged liver	1. Normal or enlarged nontender liver
2. Aggravation of symptoms and observations with exercise	2 No relation of observations to exercise
3 Bilirubinemia of prompt direct type	3 Bilirubinemia if present is indirect type
4 Sulfobromophthalein sodium retention or other positive liver function tests only if first two observations in this column are positive	4. Sulfobromophthalein retention or other positive liver function tests static

The diagnostic observations in both the active and inactive forms of chronic infectious hepatitis are shown in table 3. A history of acute hepatitis with jaundice at the onset of the present illness should be obtained. Although the chronic disease not infrequently develops after an acute attack of the nonicteric type, caution must be used in such cases in making a diagnosis since the causation is difficult to establish; a typical febrile relapse with jaundice is probably the most diagnostic observation.[2b]

In the active form of chronic hepatitis the liver should always be tender and enlarged, although exercise may be necessary to make these factors manifest. The exercise tolerance test developed by one of the authors (R. B. C.) is often of the greatest diagnostic value.[13]

Laboratory evidence of hepatic dysfunction does not distinguish between the active and inactive types of the disease, except that strongly positive tests are usually but not necessarily associated with the former. An elevation of the prompt direct type of bilirubinemia is probably the only exception; it always indicates activity, in our experience.

LABORATORY DIAGNOSIS

The most important feature of the laboratory diagnosis of infectious hepatitis is that the value of different procedures varies with the stage of the disease. This is shown in table 4. Perhaps the most striking example is bilirubinuria, one of the best tests early in the disease but of almost no value later on, because of an apparent increase in the renal threshold to bilirubin.[14] Thus it is usually negative even though the serum bilirubin level is still elevated.

Where specialized laboratory facilities are not available the most satisfactory diagnostic methods are the methylene blue or the strip test for bilirubinuria, the acetone icterus index, the sulfobromophthalein sodium dye retention and the quantitative urobilinogen test. These suffice for the average case. If feasible, the addition of either the cephalin cholesterol flocculation or the thymol turbidity test and Ducci and Watson's modification of the van den Bergh [5] is to be much desired. It is best to routinely employ a relatively small number of tests which are frequently repeated and whose significance is well understood rather than to use a large number of confusing procedures.

COMMENT

There can be little doubt that acute and chronic hepatitis due either to the virus of infectious hepatitis or to other etiologic agents is a common condition. As we have previously pointed out,[2a] the liver is probably involved to a greater or less extent in many acute infections. This is particularly true of virus infections, which tend to be systemic rather than localized and usually involve many of the systems of the body. Delayed convalescence may be due in certain instances to unrecognized hepatic pathologic factors. Similarly, there are a variety of agents that may produce a chronic hepatitis. This disease is probably the unrecognized explanation for many vague gastrointestinal complaints [15] and for certain cases of chronic fatigue.

Prior to the war the clinical picture of hepatic disease except in its severer forms was vague and incomplete. The symptomatology of the nonicteric forms of hepatitis was almost unknown and seldom recognized. This situation, fortunately, has changed.[2a, b] We have developed a relatively clear idea of the clinical picture produced by at least one type of infection of the liver. As described in this paper, the diagnosis of infectious hepatitis can usually be made with reasonable certainty. The application of this knowledge to the diagnosis of other forms of hepatitis should lead to a more frequent recognition of the importance of the liver in disease and as a result to more effective treatment.

SUMMARY

The most valuable diagnostic methods and diagnostic criteria, in our experience, have been described for infectious hepatitis in its various stages. Persistent evidence of hepatic abnormality in the presence of symptoms consistent with the disease is the basis of diagnosis. In regard to laboratory methods, there is much variation in the value of tests in relation to the stage of the disease. The relative value of different procedures is indicated.

TABLE 4.—*Diagnostic Value of Various Liver Function Tests in Different Stages of Infectious Hepatitis*

	Prodromal	Acute Icteric	Acute Nonicteric	Chronic
1 Bilirubinuria	++	+	++	+
2 Bilirubinemia	++	++	++	++
3 Flocculation tests	++	+	++	+
4 Sulfobromophthalein sodium	+	0	++	++
5. Urobilinogen.	+	+	++	++
6 Phosphatase .	±	+	++	+
7 Prothrombin . . .	0	±	0	0
8 Cholesterol esters	±	±	++	++
9 Albumin globulin ratio	+	+	++	–

Key: ++, most valuable, +, limited value; 0, not of value

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[13] Capps, R B The Effect of Exercise and of Rest on the Course of the Disease and on the Liver in Infectious Hepatitis, to be published Barker, Capps and Allen [2a, b]

[14] Capps R B The Methylene Blue Test for Bilirubinuria Data Regarding Its Value, to be published Neefe, Stokes, Rheinhold and Lukens [11a]

[15] Barker, M H, and Capps, R B. Gastrointestinal Manifestations of Acute and Chronic Infectious Hepatitis, Rev. Gastroenterol **14:** 9, 1947.

THERAPEUTIC AGENTS IN LIVER DISEASE

A Review of Medicinal Agents

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San Francisco

The functions of the normal and diseased liver are surprisingly little affected by the action of drugs which are not hepatotoxic. In fact, in regard to the activity of drugs the striking action is that of the liver on them and not of the drugs on the liver, and one might well entitle this paper "The Effect of the Liver on Drugs" rather than "The Effect of Drugs on the Liver." Clark[1] has well summarized the situation by stating that "few means are known by which the functions of the liver can be stimulated or aided by means of drugs."

In the index of "A Manual of Pharmacology" Sollmann[2] has listed under the title, "Liver," only three subjects, namely "antianemic preparations," "extract-saline" and "liver of sulfur." A brief review of the subject indicates clearly that, with the exception of certain specific drugs used in the treatment of diseases such as amebiasis which affect the liver, there are no drugs which are specifics in the treatment of disease of the liver. In fact, the essence of the principles of treatment of hepatic disease is to dilute and eliminate toxic agents if they are known and to restore the nutritional state of the liver by supplying to it by whatever means possible and in adequate quantities all essential nutritive materials. It has been clearly and repeatedly demonstrated that the reaction of the liver to toxic agents varies with the previous diet of the subject and with the chemical composition of the liver. Therefore, principal consideration will be given in this review to recent studies of the relationships of various amino acids, vitamins, proteins and enzymes to diseases of this organ, which has been so aptly termed the "servant of the body."

NUTRITIONAL SUBSTANCES AS MEDICAL AGENTS

Fatty Liver—Relation of Lipotropic Factors—Methionine, Choline, Lipocaic and Inositol.—Grossman and Ivy[3] have pointed out that deposition of fat in the liver may result from an increase in the rate at which fat is supplied to the liver or by a decrease in the rate at which the liver is able to dispose of fat. Substances such as choline, inositol and lipocaic, which prevent some of these types of fatty livers, are known as lipotropic factors. In the transport of fat from the liver phospholipids are necessary. Of these substances lecithin, in which choline is the nitrogenous base, appears to be the principal phospholipid concerned. Choline may be supplied in the diet as choline or as phospholipid, or the body may synthesize it if sufficient compounds containing labile methyl groups are available. Methionine, a sulfur-containing amino acid, can supply this labile methyl factor and is therefore an extremely important substance.

These facts explain why fatty livers of choline deficient animals can be cured by adding choline or methionine to the diet or increasing the casein percentage in it and further explain why choline, lecithin, methionine and similar substances have been used in the treatment of hepatic disease.

In some cases of fatty liver, such as those resulting from certain poisons (toxipathic hepatitis) lipotropic substances are only partially effective in overcoming the fatty changes because factors independent of the choline supply tend to glut the liver with fat or to handicap it in the disposal of fat.

Methionine: Reports in the literature[4] indicate clearly that this amino acid is of great usefulness in the prevention and treatment of various forms of hepatic disease and particularly that of fatty liver in the experimental animal. However, reports of the use of it in hepatic disease in man are less striking and with a few exceptions not encouraging. Fagin and his associates[5] studied by chemical analysis the liver of patients with cirrhosis and came to the conclusion that the administration of amino acids to patients with alcoholic cirrhosis results in a decrease in hepatic fat and an increase in the percentage of protein; these effects are due to the methionine content of the amino acids. In the treatment of a case of accidental poisoning with carbon tetrachloride (30 to 40 cc.), Beattie and his group[6] promptly administered methionine, at first by mouth and subsequently intravenously, with prompt subsidence in the size and tenderness of the liver and in symptoms of impending hepatic coma. Subsequently, in 2 cases of carbon tetrachloride poisoning and in a large number of patients with trinitrotoluene hepatitis Eddy,[7] following the use of methionine, reports results which are encouraging and suggests that the amino acid is of clinical value.

Although 10 of the 30 patients with acute hepatitis due to trinitrotoluene observed by Eddy[7] had severe damage to the liver and although in previously reported cases the mortality rate had been 30 per cent, there were no deaths in this series. Methionine was used in doses of 2 Gm. four times a day, and although the evidence is circumstantial, this method of treatment is certainly worthy of further study.

Further clinical evidence that methionine may be useful in toxic forms (toxipathic hepatitis) of hepatic disease was present by Beattie and Marshall,[8] who in a preliminary report suggested that the occurrence of damage to the liver during arsenical treatment can be either prevented or minimized by the administration of methionine or by the use of casein digests rich in this amino acid.

The possible usefulness of methionine in the treatment of infectious hepatitis has naturally aroused great interest because of the widespread occurrence of this disease. To date the results are not particularly encouraging. Wilson, Pollock and Harris[9] gave methionine in 5 Gm. doses daily to alternate patients

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

[1] Clark, A. J.: Applied Pharmacology, ed. 7, London, J. &. A. Churchill, Ltd., 1942.

[2] Sollmann, T.: A Manual of Pharmacology, ed. 6, Philadelphia, W. B. Saunders Company, 1942.

[3] Grossman, M. I., and Ivy, A. C.: The Prevention of Fatty Liver, comment, Gastroenterology **4:** 513-514 (June) 1945.

[4] Miller, L. L., and Whipple, G. H.: Liver Injury, Liver Protection and Sulphur Metabolism: Methionine Protects Against Chloroform Injury Even When Given During Anesthesia, J. Exper. Med. **76:** 421-435 (Nov.) 1942; Methionine and Liver Necrosis, Nutrition Rev. **2:** 340-342 (Nov.) 1944; Methionine in the Treatment of Toxic Hepatitis, ibid. **4:** 27-28 (Jan.) 1946.

[5] Fagin, I. D.; Sahyun, M., and Pagel, R. W.: Cirrhosis of the Liver: The Lipotropic Action of Parenterally Administered Amino Acid, J. Lab. & Clin. Med. **28:** 987-993 (May) 1943.

[6] Beattie, J.; Herbert, P. H.; Wechtel, C., and Steele, C. W.: Studies on Hepatic Dysfunction: I. Carbon Tetrachloride Poisoning Treated with Casein Digest and Methionine, Brit. M. J. **1:** 209-211 (Feb. 12) 1944.

[7] Eddy, J. H.: Carbon Tetrachloride Poisoning: A Preliminary Report on the Use of Methionine in Hepatitis, J. A. M. A. **128:** 994-996 (Aug. 4) 1945; Am. J. M. Sc. **210:** 374-380 (Sept.) 1945.

[8] Beattie, J., and Marshall, J.: Methionine in Treatment of Liver Damage, Nature, London **153:** 525-526 (April 29) 1944.

[9] Wilson, C.; Pollock, M. R., and Harris, A. D.: Therapeutic Trial of Methionine in Infective Hepatitis, Brit. M. J. **1:** 399-401 (March 21) 1945.

in a group of 100 men with the disease. Clinical and laboratory studies revealed no significant therapeutic effect of methionine. Subsequently Hoagland and Shank[10] in a careful study of 200 patients with the disease gave to 16 of them 5 Gm. of a racemic mixture of methionine in 200 cc. of isotonic solution intravenously on admission and daily for ten days. There were no adverse effects and no clinical or laboratory evidence that the disease was perceptibly influenced by this form of treatment.

Choline: For reasons already mentioned it is apparent that choline might be of therapeutic value in hepatic disease. Because of the great variability in the clinical course of such disease and particularly of cirrhosis, convincing evidence of the therapeutic value of substances such as choline is difficult to obtain, and at present the results of such treatment are largely confined to impressions. For example, Russakoff and Blumberg[11] placed patients with cirrhosis on a low fat Patek dietary regimen supplemented with 1.5 to 6.0 Gm. of choline chloride daily. Since no untoward effects of postprandial oral administration of the substance was noted, and since 7 of 9 patients who were treated adequately improved, the observers were of the opinion that the results were highly suggestive of a beneficial effect. Barker[12] also has advocated the use of choline chloride in cirrhosis in daily doses of 1.5 Gm. administered in the form of a 10 per cent elixir.

In their excellent study previously mentioned Hoagland and Shank[10] gave to 25 of their patients with infectious hepatitis 5 mg. of choline hydrochloride in divided doses on admission and daily thereafter for ten days. No effect which could be attributed to choline therapy was noted in the clinical course of the disease.

Reports that choline has produced hyperchromic anemia in dogs lead to the fear that similar results might occur in man. However, in one patient with cirrhosis and macrocytic anemia to whom Wilson and Castle[13] fed choline chloride in a dose of 17 mg. per kilogram of body weight daily for seventy days, the anemia was not intensified but in fact the blood improved.

Lipocaic and Inositol: Lipocaic is a lipotropic substance of pancreatic tissue effective in preventing the fatty liver which develops in depancreatized dogs maintained with insulin. Inositol, a component of the vitamin B complex, is also an essential component of the phospholipid, lipositol.

Both of these substances would appear to warrant clinical trial in those forms of hepatic disease in which deposition of fat is a significant factor, but to date reports of their use singly in the treatment of hepatic disease in man have not appeared.

Protein: The potential therapeutic value in hepatic disease of certain amino acids such as methionine has already been discussed. Brief mention should be made of the use of protein substances in this connection. Until recent years an adequate intake of protein in the treatment of hepatic disease was not stressed, since most efforts were to flood the tissues with carbohydrate, particularly dextrose, because of the remarkable effect of this substance in the prevention and control of hepatic damage in the experimental animal. Further impetus was given to this form of therapy by the development of hydrolysates of protein which permitted the administration intravenously of all of the essential amino acids in large amounts (i. e., "amigen," Mead Johnson & Company; "parenamine," Frederick Stearns & Company).

Ravdin[14] has pointed out that the essential elements of the optimum diet for the treatment of disease of the liver are high caloric content (approximately 3,000 calories), a minimum of 14 per cent and as much as 30 per cent of protein, 70 per cent of carbohydrate and a minimum of fat. He has further emphasized that an unbalanced high carbohydrate diet may lead to a high lipid as well as glycogen concentration in the liver and that such a liver would be as vulnerable to hepatic injury as if its glycogen content was low.

Most diets now prescribed by medical authorities for the treatment of hepatic disease and insufficiency contain 150 to 250 Gm. of protein daily, and it is recommended by them that as much of this amount of protein be administered orally as possible and the balance be administered intravenously.

Watson[15] has made the suggestion that pasteurized beef serum is a possible source of protein in the treatment of hepatic disease. He states that the substance is sold at ridiculously low prices as tankage for hogs; that mixed with tomato juice it is very palatable, and that beef serum albumin is undoubtedly an excellent protein from the point of view of nutrition in general and as far as the provision of methionine and the protection of the liver are concerned.

Extensive studies, particularly by Whipple and his associates,[16] on plasma protein regeneration in experimental animals have revealed facts worthy of clinical consideration. They showed among other things that when the nitrogen of the diet was provided by certain mixtures of the ten amino acids essential for growth in the rat plus aminoacetic acid, given intravenously at a rapid rate, plasma production in the dog was good. When the same mixture was given subcutaneously at a slower rate it seemed to be somewhat better utilized. However, oral feedings of the same amino acids were definitely better utilized and were associated with a lower urinary nitrogen excretion than were the same amino acids given parenterally. Furthermore, after a period of dietary deficiency, when a missing "essential" amino acid was returned to the mixture or when a complete protein was fed, some delay in the output of new plasma protein was observed. There sometimes was a lag of two or three weeks before the output became normal.

In other interesting studies of protein metabolism and the liver, Whipple and his group[17] have developed the concept of "dynamic equilibrium" of the proteins. This concept visualized a ready flow of plasma proteins out of the circulation into the tissues and vice versa.

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[10] Hoagland, C. L., and Shank, R. E.: Infectious Hepatitis: A Review of Two Hundred Cases, J. A. M. A. **130:** 615-621 (March 9) 1946.

[11] Russakoff, A. H., and Blumberg, H.: Choline as Adjuvant to Dietary Therapy in Cirrhosis of the Liver, Ann. Int. Med. **21:** 848-862 (Nov.) 1944.

[12] Barker, W. H.: The Modern Treatment of Cirrhosis of the Liver, M. Clin. North America **29:** 273-293 (March) 1945.

[13] Wilson, J., and Castle, W. B.: Failure of Choline Chloride to Augment Anemia in Cirrhosis of the Liver, J. A. M. A. **129:** 802-803 (Nov. 17) 19 5.

[14] Ravdin, I. S.: Some Recent Advances in Surgical Therapeusis, Ann. Surg. **109:** 321-333 (March) 1939.

[15] Watson, C. J.: Cirrhosis of the Liver: Clinical Aspects with Particular Reference to Liver Function Tests, Am. J. Clin. Path. **14:** 129-137 (March) 1944.

[16] Madden, S. C.; Anderson, F. W.; Donovan, J. C., and Whipple, G. H.: Plasma Protein Production Influenced by Amino Acid Mixtures and Lack of Essential Amino Acids: Deficiency State Related to Unknown Factors, J. Exper. Med. **82:** 77 (Aug.) 1945.

[17] Fink, R. M., and others: Plasma Protein, Metabolism Normal, and Associated Shock: Observations Using Protein Labeled by Heavy Nitrogen in Lysine, J. Exper. Med. **80:** 455-475 (Dec.) 1944.

As has been stated,[18] "it is their belief that the liver is concerned with the production of many of the plasma proteins and with the maintenance of the normal levels of these proteins in the circulating blood. The liver in other words is the 'master organ' for various protein metabolic activities. It stores protein, it makes protein (fibrinogen, prothrombin, and other globulins and albumins) and it aggregates amino acids and other nitrogenous materials coming from the gastrointestinal tract into protein." It is, moreover, indicated that the liver is concerned directly or indirectly with the production of new hemoglobin.

Further data to support the thesis of "dynamic equilibrium" of tissue and plasma proteins is presented by Fink and his associates,[17] who suggest that there is in the normal animal an active tissue mass of protein about equal in size to the mass of plasma protein, since the rapid dilution phase (of administered amino acids containing lysine tagged with heavy nitrogen in the epsilon amino position) seemed to end near the 50 per cent level.

Further evidence of the close relation of hepatic function and protein intake is indicated by the studies of Goettsch, Lyttle, Grim and Dunbar,[19] which indicate that animals placed on a diet extremely low in protein and experiencing hypoproteinemia as a result seemed to show impairment in hepatic function that paralleled the decline in serum albumin. In a study indicating anatomic changes in the liver following protein starvation, Elman and his group [20] have demonstrated that the histologic appearance of the liver as well as its content of nitrogen and glycogen depend on the intake of carbohydrate and that, while a protein deficient diet will lead to a protein deficient liver, carbohydrate intake exerts a great influence on the histologic appearance. When the carbohydrate intake is high the cells are large, contain little protein and present a rarefied appearance of the cellular protoplasm often called hydropic degeneration. After a fast (absence of carbohydrate), the liver is just as deficient in total nitrogen because it is smaller, and the microscopic picture may be called one of atrophy; the cells are smaller, the nuclei closer together and the cytoplasm dense.

Brief mention should also be made of the protein catabolic process which accompanies trauma—particularly that of fractures, burns and certain types of infections, including meningitis and virus pneumonia—and in which disease of the liver may play a prominent role. It has been pointed out [21] that the vigor of protein catabolism appears to depend on the two factors of intensity of stimulus and the capacity of the organism to respond to the stimulus.

The high loss of protein associated with this catabolic process appears not to be appreciably spared during its height by large quantities of protein, whether they are administered orally or intravenously as amino acids. The extent of this catabolic process is indicated by the studies of Cuthbertson [22] in 6 patients in whom an average loss of bodily nitrogen following fractures was more than 220 Gm. Expressed in terms of protein this would be about 1,400 Gm. or in terms of normal muscle protoplasm 15 pounds (6.8 Kg.). The period of protein loss continued for an average of 35.6 days.

All these studies among others indicate definite and probable relationship between the liver and protein metabolism in the normal person and of hypoproteinemia and altered metabolism in patients with disease of the liver. It seems clear that an adequate and probably high intake of complete proteins is desirable in the treatment of hepatic disease, that the substances are probably better utilized when administered by the natural oral channel and that during the interval when sufficient amounts cannot be so administered the intravenous administration of amino acid preparations is advantageous.

Carbohydrate: The usefulness of large amounts of carbohydrate as a therapeutic measure in disease of the liver is so well established and so universally recognized that no further discussion of it is needed in this review.

Vitamin A: The metabolism of vitamin A and its precursor, carotene, and of the liver are intimately related. In hepatic disease the plasma values for vitamin A are usually lower than normal and the amount stored in the liver less than the normal. These changes come about as a result of a less than normal dietary intake of the vitamin, inadequate absorption of it and/or interference with normal hepatic cell function. It seems unlikely that administration of the vitamin would benefit patients with hepatic disease. In an effort to study this problem Abels and his collaborators [23] gave to 8 patients with carcinoma of the gastrointestinal tract and with impaired hepatic function 50,000 to 150,000 U. S. P. units of vitamin A daily for seven to twenty days. The plasma level of vitamin A was raised in 2 instances only, although the administration of vitamin A was made parenterally in 7 of the 8 cases. To date it seems likely that the only clinical value of the study of vitamin A metabolism in hepatic disease is as a diagnostic test.

Ascorbic Acid: Clinical evidence is lacking that the metabolism of ascorbic acid is significantly altered or that the vitamin is of therapeutic value in hepatic disease. Some experimental data exist, however, to indicate that ascorbic acid may exhibit a protective action. In guinea pigs, at least, Beyer [24] convincingly demonstrated that ascorbic acid protected the liver from the hepatotoxic effect of hydrazine to a significant degree.

MEDICINAL AGENTS WHICH PRODUCE TOXIC EFFECTS ON THE LIVER

One of the most striking and clinically significant functions of the liver has to do with its detoxifying function. In this respect the liver seems to be the chief organ of defense of the body. In the process of detoxifying certain substances and thus preserving the organs as a whole, the liver may suffer variable amounts of damage. Brief mention should be made in this review of the effect of certain therapeutic agents which may at times be hepatotoxic.

As was pointed out by Clark,[1] toxic agents may be handled by the liver in various ways—they may be excreted unchanged in the bile, broken down by the liver, synthesized or conjugated to form innocuous compounds or stored. Indeed, the duration of action of many drugs, including barbiturate and sulfonamide compounds, is limited by the detoxification of them in the liver. The conversion of ammonium salts into urea is the most important detoxifying action of the liver.

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[18] The Role of the Liver in Producing Hemoglobin and Plasma Protein, Nutrition Rev. 3: 197-198 (July) 1945.

[19] Goettsch, E.; Lyttle, J. D.; Grim, W. M., and Dunbar, P.: Amino Acid Studies: I. Plasma Amino Acid Retention in the Hypoproteinemic Dog as Evidence of Impaired Liver Function, J. Biol. Chem. 144: 121-134 (June) 1942.

[20] Elman, R.; Smith, M. G., and Sachar, L. A.: Correlation of Cytological with Chemical Changes in the Liver as Influenced by Diet, Particularly Prote [illegible] 1: 24-33 (Jan.) 1943.

[21] Protein [illegible] valescence After Trauma, Nutrition Rev. 3: 253-2[illegible]

[22] Cuthbert [illegible] Metabolic Response (Arris & Gale Lecture), Lan [illegible] 1) 1942.

[23] Abels, J. C.; Rekers, P. E.; Binkley, G. E.; Pack, G., and Rhoads, C. P.: Metabolic Studies in Patients with Cancer of Gastrointestinal Tract: Hepatic Dysfunction, Ann. Int. Med. 16: 221-240 (Feb.) 1942.

[24] Beyer, K. H.: Protective Action of Vitamin C Against Experimental Hepatic Damage, Arch. Int. Med. 71: 315-324 (March) 1943.

Chester Jones [25] has listed some of the hepatotoxic agents which are frequently used therapeutically or which are commonly used industrially and to which, therefore, the livers of many persons may become exposed. Among the former may be listed arsenicals, gold, bismuth, cinchophen and sulfonamide compounds; and among the latter carbon tetrachloride, trinitrotoluene, tetrachlorethylene and phosphorus. Anesthetic agents such as chloroform, tribromoethanol and ether also are hepatotoxic, as is alcohol.

Brief mention should be made of the effect of some of those hepatotoxic agents. In general the significant factors in this process, in addition to the dose of the toxic substance administered, are the sensitivity of the person or his liver to the drug and the nutritive state of the patient. As Jones [25] has pointed out, the caloric adequacy in the diet, the inclusion of various substances, such as proteins, specific amino acids and vitamins, particularly those of the vitamin B complex, and the exclusion of excessive amounts of fat are factors that undoubtedly modify the response of the liver to noxious substances.

Arsenic.—There is much controversy concerning the relation of arsenotherapy for syphilis and hepatic damage. Of interest among reports related to this subject are the following: Riddell and Anderson [26] were of the opinion that in the case of neoarsphenamine and oxophenarsine hydrochloride, at least, the effect was dependent primarily on individual sensitivity rather than on the quantity of the drug administered. In a study of jaundice in the Canadian Army, Mitchell [27] observed that the incidence of clinical jaundice in those patients receiving arsenotherapy for syphilis was over thirty-six times as high as that in the group of syphilitic patients not receiving arsenical therapy. Incidentally, jaundice occurred three times as commonly in patients treated with neoarsphenamine as in those treated with oxophenarsine hydrochloride. The possibility was raised that preexisting unrecognized infectious hepatitis without jaundice may have been a factor in producing the high incidence of jaundice following arsenotherapy.

Annegers and his colleagues [28] suggested that the oral administration of dehydrocholic acid may aid in counteracting the hepatotoxic action of oxophenarsine hydrochloride.

Sulfonamide Drugs.—The relation of sulfonamide therapy to hepatic disease is still not clear but is worthy of consideration because of the wide use of these drugs. Sulfonamide therapy may occasionally result in direct damage to the liver, as indicated by the studies of Menten and Andersch,[29] who observed toxic necrosis and toxic central necrosis of the liver in children with liver disease who had had sulfonamide therapy. However, not all the evidence is unfavorable, for there is considerable experimental data to show that sulfonamide compounds are not only not harmful but may actually be helpful in preventing damage to the liver. Machella and Higgins [30] studied rats to which carbon tetrachloride had been given and concluded that administration of sulfanilamide to rats with hepatitis did not increase the damage to the liver. In fact, it appeared to lessen the damage. Furthermore, sulfanilamide did not impede regeneration of the liver after the dosage of carbon tetrachloride was discontinued, nor did it produce any detectable injury to the livers of animals with obstructive jaundice. Further studies by Forbes and Evans [31] indicated that sulfanilamide apparently exerted a protective action against damage to the liver from the inhalation of chloroform in rats and rabbits. Clinical observations which bear out these experimental observations have been made by Peterson, Deutsch and Finland,[32] who reported that in patients with acute hepatitis and bacterial infection, sulfonamide therapy was almost always accompanied with improvement in hepatic function paralleling the improvement in the underlying infection. Furthermore, some severe toxic effects other than those of direct injury to the liver were unusually frequent in patients with portal cirrhosis and intercurrent infections. Caution should be exercised in the administration of sulfonamide compounds in patients with severe portal cirrhosis of the liver. Sulfadiazine produced fewer reactions than did sulfathiazole.

Cinchophen.—Annegers and his associates [33] have presented evidence that the administration of cinchophen to a susceptible animal may produce decided temporary depression of the synthesis and secretion of cholic acid and, further, that despite recovery of this function death could occur. This observation indicated that some other unrelated vital function of the liver had been impaired by the drug.

Quinine and Quinacrine Hydrochloride.—Anderson and his associates [34] have indicated that in the experimental animal there is in the liver some agent that is evidently active in the metabolic destruction of quinine, and that underlying hepatic disease may seriously alter the therapeutic effects of the drug.

The effects of quinacrine hydrochloride ("atabrine *di*-hydrochloride") in the liver are indefinite. Annegers and his associates [35] indicated that in some human beings damage to the liver seems to occur, but to date the available information is not striking. However, in another study of the toxic effects of this drug Butt and his associates [36] indicated that at high dosage levels it does not have any particularly significant hepatotoxic action in man.

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[25] Jones, C M Liver Intoxication, New England J. Med **230:** 766-774 (June 22) 1944

[26] Riddell, R W, and Anderson, T F Hippuric Acid Liver-Function Test During Treatment with Arsenicals, Lancet **1:** 275-276 (Feb 26) 1944

[27] Mitchell, H S Incidence of Catarrhal Jaundice Compared with Jaundice Following Arsenotherapy for Syphilis, Canad M A. J. **48:** 94-96 (Feb) 1943

[28] Annegers, J H, Drill, V. A, Habegger, J, Ivy, A C, and Atkinson, A J Hepatotoxic Action of Arsenicals Effect of Neoarsphenamine and Mapharsen on Cholic Acid Synthesis and Use of Hydrocholic Acid to Diminish Hepatotoxic Action of Mapharsen, Arch. Dermat & Syph **51:** 112-115 (Feb) 1945

[29] Menten, M L, and Andersch, M A Hepatic Damage Associated with Sulfonamide Therapy in Infants and Children I Morphologic Pathology, II Changes in Liver Function Test During Sulfonamide Therapy, Ann Int Med **19:** 609-628 (Oct) 1943.

[30] Machella, T E, and Higgins, G M The Effect of Sulfanilamide on the Experimentally Damaged Liver, Am J. M Sc. **204:** 194-201 (Aug) 1942.

[31] Forbes, J. C, and Evans, E J Protective Action of Sulfanilamide Against Hepatic Damage from Chloroform Inhalation, War Med. **4:** 418-421 (Oct) 1943

[32] Peterson, O. L, Deutsch, E, and Finland, M.. Therapy with Sulfonamide Compounds for Patients with Damage to the Liver, Arch. Int Med **72:** 594-612 (Nov) 1943

[33] Annegers, J H.; Snapp, F E, Ivy, A C, and Atkinson, A. J.: Effect of Cinchophen on Secretion of Cholic Acid, Arch. Int. Med. **73:** 1-6 (Jan) 1944.

[34] Anderson, C. E; Cornatzer, W E, and Andrews, J. C. Role of Liver in Metabolic Destruction of Quinine, J. Pharmacol & Exper. Therap **79:** 62-69 (Sept) 1943.

[35] Annegers, J H.· Retention of Atabrine in Animal Body, Excretion in Bile and Urine and Effect on Cholic Acid Output, War Med. **4:** 176-186 (Aug) 1943.

[36] Butt, H, R, Hall, J. E; Watkins, C H., and Cragg, R. W.: Atabrine Dihydrochloride (Quinacrine Hydrochloride): Some Observations on Its Toxicity and on Its Use in the Treatment of Malaria, with Particular Reference to Its Effect on the Liver, Gastroenterology **4:** 205-212 (March) 1945

Thiouracil.—Experimental evidence has been presented by György and Goldblatt [37] to indicate that the addition of thiouracil to a cirrhosis-producing synthetic diet has a preventive effect on the development of cirrhosis in rats. It is suggested that the protective action of thiouracil and perhaps also of sulfonamide compounds on the liver is indirectly achieved through their effect on the thyroid which lowers the rate of metabolism of methionine.

EFFECTS OF BILE SALTS

In association with a summary of the effects of drugs on the liver brief mention should be made of the recent studies of the effect of certain drugs on the flow of bile. In an editorial comment on the matter of cholecystogogues, choleretics and cholepoietics, Ivy [38] advocated the adoption of cholecystogogue as a term referring to an agent or agency which causes or promotes the evacuation of the gallbladder. Choleresis he considered a general term meaning an increase in the output of bile, while cholepoiesis in his opinion is a general term referring specifically to the process of formation of bile by the liver. Various modifications of these terms may be used to indicate the specific effect of any substance. The administration of a mixture of sodium taurocholate and glycocholate (extract of ox bile U. S. P., or natural bile salts) causes a choleresis, cholaneresis and cholesteroleresis. Of particular interest to physicians will be the observations of Ivy and his associates [39] that aloe and podophyllum resin in the form of "Carter's little liver pills" have no detectable effect on the formation of bile by the liver, the evacuation of the gallbladder and the passage of bile into the duodenum.

HORMONES AND THE LIVER

Inactivation of Hormones.—The normal liver plays a significant role in inactivating certain hormones. The close relation of the inactivational functions of the liver and the nutritional status of it is indicated by the following observation. The normal liver plays an important role in inactivating estradiol, while the livers of animals deficient in thiamine or riboflavin failed to inactivate the substance. However, livers of animals depleted of pyridoxine, pantothenic acid, biotin or vitamin A retained their ability to inactivate the substance.[40]

The liver is said to play a significant role in the inactivation of corpus luteum hormone, serum gonadotropin, epinephrine and diethylstilbestrol.

Thyroxin and Desiccated Thyroid.—The relation between hyperthyroidism and the hormones of the thyroid gland and the liver are not entirely clear. There is little question of the occurrence of hepatic disease in some cases of hyperthyroidism. The changes in the liver may be classified as acute degenerative lesions, atrophy (generalized or focal) and cirrhosis. Increasing evidence is accumulating to indicate that factors other than the thyroid hormone enter into the hepatic changes. Recently Drill and Gunn [41] have shown that rats fed sufficient amounts of thyroid to produce pronounced loss of weight over a period of seventeen to eighteen days did not show any significant changes in the liver when compared to normal animals on the same diet. Similarly those rats fed the gland for eighty-one days and receiving a supplement of yeast concentrate revealed normal histologic structure of the liver. Drill and Gunn suggested that previous reports of hepatic damage experimentally produced by feeding thyroid were at least in part due to the type of diet fed (i. e., one low in vitamin B content). On the other hand, McIver and Winter [42] performed experiments which indicated that anoxemia is significant in the production of varying degrees of hepatic injury in animals made hyperthyroidic with thyroxin. Control rats given thyroxin without being subjected to anoxemia showed only low hepatic glycogen and no structural lesions in the liver.

Epinephrine.—Injections of epinephrine produce curves of blood sugar which are lower in patients with disease of the liver than in normal persons. Recent studies by Bradley [43] have indicated that the substances may also have an effect on hepatic blood flow. This worker, who developed a technic for estimating hepatic blood flow in man, found that in 6 of 7 cases the estimated hepatic blood flow increased, occasionally as much as 300 per cent following the intramuscular administration of 0.4 to 1.0 cc. of epinephrine.

EFFECT OF MISCELLANEOUS AGENTS

Gamma Globulin.—In January 1945 Stokes and Neefe [44] presented definite evidence that gamma globulin is capable of preventing or attenuating infectious hepatitis when administered to exposed persons during the incubation period of the disease. The possibility was indicated also that the substance might be of therapeutic value if given early in the preicteric stage of hepatitis. This effect was subsequently verified in another study by Stokes and his associates [45] and by Paul and Havens.[46] In adults a dose of 10 cc. of gamma globulin and in children a dose of 0.08 cc. of gamma globulin per pound (0.5 Kg.) of body weight given intramuscularly proved effective.

Liver Extract.—It seems natural that extracts of liver in various forms should have been used in the treatment of disease of this organ, although the rationale for the use of them may be a little obscure.

It appears evident that the effect of liver extract in hepatic disease is not specific. The frequent occurrence of macrocytic anemia in chronic hepatic disease has been used as an argument in favor of use of liver extract in these diseases, and more recently it has been stated (Hoagland and Rivers [47]) that in some cases of infectious hepatitis the use of crude liver extract has

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37. György, P., and Goldblatt, H.: Thiouracil in the Prevention of Experimental Dietary Cirrhosis of the Liver, Science **102:** 451-452 (Nov. 2) 1945.

38. Ivy, A. C.: Cholecystogogues, Choleretics, and Cholepoietics, editorial, Gastroenterology **3:** 54-57 (July) 1944.

39. Ivy, A. C.; Roth, J. A., and Gutmann, N. S.: Do Aloes & Podophyllum (Carter's Little Liver Pills) Increase the Flow of Bile into the Duodenum? Gastroenterology **5:** 27-33 (July) 1945.

40. Diet and Inactivation of Estradiol by the Liver, Nutrition Rev. **3:** 27-29 (Jan.) 1945.

41. Drill, V. A., and Gunn, F. D.: Hepatic Lesions and Experimental Hyperthyroidism, Endocrinology **35:** 477-482 (Dec.) 1944.

42. McIver, M. A., and Winter, E. A.: Deleterious Effects of Anoxia on Liver of Hyperthyroid Animal, Arch. Surg. **46:** 171-185 (Feb.) 1943.

43. Bradley, S. F.: Studies of Hepatic Blood Flow in Man, read at the meeting of the American Society for Clinical Investigation, May 27, 1946.

44. Stokes, J., Jr., and Neefe, J. R.: The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin, J. A. M. A. **127:** 144-145 (Jan. 20) 1945.

45. Gellis, S. S.; Stokes, J., Jr.; Brother, G. M.; Hall, W. M.; Gilmore, H. R.; Beyer, E., and Morrissey, R. A.: Use of Human Immune Serum Globulin (Gamma Globulin) in Infectious Hepatitis in Mediterranean Theater of Operation: Studies on Treatment in Epidemic of Infectious Hepatitis, J. A. M. A. **128:** 1062-1063 (Aug. 11) 1945.

46. Havens, W. P., Jr., and Paul, J. R.: Prevention of Infectious Hepatitis with Gamma Globulin, J. A. M. A. **129:** 270-272 (Sept. 22) 1945.

47. Rivers, T. M., and Hoagland, C. L.: Therapy in Infectious Hepatitis. Tr. A. Am. Physicians, to be published.

strikingly improved the appetite of patients and has doubled their caloric intake in several weeks.

In general the results of such treatment have been obscure also. However, in recent years some promising results have been obtained in the treatment of cirrhosis of the liver by means of crude liver extract administered intravenously in large amounts (Hoagland[48]). Fleming and Snell[49] have also reported cases of cirrhosis treated with crude liver extract along with usual methods with results suggesting a good effect. To a group of 34 patients with infectious hepatitis Hoagland and Shank[10] administered daily for ten days a specially prepared aqueous extract of Cohn's fraction G of liver in amounts of 10 cc. diluted to 50 cc. with isotonic solution of sodium chloride. No adverse effects were noted and no significant alteration was observed in the average gain in weight or period of hospitalization.

Agents Used in the Treatment of Pruritus.—Medicinal measures for the relief of the pruritus of jaundice, including ergotamine tartrate, calcium salts, calomel, histamine, insulin and sodium thiosulfate, are well known, and no further comment on them is warranted here. However, it should be pointed out that in occasional instances when the use of these measures, and particularly that of ergotamine tartrate, fails or is contraindicated intravenous injections of procaine hydrochloride may give striking relief. In doses of 20 cc. of a 0.1 per cent solution (1 Gm.) in 1,000 cc. of isotonic solution of sodium chloride given intravenously slowly, Lundy[50] has found that the substance sometimes affords dramatic temporary relief for several hours (two to four or more).

Agents Used in the Control of Ascites and Edema.—Diuretics such as mersalyl, mercurophylline injection, potassium nitrate and ammonium chloride are often useful adjuncts in the control of ascites and anasarca occurring in hepatic disease, but as far as is known, in the doses used for these purposes they have no significant action on the liver.

Colloidal Thorium Dioxide.—Yater and Coe[51] in a summary of 274 cases in which colloidal thorium dioxide ("thorotrast") was used as a diagnostic measure concluded (1) that hepatosplenography was of value in the study of cirrhosis, metastases and abscess of the liver; (2) that there had been observed no evidence of latent radioactivity, depression of spleen or blood-making function, increased susceptibility to infection or development of cancer at the site of infection, and (3) that hepatosplenography was of little value in the study of splenomegaly. In cirrhosis the diagnostic criteria set up consisted of a diffuse mottling or reduced density of the liver; in metastases, rounded areas of lessened density often surrounded by a halo of increased density, and in abscess, a rounded area of reduced density, usually without a halo.

Histamine.—In further studies of estimated hepatic blood flow Bradley[43] found that histamine in doses of 0.36 to 0.60 mg. given intramuscularly caused little change in 4 instances; a transient effect similar to that caused by ephinephrine was twice observed.

Gelatin.—Considerable thought has been given to the use of gelatin as a substitute for plasma protein in the treatment of burns, shock and hepatic disease. The rapid development during the war of dried plasma, the preparation of serum albumin in a form suitable for intravenous use and the easy availability of pooled wet plasma have rendered almost needless such substitutes for plasma as gelatin and acacia.

With reference to gelatin it might be pointed out that in dogs Whipple and his associates[52] have observed that gelatin administered by vein for one to two weeks in doses of 3 to 17 Gm. per kilogram of body weight usually caused serious disturbances, including inhibition of protein production in the blood, signs of intoxication, much loss of weight and even death. For the first few days after its administration the adverse effects did not appear. In fact, the reaction was decidedly variable and the site of damage was not clear. Histologic changes were not noted, but it was considered that the liver might be the site of deleterious action by gelatin.

In a group of 6 patients with extensive carcinomatosis, Brunschwig and others[53] infused intravenously gelatin solution containing 14 to 27 Gm. daily for three to ten days. The injections were well tolerated, and slight increases in urea nitrogen excretion occurred in 5 of the patients. The variability in these reported results may be explained perhaps by the fact that gelatin is not a chemical entity but a highly variable product made from a number of different materials treated in a great variety of ways, and consequently it is probable that considerable variation in the utilization and toxicity of various samples may occur.

Diet and Hepatic Tumor Formation.—Another phase of evidence clearly demonstrates the importance of adequate nutrition in protecting the liver against hepatotoxic agents. The well known effect of the aniline dye butter yellow (P-dimethylaminoazo benzine) in producing hepatic tumors in rats can be effectively modified by the use of protective foods including liver, yeast, milk and mixtures of certain grains. In 1944 Opie[54] demonstrated that fat in the diet accelerates the production of hepatic lesions by this dye and that when the quantity of fat in the diet is small few tumors are produced.

SUMMARY

There are no drugs which are specific in the treatment of hepatic disease. The principal effect is that of the liver on drugs and not of drugs on the liver. Dietary substances are of greater value in the prevention than in the treatment of hepatic diseases. They are also of greater value in acute trophopathic hepatitis than in chronic toxipathic hepatitis, in which their value appears limited.

Until specific drugs are available, the principal forte in the treatment of hepatic disease will continue to be along the general lines of increasing the resistance of and the restorative powers of the liver (1) by supplying it with abundant quantities of essential nutritive materials, (2) by diluting, neutralizing or eliminating hepatoxic substances and (3) by physical rest of the affected person.

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[48] Hoagland, C. L.: The Therapy of Liver Diseases, Bull. New York Acad. Med. **21:** 537-556 (Oct.) 1945.

[49] Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites: Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment, Am. J. Digest. Dis. **9:** 115-120 (April) 1942.

[50] Lundy, J. S.: Clinical Anesthesia, Philadelphia, W. B. Saunders Company, 1942.

[51] Yater, W. M., and Coe, F. O.: Ten Years' Experience with Thorotrast Hepatosplenography, Ann. Int. Med. **18:** 350-366 (March) 1943.

[52] Robscheit-Robbins, F. S.; Miller, L. L., and Whipple, G. H.: Gelatin: Its Usefulness and Toxicity, J. Exper. Med. **80:** 145-164 (Aug.) 1944.

[53] Brunschwig, A.; Corbin, N., and Johnston, C. D.: Intravenous Gelatin, Ann. Surg. **118:** 1058-1063 (Dec.) 1943.

[54] Opie, E. L.: Influence of Diet on Production of Tumors of Liver by Butter Yellow, J. Exper. Med. **80:** 219-230 (Sept.) 1944.

Clinical Notes, Suggestions and New Instruments

THE TREATMENT OF SHOCK BY AORTIC TRANSFUSION DURING THORACIC OPERATIONS

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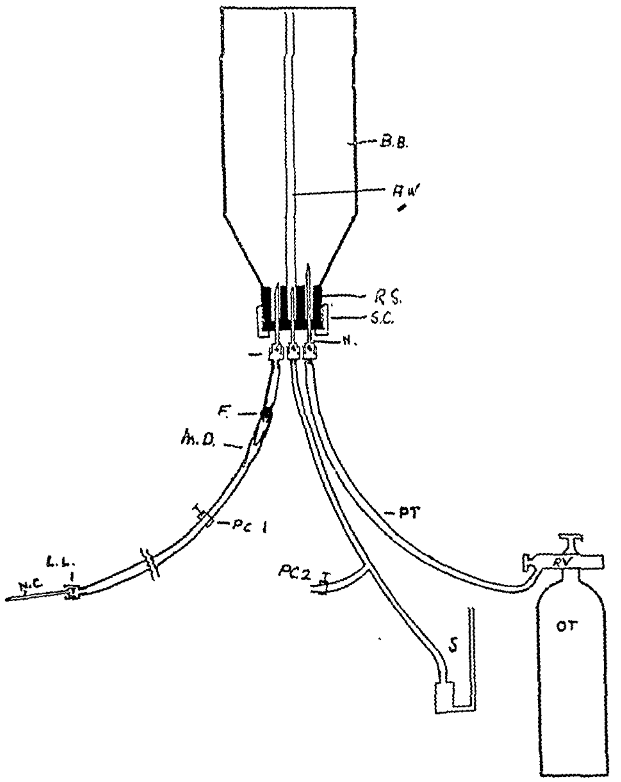
and
VERNON D. HACKER, M.D.
Cleveland

Peripheral arterial transfusions have been shown to be of value experimentally in the study of shock by Kohlstaedt and Page.[1] Gardner[2] has proved their usefulness in its clinical control. Arterial transfusions may have occasional value in thoracic surgery. Uncontrollable hemorrhage during thoracic operations is a potential hazard. If this complication should occur it may be impossible to provide sufficient blood intravenously after hemostasis to sustain life. It may be difficult or occasionally impossible to obtain veins for venipuncture if the patient is in shock. Unnecessary time may be lost in attempting venipuncture. Even though blood can be provided in adequate amounts the dangers of pulmonary edema and right sided cardiac failure are ever present when blood is given too rapidly intravenously.



Apparatus for arterial transfusion: B.B., blood bottle; A.W., airway; R.S., rubber stopper; S.C., screw cap; N., needles (size indicated); L.L., luer locks; F., filter; M.D., Murphy drip; P.T., pressure tubing; P.C. 1 and 2, pinchcocks; S., sphygmomanometer; R.V., reducing valve; O.T., oxygen tank and N.C., needle or cannula in patient's artery. With pinchcock 1 closed and pinchcock 2 open the oxygen is turned on to 1 liter per minute. This oxygenates the blood as shown by the change in color from dark red to bright red. Pinchcock 2 is slowly closed. The pressure in the blood bottle is controlled during the transfusion by adjusting pinchcock 2.

The mortality rate from injuries of the mediastinal vessels is high. Though the hemorrhage may be surgically controlled, death may result from loss of blood and shock. If the state of shock persists unduly long permanent damage may result from anoxemia of the brain, kidneys and liver. Heretofore, treatment has consisted mainly of intravenous replacement and cardiorespiratory stimulants. The aorta lends itself readily for the administration of blood as an emergency procedure during operations within the chest. Furthermore, oxygenated blood can be provided, thus reducing the factor of anoxemia. The following case report demonstrates the benefit possible from such a procedure.

REPORT OF CASE

At 3 o'clock in the morning of Nov. 16, 1946 a Negro man aged 60 was admitted to the accident room of St. Luke's Hospital. He was semiconscious, inebriated and in shock. He had received a stab wound in the first intercostal space adjacent to the sternum approximately thirty minutes prior to entry. The pulse was feeble and soon disappeared. The blood pressure was unobtainable. The right side of the chest was dull to percussion. Faint breath sounds could be heard anteriorly near the sternum. There was evidence of a mediastinal shift to the left. Fluoroscopic examination revealed the right chest to be opaque and the mediastinum shifted to the left. Plasma was given immediately without significant benefit; this was followed by a blood transfusion. Though the blood pressure and pulse were unobtainable the patient continued to have rapid gasping respirations. From the position of the stab wound it was felt that the innominate artery or the superior vena cava had been injured.

He was taken to the operating room and a thoracotomy performed. As a result of the profound shock and alcoholic consumption it was possible to introduce an intratracheal tube under light anesthesia. Controlled ventilation was maintained by the anesthetist during the operative procedure, mainly with oxygen.

The right side of the chest was entered anteriorly through the bed of the second rib. The sternum was transected to allow adequate exposure of the superior mediastinal vessels. There was no bleeding from the wall of the chest when the incision was made. It was noted that the internal mammary artery had been severed approximately 1 inch (2.5 cm.) from its origin by the injury. Blood was slowly oozing from the cut section. This artery was immediately ligated. The entire right side of the chest was filled with clotted and fluid blood, which was removed. No other source of bleeding from the mediastinal vessels or from the right lung could be found. The patient still had no pulse or blood pressure, and the heart was observed to be beating rather slowly, as in failure. As an emergency procedure an oxygenated transfusion was given into the ascending aorta through a size 18 needle. The first portion of the transfusion was given by oxygen pressure and the latter by pressure from a hand pump. Five hundred cubic centimeters of blood were given in three minutes. There was no bleeding from the aorta after the removal of the needle. Immediately following the aortic transfusion a pulse was palpable, and as the chest wall was closed the blood pressure was 80 systolic and 50 diastolic.

The postoperative course was characterized by drowsiness, diarrhea and incontinence for the first three days. It was impossible to determine the urinary output during this time. There was no urinary output on the fourth and fifth postoperative day, while the daily fluid intake was 3,000 cc.

Chemical analysis of the blood on the fourth postoperative day showed the nonprotein nitrogen to be 182 mg. per hundred cubic centimeters, the creatinine 14.1 mg. per hundred cubic centimeters and the carbon dioxide combining power 36.2 volumes per cent. The serum protein level was 6.8 Gm., the chlorides 554 mg. and the sugar 141 mg., per hundred cubic centimeters. The nonprotein nitrogen increased to 219 mg. per hundred cubic centimeters on the seventh postoperative day.

It was felt that the renal damage and failure were probably due to anoxemia of the kidneys during the period of shock. The possibilities of previous renal disease and of reaction to transfusion were also considered. Appropriate treatment was administered for the renal failure. On the sixth postoperative day the urinary output was 670 cc., and the amount increased daily thereafter. The nonprotein nitrogen and blood creatinine values gradually decreased, so that at the time of discharge on Dec. 7, 1946 the nonprotein nitrogen was 45.5 mg. and the creatinine 1.8 mg., per hundred cubic centimeters. Urinalysis six days

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1. Kohlstaedt, K. G., and Page, I. H.: Hemorrhagic Hypotension and Its Intra-Arterial and Intravenous Infusion of Blood, Arch. Surg. **47**: 178 (Aug.) 1943.

2. Gardner, W. J.: The Control of Bleeding During Operation by Induced Hypotension, J. A. M. A. **132**: 572 (Nov. 9) 1946.

postoperatively showed a concentration of 1.015, a trace of albumin, and an infrequent red blood cell but no casts. Subsequent microscopic analyses of the urine revealed no abnormalities.

A check-up examination Jan. 22, 1947 showed the patient to be in good health and asymptomatic except for paresthesia in both hands. A urea clearance test at this time was 68 and 74 per cent of normal.

A diagrammatic sketch of the apparatus for providing oxygenated arterial transfusions under pressure is shown.

SUMMARY

An injury to the right internal mammary artery with an exsanguinating hemorrhage is reported. The blood pressure and pulse of the patient were unobtainable for approximately one hour. Operative hemostasis and restoration of the blood pressure by an intra-aortic transfusion of oxygenated blood was performed. The postoperative convalescence was complicated by evidence of uremia.

It is felt that intra-aortic transfusions of oxygenated blood may be lifesaving in certain emergencies arising during thoracic operations.

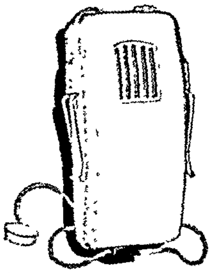
Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

WESTERN ELECTRIC HEARING AID, MODEL #64, ACCEPTABLE

Manufacturer: Western Electric Company, 195 Broadway, New York.

This instrument is a two unit hearing aid, the microphone and amplifier in one pack and the batteries in the other. The plastic case containing the amplifier and microphone has the volume control and combination switch-tone-control set in the top of the case. Cords for batteries and receiver are connected by a plug at the bottom of the case. Three battery cases are available, one for light duty, 22.5 volt batteries, and two larger cases for heavier duty. Three tone control settings are possible and are indicated on the switch by one, two and three dots.



Western Electric Hearing Aid #64.

Dimensions and Weight

Weight.—Hearing aid alone, 4.2 ounces (119 Gm.).

Small battery case and batteries, 3.5 ounces (99 Gm.).

Medium battery case and batteries, 7.5 ounces (213 Gm.).

Large battery case and batteries, 8.1 ounces (230 Gm.).

Dimensions.—Microphone and amplifier, 4¼ by 2½ by 1 inches (8.2 by 6.4 by 2.5 cm.).

Small battery case, 2 15/16 by 2 7/16 by ⅝ inches (7.4 by 7.0 by 1.6 cm.).

Medium battery case, 3 11/16 by 2 9/16 by 1 1/16 inches (9.3 by 6.6 by 2.8 cm.).

Large battery case, 3 5/16 by 2½ by 1⅜ inches (8.4 by 6.4 by 7.0 cm.).

Battery	Measured Voltage	Measured Current
A. 1½ volts	1.5 volts	80 milliamperes
B. 22½ volts	22.5 volts	1.3 milliamperes
B. 30 volts	30 volts	2.2 milliamperes

Acoustical Gain

Acoustical gain measurements were made using the regular procedure followed in the Council's acceptance tests of other hearing aids and described in the *Journal of the Acoustical Society of America*, vol. 16, No. 1, pages 38-44. Acoustical gains measured in this way are known to be somewhat lower than the free field measurements used in obtaining the data submitted by the manufacturers. When allowance is made for the difference in the two methods, the measured values are in reasonable agreement with those submitted by the manufacturers. Typical results of the measurements of the Council are tabulated as follows:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096 cycles
Full volume							
Tone control set at 1	23	37.5	37	40	43	44	36.5 decibels
Tone control set at 3	4	14	24	25	34	36	34 decibels

Approximate values of maximum pressure levels, at four frequencies with the instrument attached to coupler with volume of 2 cc., control set at full gain and at No. 1 tone setting, are shown as follows:

Frequency	Input Level	Maximum Output Level
600 cycles	65 decibels	95 decibels
1,024 cycles	65 decibels	97 decibels
2,048 cycles	65 decibels	95 decibels
3,100 cycles	70 decibels	103 decibels

Intelligibility tests were made and showed satisfactory performance. The Council on Physical Medicine voted to include the Western Electric Hearing Aid, Model #64, in its list of accepted devices.

TELEX HEARING AID MODEL #22 ACCEPTABLE

Manufacturer: Telex, Inc., Minneapolis.

This instrument, Model #22, is self contained. The battery compartment in the lower half of the case is covered by a snap-back. The plastic case is composed of three parts. The wearing clip is on the back of the case, opposite the microphone grill. The receiver cord plugs into the top end of the case.

The two-position tone control switch and the combination on-off and volume control switch are placed at the upper corners. One magnetic receiver, a Telex A, was supplied.

Dimensions and Weight.—Dimension 5¼ by 2⅜ by ⅞ inches (13.3 by 6.0 by 2.2 cm.). Weight 6.8 ounces (193 Gm.).

Batteries	Measured Voltage	Measured Current
A 1½ volts	1.3 volts	65 milliamperes
B 30 volts	27.5 volts	0.56 milliamperes

Acoustical Gain.—Measurements were made of the gain in decibels in the sound pressure level set up attached to a 2 cc. coupler over the pressure levels at the microphone placed in the face of a 16 by 8 inch (40.6 by 15.2 cm.) baffle. The input level at each frequency was 0.02 dyne per square centimeter. The following figures, in decibels, are typical of the results obtained when the volume-control was turned full-on at various frequencies:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096 cycles
Tone controls							
#1 (upper)	43.0	50.5	55.0	56.5	59.0	48.0	40.0 db.
#2 (lower)	33.0	42.5	51.5	54.0	56.5	47.5	40.0 db.

Approximate values of maximum pressure levels, at four frequencies observed on a 2 cc. coupler with volume control set for full gain and the number 1 (upper) tone setting:

Frequency	Input Level	Maximum Output Level
600 cycles	55 decibels	102 decibels
1,024 cycles	65 decibels	104 decibels
2,048 cycles	50 decibels	103.5 decibels
2,250 cycles	50 decibels	105.5 decibels

Intelligibility tests were made with a normally hearing person so placed that the speaker could barely be heard with the hearing aid turned off. These tests indicated satisfactory performance.

The Council on Physical Medicine voted to include the Telex Hearing Aid, Model #22, in its list of accepted devices.

THE JOURNAL OF THE
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SATURDAY, JUNE 14, 1947

ESSENTIAL FATTY ACIDS AND INFANTILE ECZEMA

Experimental studies have demonstrated that certain unsaturated fatty acids are essential for the maintenance of normal skin in several species of animals.[1] Whether or not this is true for man has not yet been convincingly shown. However, some indication that these substances might also play some role in human nutrition was first observed in patients with infantile eczema.[2] Certain babies afflicted with this condition appeared to be benefited when vegetable oils rich in unsaturated fatty acids are added to the diet in comparatively large amounts. Subsequent clinical studies in infants and children have both confirmed and denied the favorable effect claimed, perhaps the bulk of evidence being confirmatory, however.

Hansen and his co-workers[3] have reported further extensive studies on eczema in 225 patients, the majority of whom were under 2 years of age. The patients were first carefully examined and a comprehensive record was made of the locations, nature and severity of lesions. Fresh lard was then given in amounts of 1 to 2 ounces daily either alone, as a spread, or mixed with sugar, peanut butter or some other palatable material. Raw linseed oil or corn oil was also used for some patients. The supplementary fat feeding was continued for one to three months until a reliable clinical evaluation of the response could be made. The response was considered "good" if the cutaneous manifestations either completely disappeared or nearly cleared. Otherwise the response was graded "fair," "poor" or "none." Simultaneously, changes in the degree of unsaturation of the fatty acids of the serum were determined, since earlier work had suggested that the serum fatty acids of patients with eczema tend to be less unsaturated than those of control subjects.[4]

The clinical response indicated a definite benefit in the majority of cases, especially in infants and younger children. Of 148 patients treated there were 60 in whom the results were good to excellent, 51 in whom the results were fair to good and 37 in whom the response was either poor or lacking. With respect to the response of different age groups, it was found that 40 per cent of the adults showed "poor" or no response, whereas only 36 per cent of the children and 12 per cent of infants responded unfavorably.

Studies on the blood lipids in 171 patients confirmed the earlier observation that the serum fatty acids are less unsaturated than those of control subjects, especially in infants. Whereas the iodine number of the serum fatty acids of normal subjects averaged about 100, that of the patients averaged from 80 to 95, depending on their age. The differences were found to be statistically significant. The serum iodine numbers tended to increase to normal values as the clinical condition improved following supplementation of the diet with fat.

The author's conclusion thus appears warranted that supplementary fat, such as lard or certain vegetable oils rich in unsaturated fatty acids, is definitely beneficial in the majority of cases of eczema, particularly in infants. However, they wisely emphasize that such therapy is not a complete substitute for good general and local therapy but should be regarded as a valuable adjunct to the accepted modes of treatment.

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[1] Burr, George O., and Burr, Mildred M.: J. Biol. Chem. **82:** 345 (May) 1929. Burr, George O.; Burr, Mildred M., and Miller, Elmer S., ibid. **97:** 1 (July) 1932.

[2] Hansen, A. E.: Proc. Soc. Exper. Biol. & Med. **31:** 160, 1933.

[3] Hansen, A. E.; Knott, Elizabeth M.; Wiese, Hilda F.; Shaperman, Eva, and McQuarrie, Irvine: Eczema and Essential Fatty Acids, Am. J. Dis. Child. **73:** 1 (Jan.) 1947.

[4] Hansen, A. E.. Serum Lipids in Eczema and in Other Pathologic Conditions, Am. J. Dis. Child. **53:** 933 (April) 1937.

CONGENITAL TUBERCULOSIS

Hughesdon[1] has tabulated and classified 35 cases of congenital tuberculosis which have appeared in medical literature from 1935 to 1945 inclusive. Beitzke, quoted by Hughesdon, analyzed all published cases and classified them according to the site of the primary complex. He found 61 cases of proved congenital tuberculosis with pathologic lesions and 40 cases in which tubercle bacilli were found in the fetus without histologic changes. His criteria of proof of congenital tuberculosis in the infant were that (1) the tuberculous nature of the lesions in the infant must be proved; (2) a primary complex in the fetal liver is proof of the congenital nature of the tuberculous changes, since it can have arisen only from tubercle bacilli in the blood of the umbilical vein; (3) if there is no primary complex in the liver, the infection is congenital only if (*a*) tuberculous changes are found in the fetus in utero or at birth or a few days after birth and (*b*) in a child who lives longer than a few days if extrauterine infection can be excluded with certainty, the child being immediately separated from the mother and kept in an environment free from tubercle bacilli.

Apparently, therefore, during approximately the last seventy years 115 proved cases of congenital tuberculosis have been described in the literature including both cases in which pathologic lesions were present and those in which only a tuberculous bacillemia occurred. To these cases Hughesdon adds 4 cases of congenital tuberculosis which were observed in a children's hospital in England. The fact that 4 cases of congenital tuberculosis have been observed in one children's hospital during the last twelve years suggests that intrauterine or intrapartum infection of the fetus with tubercle bacilli may occur more frequently than hitherto believed. Infection of the fetus, according to Hughesdon, may take place when the mother's tuberculous lesion is minimal or even undetectable by present methods of investigation. This is consistent with the view that tuberculous bacillemia may occur at any time during a period of activity of an existing tuberculous focus, no matter how small. Tuberculous lesions in the placenta can release tubercle bacilli into the fetal blood spaces of the placenta, with subsequent infection of the fetus by way of the umbilical vein. Tubercle bacilli may also be liberated from a lesion in the placenta or membranes into the amniotic fluid, and the fetus may be infected by inhalation or ingestion of the fluid. Congenital tuberculosis is not necessarily fatal, as demonstrated by the author's reports of cases 3 and 4, in which death occurred at the ages of 13 and 27 months respectively and in which the diagnosis of congenital tuberculosis was not made until the postmortem examinations. In all 4 cases reported by the author there were primary complexes in both liver and lungs.

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[1] Hughesdon, Mary K.: Congenital Tuberculosis, Arch. Dis. Childhood **21:** 121 (Sept.) 1946.

The true estimate of the incidence of congenital tuberculosis could be obtained only by routine postmortems of children dying from all causes.

Current Comment

POSTGRADUATE COURSES FOR PHYSICIANS

An important aid to the physician desiring to keep abreast of the progress of medicine is the offering of continuation courses throughout the country. Semiannually the Council on Medical Education and Hospitals of the American Medical Association publishes a list of postgraduate courses offered to physicians for the ensuing six months. In this issue of THE JOURNAL (page 626) and in next week's issue the courses listed cover the period from July 1, 1947 to Jan. 15, 1948. More than eight hundred courses offered by numerous institutions and organizations are listed. The medical schools take a prominent part in presenting these courses. In addition a number of courses, while not given by medical schools, will employ the facilities of medical schools. The wide usefulness of these listings is indicated by the tremendous demand for reprints, numbering regularly about a thousand per month. The institutions and individuals participating in these programs are rendering a great service to the profession and to the physician veterans.

THE HOSPITAL IN THE REHABILITATION OF THE HANDICAPPED

One of the great contributions of war medicine was the rehabilitation program in the service hospitals now being carried into the Veterans Administration hospitals. The fracture, the gunshot wound, the head and peripheral nerve injury and paraplegia received an integrated program of surgical treatment, physical therapy and conditioning, and graduated military activity, which prepared the patient for return to duty. When the residual disability prevented him from satisfying the demands of military service, educational and prevocational training was provided to prepare him for return to civil employment. Thus, whereas much of the rehabilitation service in World War I was carried on after the patient was discharged from the hospital, in World War II every attempt was made to obtain complete physical restoration and vocational preparation before he left the hospital. The advantage of an integrated and continuous program of this sort was of especial value with amputations. At the army and navy amputation centers, a five point program was followed. This included (1) the psychologic preparation of the patient, (2) a rational plan of surgical treatment which employed a few standard procedures such as the Syme amputation, the below the knee amputation, the Stokes-Gritti amputation and the above knee amputation, (3) the shrinking of the patient's stump with appropriate exercises of the stump and body musculature, (4) the selection and fabrication of a modern prosthesis and (5) of especial importance, the systematic and intensive training of the amputee in the use of this prosthesis. Prevocational and vocational training were carried out within the hospital framework so that discharge from the hospital meant return to an independent economic and social existence. During the war from 17,000 to 18,000 amputees received the benefit of this type of service. During the same period approximately 120,000 civilians lost their limbs from congenital deformity, disease and accidental injuries, 67,000 of them in industry. Yet few of these persons have enjoyed the advantage of an integrated and continuous program, either within the hospital or after discharge from the hospital. There is need for the establishment of rehabilitation centers where the amputee and all severely handicapped can receive the follow-up care which will lead to their return to employment. This need is being met in a small number of instances by the establishment of outpatient facilities designed to provide a limited program of after-care. More such centers are needed. Rehabilitation, after discharge from the hospital, however, is not enough. The within hospital program, as demonstrated in the service hospitals, is of paramount importance. Many hospitals are already equipped to carry on such a program and require only an organization to implement it. Such an organization can be developed by the creation of a rehabilitation committee consisting of one or more physicians interested in rehabilitation, the physical therapist, the occupational therapist, the social worker and the rehabilitation representative of the state rehabilitation commission. This committee can establish policies, supervise the program in action and carry on liaison with public agencies, thus providing a rapid turnover for its chronic cases and a full measure of treatment leading toward reemployment of its disabled patients. In a large hospital the services could be delegated by the committee to a rehabilitation officer, preferably a physician trained in physical medicine.

ARTERIOSCLEROSIS IN YOUTHS

An increasing number of reports on arteriosclerosis in infants and young adults has contributed recently to the accumulating evidence that this disease is not the inevitable consequence of senescence but the result of various endogenous and exogenous factors acting on the blood and the vascular tissues.[1] Recent observations on juvenile atherosclerosis deal mainly with coronary arterial disease in soldiers between the ages of 18 and 40 in the United States, England and Germany.[2] In the great majority of these cases the first and fatal attack of coronary obstruction was not preceded by any warning symptoms pointing to the presence of coronary sclerosis. As these soldiers had passed a more or less thorough medical examination, their deaths from partly advanced coronary disease is a rather sad commentary on the state and value of the available diagnostic methods. This realization is the more depressing as there is general agreement among the authors that coronary sclerosis in young persons is definitely more common than is usually assumed and that the incidence of this serious vascular disease has been on the increase during the last decades. Little definite information is available concerning the etiology of juvenile coronary sclerosis. French and Dock mentioned that 73 of their 80 patients had some degree of obesity pointing to a disturbance of the fat metabolism as the causative mechanism. Poe, however, noted only 1 of his 9 patients as obese. Newman characterized all of his 50 English soldiers with coronary occlusion as well built or obese. Infections of the throat and respiratory organs, as well as rheumatic and scarlet fevers providing a toxic or allergic mechanism, were mentioned by Newman and others. In a 6 weeks old infant that died of coronary sclerosis a hyperergic reaction developed on the basis of a drug allergy of the mother during pregnancy and caused the calcification and thrombosis in the coronary artery.[3] In many other cases of fatal coronary or general arteriosclerosis in infants chronic renal disease, hypervitaminosis D, hyperparathyroidism, hyperadrenalism and thromboangiitis obliterans were listed as causative factors.[4] A vasotoxic effect of nicotine associated with excessive smoking of cigarets was cited by Meessen and by Holzer and Polzer[5] as a significant etiologic factor in juvenile coronary sclerosis. The histologic changes observed in sclerotic coronaries in youths have been identical with those seen in persons of more advanced age. Thus, calcifications were not less common in the sclerosed vessels of the young than they are usually found in those of the old. Since it was noted that the early developmental stage of coronary sclerosis is often associated with an imbibition of the vascular wall by a fat free edematous fluid, fibrinoid swelling and active vascularization of all layers of the wall, an allergic origin of juvenile coronary sclerosis may not be infrequent. The not infrequent occurrence of fatal juvenile arteriosclerosis provides a forceful reminder that the prevention and therapeutic control of arteriosclerosis represents one of the most urgent problems of medicine.

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[1] Hueper, W. C.: Arteriosclerosis: A General Review, Arch. Path. **39**: 54 (Jan.) 1945.

[2] Dock, William: The Predilection of Atherosclerosis for Coronary Arteries, J. A. M. A. **131**: 875 (July 13) 1946. French, A. J., and Dock, William: Fatal Coronary Atherosclerosis in Young Soldiers, ibid. **124**: 1233 (April 29) 1944. Poe, William D.: Fatal Coronary Artery Disease in Young Men, Am. Heart J. **33**: 76 (Jan.) 1947. Moritz, A. R., and Zamcheck, Norman: Sudden and Unexpected Deaths in Young Soldiers: Diseases Responsible for Such Deaths During World War II, Arch. Path. **42**: 459 (Nov.) 1946. Newman, M.: Coronary Occlusion in Young Adults, Lancet **2**: 409 (Sept. 28) 1946.

[3] van Creveld, S.: Coronary Calcification and Thrombosis in an Infant, Ann. Pediat. **157**: 84, 1941.

[4] Fields, Miriam H.: Medical Calcification of Arteries of Infants, Arch. Path. **42**: 607 (Dec.) 1946. Stryker, W. A.: Arterial Calcification in Infancy, with Special Reference to the Coronary Arteries, Am. J. Path. **22**: 1007 (Sept.) 1946.

[5] Holzer, W., and Polzer, K.: Coronary Occlusion, Lancet **2**: 846 (Dec. 7) 1946.

DETERMINATIONS OF BLOOD VOLUME

In a procedure for the determination of blood volume, red cells containing radioactive iron are injected; the blood volume is determined from the degree of dilution of the injected cells and the hematocrit value. The radioactive red cells are formed in a suitable host following the oral administration of radioactive iron.[1] The blood volume was determined by this procedure on a series of 28 patients in a variety of clinical conditions. The volume differed in many cases from values obtained by the more generally used dye method by as much as 1 and 2 liters.[2] There appears to be no definite agreement as to which procedure yields the more reliable values. In the newer method the cell volume is determined directly and the whole blood volume is calculated from the hematocrit; in the other scheme the blood plasma volume is determined directly and the whole blood volume is calculated from the hematocrit. The larger values obtained by the dye method suggest that some of this dye is lost, perhaps through phagocytosis by the reticuloendothelial cells, by adsorption on the plasma proteins or in other less obvious ways. A rather constant difference in the blood volumes of healthy human subjects and in laboratory animals as obtained by the two methods has been attributed to the measurement by the radioactive red cell method of only "rapidly circulating plasma volume." However, estimations of blood volume by the use of carbon monoxide and with a dye method have been found to agree within about 10 per cent in healthy human and animal subjects.[3] *The determination of blood volume would* appear to be valuable in ascertaining the state of hydration of the body and the rate of formation of plasma constituents such as albumin. Until methods are more fully worked out, caution must be exercised in the interpretation of small variations in the values obtained.

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[1] Hahn, P. F.; Ross, J. F.; Bale, W. F.; Balfour, W. M., and Whipple, G. H.: J. Exper. Med. **75**: 221 (Feb.) 1942.

[2] Meneely, G. R.; Wells, E. B., and Hahn, P. F.: Am. J. Physiol. **148**: 531 (March) 1947.

[3] Root, W. S.; Roughton, F. J. W., and Gregersen, M. I.: Am. J. Physiol. **146**: 739 (Aug.) 1946.

ORGANIZATION SECTION

MEDICAL DEPARTMENTS OF THE ARMY AND NAVY

An Analysis of Pending Federal Legislation, Prepared by the Bureau of Legal Medicine and Legislation

Shortly after the Eightieth Congress convened, legislation was introduced to reorganize the Medical Departments of the Army and Navy. In the Senate two bills were introduced by the chairman of the Senate Committee on the Armed Services, S. 334 to establish the Medical Associated Sciences Corps in the Medical Department of the Navy and S. 504 to revise the Medical Department of the Army.

In the House several bills were introduced with similar objectives on which hearings were held. Following such hearings revised bills were proposed, H. R. 3215, introduced by the chairman of the House Committee on Armed Services, which would revise the Medical Departments of the Army and Navy, and H. R. 1943, introduced by Representative Smith of Maine, which would establish a permanent Nurse Corps and a Women's Medical Specialist Corps in the Medical Department of the Army.

Other bills have been introduced to provide for the procurement of physicians and surgeons in the Medical Department of the Army, S. 1143 and H. R. 3174, and to provide additional inducements to physicians and surgeons to make a career of the United States naval services, S. 1197 and H. R. 3254.

Army Medical Service Corps.—Title I of H. R. 3215 as reported to the House, which is similar to title I of S. 504, would establish in the Medical Department of the Regular Army a Medical Service Corps consisting of the Pharmacy, Supply and Administration Section, the Medical Allied Sciences Section, the Optometry Section and such other sections as the Secretary of War may deem necessary. The Secretary of War will be authorized to determine from time to time the strength of this corps.

The corps will consist of officers in the grade of second lieutenant to colonel, inclusive. There will be a chief of the corps appointed by the Secretary of War and assistant chiefs similarly designated who will be chiefs of sections.

Appointments from sources other than the Regular Army or its active reserve will be made from persons who are graduates from accredited schools of pharmacy, optometry or other schools or colleges who possess degrees in sciences allied to medicine or such other degrees as may be approved by the Surgeon General. A person holding a doctorate degree in sciences allied to medicine at the time of appointment may be credited with an amount of service equal to three years, for the purpose of determining grade, position on promotion list, permanent grade seniority and eligibility for promotion.

The Pharmacy Corps and the Medical Administrative Corps will be abolished. Officers of the Regular Army who hold commissions in the Pharmacy Corps will be transferred in grade to the Medical Service Corps. Persons holding temporary appointments or commissions in the Army of the United States permanently assigned or detailed to the Medical Administrative Corps, the Pharmacy Corps or the Sanitary Corps will be automatically assigned or detailed to the Medical Service Corps.

Navy Medical Service Corps.—Title II of H. R. 3215 would establish a Medical Service Corps in the Medical Department of the Navy with sections similar to those proposed for the corresponding corps in the Medical Department of the Army. The authorized strength of the corps will be 20 per cent of the authorized strength of the Medical Corps of the Navy. It will consist of staff officers in the grades of ensign to captain, inclusive. With certain exceptions, all appointments in the corps will be in the grade of ensign from those persons serving as commissioned warrant or warrant officers of the Hospital Corps of the Regular Navy and from other persons who possess such physical and other qualifications as may be prescribed by the Secretary of the Navy. Appointments from sources other than the Regular Navy will be from persons who are graduates of accredited schools of pharmacy, optometry or other schools or colleges with degrees in sciences allied to medicine or such degrees as may be approved by the Surgeon General. Persons holding a doctorate degree in sciences allied to medicine may be appointed in the grade of lieutenant (junior grade).

The Hospital Corps of the Navy.—Title III of H. R. 3215 provides that the authorized strength of the Hospital Corps of the Navy shall equal 3.5 per cent of the authorized enlisted strength of the Navy and Marine Corps and will consist of the following grades and ratings: commissioned warrant officers and warrant officers, Hospital Corps, and enlisted men classified as chief hospital corpsmen; hospital corpsmen, first, second and third class; hospital apprentices, first and second class. These classifications in enlisted ratings will correspond respectively to the enlisted ratings, seaman branch, of chief petty officers; petty officers, first, second and third class, and seamen, first and second class.

The President will be authorized to appoint as many warrant officers, Hospital Corps, as he may deem necessary from the ratings of chief hospital corpsman and hospital corpsman, first class. Warrant officers now in the Hospital Corps of the United States Navy and those hereafter appointed therein will have the same rank, pay and allowances allowed to other warrant officers.

Medical Associated Sciences Corps—Medical Department of Navy.—A bill introduced by the chairman of the Senate Committee on Armed Services, S. 334, proposes to establish the Medical Associated Sciences Corps as a constituent part of the Medical Department of the Navy. This corps would consist of not more than 205 officers of the grade of medical associated scientists who will have the rank of captain, commander, lieutenant commander, lieutenant or lieutenant (junior grade). Such officers will be staff officers, subject to all provisions of law relating to the advancement in rank and retirement of officers of the Medical Corps.

All appointments to the grade of medical associated scientists will be made by the President by and with the advice and consent of the Senate from male citizens of the United States who shall have received a doctorate degree in such sciences related to medicine as the Secretary of the Navy shall determine.

Army-Navy Nurses Act of 1947.—Another bill, H. R. 1943, which has already passed the House and Senate, would establish a permanent Nurse Corps and a Women's Medical Specialist Corps in the Medical Department of the Regular Army and a permanent Nurse Corps as a component part of the Medical Department of the Navy. The Women's Medical Specialist Corps would consist of a Dietitian Section, a Physical Therapist Section and an Occupational Therapist Section. These sections would perform such services as may be prescribed by the Secretary of War. The authorized strength of this corps will be in the ratio of nine tenths of a member thereof to every thousand persons in the total authorized strength of the Regular Army but not less than a minimum authorized strength as follows: 24 officers in the permanent commissioned grade of major and 385 other officers in the permanent commissioned grades of captain to second lieutenant, inclusive.

The report of the Senate Committee on the Armed Services pointed out the necessity for this legislation and summarized the principal features as follows:

"Under present legislation both army and navy nurses are occupying temporary commissioned rank. With the ending of the war emergency and without new legislation, the members of the Army Nurse Corps and the Women's Medical Specialist Corps in the Medical Department of the Regular Army, and of the Navy Nurse Corps, will revert back to relative rank and to the prewar scale of pay allowances, which, under the Pay Readjustment Act of 1942, began with the sum of $1,080 per annum and increased to the top pay of $1,800 per annum for a person who had served twelve years, and after which there were no increases. Major Gen. Norman Kirk, Surgeon General of the Army, Col. Florence A. Blanchfield, superintendent of the Army Nurse Corps, and Admiral Clifford A. Swanson, Surgeon General of the Navy, testified, during the course of the hearing on H. R. 1943, that a reversion to the prewar pay scale would result in a complete dissolution of the Army and Navy Nurses' Corps.

"Failure to enact appropriate legislation would place the medical branches of the armed services in the impossible position of attempting to compete with civilian nursing agencies that offer much more attractive salaries and less personal deprivation.

"Summary of principal features of H. R. 1943:

"1. Army and navy nurses and personnel of the Women's Medical Specialist Corps of the Army would be commissioned on a permanent status, the same as all male officers.

"2. Pay, leave, money allowances for subsistence and rental of quarters, mileage and other travel allowances, benefits and emoluments would be the same as for male officers.

"3. Provisions for promotion would be the same as for male officers except that army nurses and specialists above the rank of captain and navy nurses above the rank of lieutenant would be chosen by the selection boards.

"4. Retirement provisions would be the same as for male officers except that the retirement age is reduced to 55 years in the ranks above captain in the Army and above lieutenant in the Navy, and to 50 years in the rank of captain or below in the Army and lieutenant or below in the Navy.

"5. The proposed legislation would establish similar provisions for nurses of both the Army and Navy with exactly the same pay and allowances.

"6. The bill would not result in increased per capita expenditures over those maintained during the wartime period."

Procurement of Army Medical Officers.—Companion bills are pending to provide for the procurement of physicians and surgeons in the Medical Department of the Army, S. 1143 and H. R. 3174. This legislation proposes that the active duty base and longevity pay of each commissioned officer of the Medical Corps with less than thirty years' active service will be increased by $1,200 per year. The Secretary of War will be authorized to designate as specialists qualified commissioned officers. Any person so designated will be entitled, in addition to the pay and other allowances otherwise provided by law, to an increase of 25 per cent of his base and longevity pay while on active duty. There would be established in the Medical Department of the Regular Army four professorships in medicine, surgery, neuropsychiatry and preventive medicine. Appointments will be made by the President by and with the advice and consent of the Senate, and commissions will be given in the Medical Corps of the Regular Army to physicians and surgeons who have been certified as specialists by an American Specialty Board recognized by the Advisory Board for Medical Specialties and the Surgeon General of the Army. Such persons will be appointed in a grade not above that of colonel.

The Secretary of War will be authorized to employ civilian physicians in such numbers and for such periods of time as he may deem necessary to serve with the Medical Department of the Army. Persons so appointed would receive pay, according to the grade in which appointed, from $3,640 to $9,800. Any person so employed could be designated by the Secretary of War as a medical or surgical specialist, in which case he would receive, in addition to his basic pay, an allowance equal to 25 per cent of such pay subject to the limitation that the pay plus the allowance may not exceed $11,000.

The Secretary of War would also be authorized to employ physicians on a temporary full time, part time or fee basis, with the limitation that no temporary full time appointment may be made for a period of more than ninety days.

Naval Medical Officer Procurement Act of 1947.—Companion bills are also pending to provide additional inducements to physicians and surgeons to make a career of the United States naval service, S. 1197 and H. R. 3254. This legislation proposes that, in addition to pay, allowances or emoluments that they are otherwise entitled to receive, commissioned medical officers of the Navy Medical Corps will be paid the sum of $100 for each completed month of active service. Such sum will not be included in computing the amount of increase in pay authorized by any other provision of law or in computing retired pay. The total amount which may be paid to any one officer by virtue of this proposal may not exceed $36,000.

The Surgeon General of the Navy will be authorized to designate as specialists qualified commissioned Medical Corps officers of the Regular Navy and of the Naval Reserve who are certified as specialists by an American specialty board recognized by the Surgeon General. Officers so designated will receive an increase of 25 per cent of their base and longevity pay while on active duty. Such increase in pay will not be included in computing the amount of increase in pay authorized by any other provision of law or in computing retired pay.

Original appointments may be made by the President, by and with the advice and consent of the Senate, of permanent commissioned grades, with rank not above that of captain, in the Medical Corps of the Navy in such numbers as the needs of the service may require. Such appointments will be made only from civilian medical and surgical specialists who have been certified as specialists by an American specialty board recognized by the Advisory Board for Medical Specialists and by the Surgeon General of the Navy. The physicians and surgeons so appointed will be carried as additional numbers in rank but will not increase the authorized number of commissioned officers of the Medical Corps of the Regular Navy.

Washington Letter

(From a Special Correspondent)

June 11, 1947.

Support of Socialized Medicine Being Probed

A house expenditure subcommittee of which Representative Harness, Republican of Indiana, is chairman, is investigating charges that public funds were being spent to promote socialized medicine. The probe was part of congressional investigation of government publicity and alleged "propaganda" activities, which opened with accusations from Congressmen and denials by federal officials. Under discussion were "workshop health conferences" held in 1945 and 1946 in Chicago, St. Paul and Jamestown, N. D., which reportedly discussed public health insurance and other subjects and adopted resolutions favoring such insurance. The committee heard testimony that officials of various government agencies helped plan the conference.

Threatens Loss of German Science Secrets

Elimination of the appropriation for the Technical Information Bureau of the Department of Commerce may lose for the United States the benefits of almost the entire wartime output of German science. At Karlsruhe, Germany, and at 15 Canal street S.W., Washington, D. C., are warehouses crammed with millions of pages of scientific reports collected after the war by American investigating teams. The 250 experts working on the reports overseas may have to return home at once or risk being stranded, and the staff engaged on the reports here will have to be dismissed. Foreign Minister Molotov estimated the value of the scientific information at ten billion dollars. Documents already examined are reported to contain information worth billions to American industry and science.

Advocate Modernization of Hospitals

Representative Mary T. Norton, Democrat of New Jersey, has introduced a House bill asking Congress to let federal funds be used to modernize all nonprofit hospitals in Washington. This would be somewhat in conflict with House action last year in deciding that Washington should have a modern hospital center in which Emergency, Garfield and Episcopal hospitals were to participate. The House had voted down a recommendation that federal grants be authorized for hospitals not in the center. Mrs. Norton's bill would restore original Washington hospital improvement features sought by Federal Works Agency and local hospital officials.

Dr. Spencer Resigns as Chief of National Cancer Institute

The resignation of Dr. R. R. Spencer, chief of the National Cancer Institute, U. S. Public Health Service, has been announced. He will devote his full time to training young physicians in diagnosis and treatment of cancer. Surgeon General Thomas Parran announced that Dr. Leonard A. Scheele, assistant chief of the institute, is successor to Dr. Spencer, who is shedding heavy administrative work for training and research.

Laboratories to Explore Nuclear Science

The program outlined in the Atomic Energy Commission's report to Congress last January is reportedly being followed through establishment of a nationwide chain of laboratories to study continuously every field of nuclear science. The laboratories will, in addition to military and power uses of atomic energy, study the production and dissemination of radioactive isotopes for medical and other scientific research and study and experiment in radiation.

Compensation for Injured Federal Workers

The Senate Civil Service Committee is to get legislation seeking to increase compensation of federal employees seriously injured in line of duty. At present a totally disabled person gets a maximum of $116 per month, but the new legislation would increase this by at least a third. It is contended that government salaries have increased 35 per cent in the last few years.

Bureau of Information

LOCATION OF PHYSICIANS

Virginia Shuler
Chicago

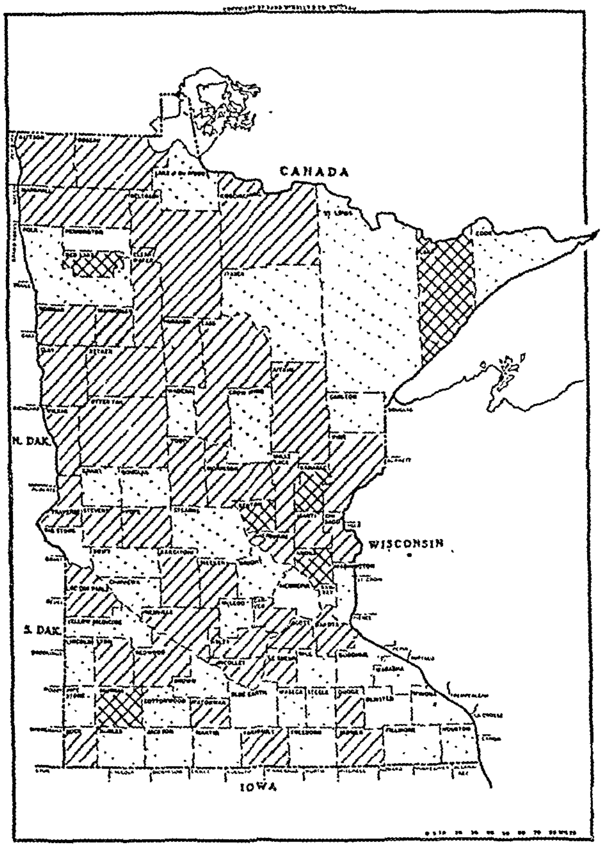
This is the third of a series of charts showing the trend in locations of physicians from April 1946 to January 1947; the first series appeared May 17, page 301, and the second series May 31, page 465.

"As to physician distribution Minnesota is quite well provided for as far as medical service is concerned. There are no areas in the state at the present time where needs for physicians are distressing. In most areas there is at least one physician within a radius of 20 miles; and there are no localities at present where one must travel farther than that for medical attention.

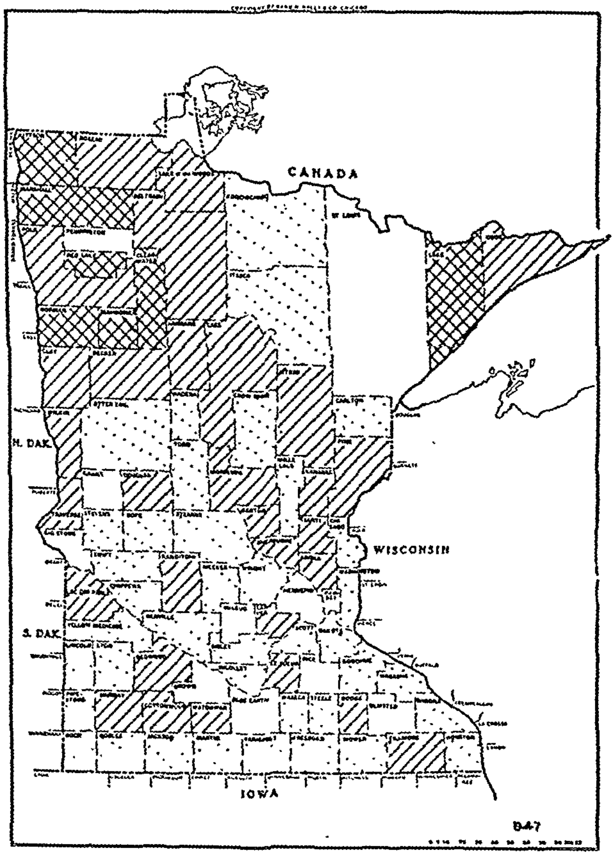
"At the present time there are some 1,000 young physicians, mostly returned medical officers, who are in training in Minnesota—that is, who are doing graduate work or taking continuation courses, residencies or fellowships. These young men will be released beginning about July 1 of this year and will continue to come out for the next two years. We presume that at least 50 per cent of these men will remain in this state and will meet whatever urgent demands there are for more physicians."

MR. R. R. ROSELL,
Executive Secretary,
Minnesota State Medical Association,
496 Lowry Medical Arts Building,
Saint Paul 2.

MINNESOTA—1946



MINNESOTA—1947



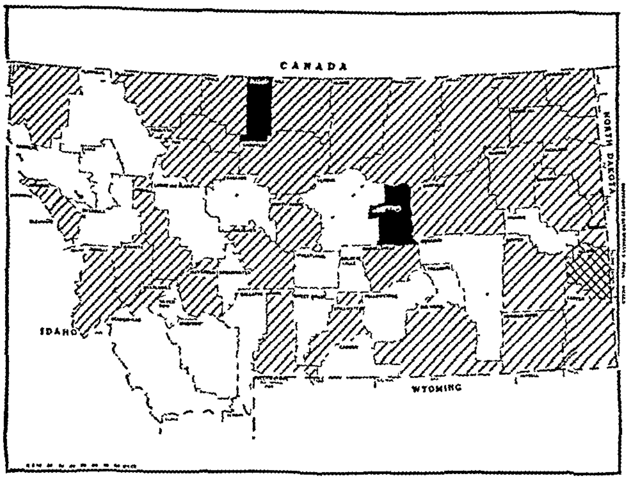
Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

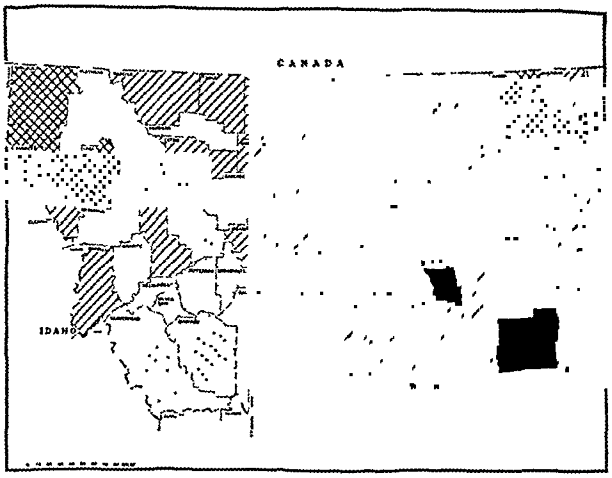
Areas in Minnesota Requesting General Practitioners

County	Town	Population
Aitkin	Tamarack	150
Blue Earth	Madison Lake	377
Cass	Backus	500
Douglas	Brandon	345
	Evansville	439
	Osakis	1,483
Faribault	Wells	2,217
Fillmore	Canton	450
Martin	Dunnell	239
Meeker		19,277
Mille Lacs	Isle	619
Nobles	Ellsworth	660
	Wilmont	361
Pine	Finlayson	225
Red Lake	Oklee	414
Redwood	Sanborn	580
Scott	Jordon	1,422
Sibley	Henderson	900
Washington	Hugo	350
Watanwan	Lewisville	301

MONTANA—1946



MONTANA—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

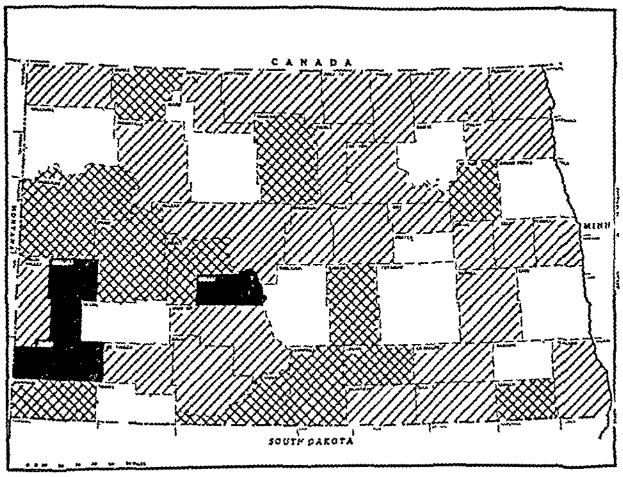
Key Physician population ratio by county plain area 1 999, dotted area 1,000 1,499, striped area 1,500 2,999, checked area 3,000 and over, solid black area no doctor.

Areas in Montana Requesting General Practitioners

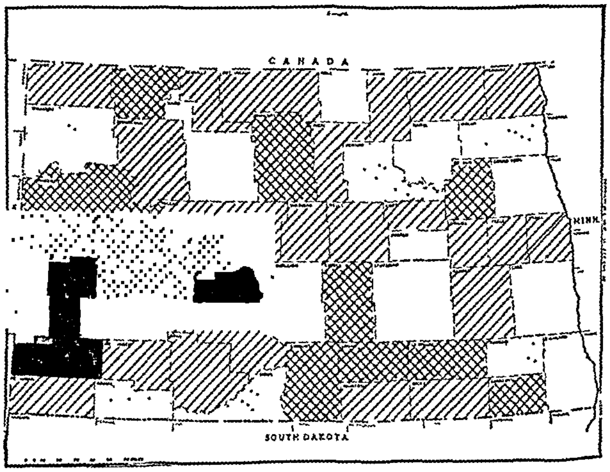
County	Town	Population	County	Town	Population
Blaine	Chinook	2,051	Meagher		2,237
Carbon	Fromberg	533	Ravalli	Stevensville	703
Carter	Ekalaka	719	Richland	Fairview	901
Chouteau	Fort Benton	1,227	Roosevelt	Culbertson	585
Flathead	Columbia Falls	637	Sanders	Hot Springs	663
Granite	Philipsburg	1,304	Sweet Grass		3,719
Madison	Twin Bridge	534	Toole	Shelby	2,538

Dr. H. T. Caraway, Secretary,
Medical Association of Montana,
217 Electric Building, Billings, Mont.

NORTH DAKOTA—1946



NORTH DAKOTA—1947



Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

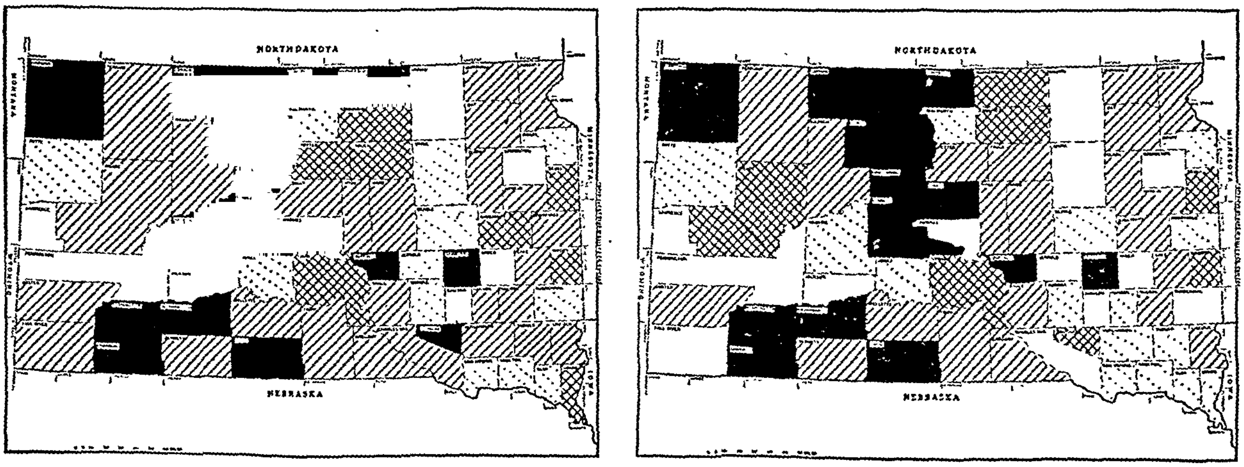
Key · Physician population ratio by county plain area 1 999, dotted area 1,000 1,499, striped area 1,500 2,999, checked area 3,000 and over, solid black area no doctor.

Areas in North Dakota Requesting General Practitioners

County	Town	Population	County	Town	Population
Barnes	Wimbledon	337	Morton	Glen Ullin	976
Bowman	Bowman	967	Nelson	Aneta	509
Burke	Flaxton	362		Lakota	1,000
Burleigh		22,736		McVille	548
Cass	Buffalo	245	Pembina	Pembina	703
Foster	McHenry	250	Ramsey	Edmore	453
Hettinger	New England	895	Stark	Belfield	871
LaMoure	LaMoure	990	Sheridan	Goodrich	476
Logan	Gackle	600	Steele	Hope	474
McLean	Washburn	901	Ward	*Ryder*	467
	Wilton	851	Williams	Williston	5,790

"The listing of physicians by county and the applying of the number per county against the county population in order to arrive at a ratio is as misleading in North Dakota as it is in other states. On this basis a number of our counties show but 1 active physician to 3,000 or more population. Actually in a number of cases the population within these counties live within a reasonably short driving distance of large medical centers which have 1 physician to each 999 or less population. Be that as it may, North Dakota is in actual need of additional physicians. A percentage of these are needed each in the rural communities for the obvious local care which may be afforded by the general practitioner, and also in the medical centers, to relieve the burden at those points caused by the actual desire of rural people to go to such centers for their more serious ailments. As the rural people continue to prefer the larger trading center, not only for the purpose of receiving medical care but also for the purpose of receiving other services and as a place to transact most of their ordinary business affairs, to that of the one time prosperous small village, the hope of extending medical services into the true rural community diminishes. Migration of physicians during the past year has been slight but continues to show the trend of movement from the rural community to the urban community. This no doubt will continue until sufficient physicians are available to satisfy the full demand in the medical centers, at which time the law of supply and demand should cause a greater spreading of doctors through the rural communities. According to recent surveys North Dakota has a somewhat adequate supply of larger general hospitals. The rural communities, however, could benefit greatly if money available under the Federal Hospital Construction Act were to be used in the construction of small buildings in the nature of a community health center where public health services could be combined with office space and facilities for a rural doctor with the inclusion of six to ten beds. Such an arrangement would make possible the distribution of public health services to the community, encouragement for a physician to settle in the community and facilities for emergency care and probably obstetric care in the local community. This in turn of course will relieve the burden on the overcrowded hospitals in the nine larger medical centers."

Dr. L. W. Larson,
Secretary,
North Dakota State Medical Association,
Little Building,
Bismarck, N. D.


SOUTH DAKOTA—1946

SOUTH DAKOTA—1947

Population, based on 1943 estimated Census figures, per active physician (excludes teaching, research, hospital administration, public health and state hospitals) by county.

Key: Physician-population ratio by county: plain area 1-999, dotted area 1,000-1,499, striped area 1,500-2,999, checked area 3,000 and over, solid black area no doctor.

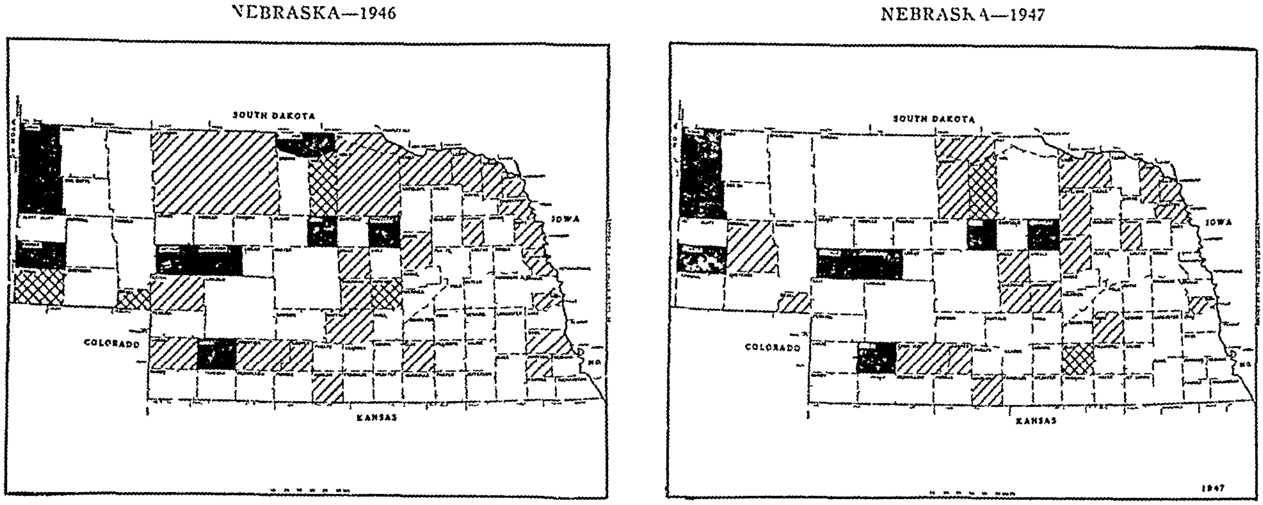
Areas in South Dakota Requesting General Practitioners

County	Town	Population
Beadle		19,648
	Wessington	516
Bennett		3,983
Brule	Chamberlain	1,500
Davison		15,336
Edmunds	Bowdle	757
Fall River	Hot Springs	4,083
Grant		10,552
Haakon	Philip	833
	Midland	282
Hand		7,166
Hughes	Pierre	4,322
Hyde		
Jerauld		9,752
	Wessington	1,352
Kingsbury and Beadle	Irquois	413
Lyman		
McPherson	Leola	795
Marshall	Langford	450
Meade		9,735
Mellette		4,107
Perkins	Lemmon	1,781
Potter		
Sanborn		5,754
	Woonsocket	1,050
Stanley		
Sully		
Todd		5,714
Tripp	Winner	2,426
Washabaugh		1,980
Ziebach		

"All of our cities and towns seem to be adequately cared for, but some of our smaller villages need the services of a physician acutely

"As is true anywhere else, people in South Dakota are willing to travel to the larger centers of population where they can receive the best medical care but sometimes are unable to do so because of the conditions of the roads In the spring and winter it is sometimes impossible for a sick person to go even 10 miles to see his physician"

Mr John C Foster,
Executive Secretary,
South Dakota Medical Association,
302 First National Bank Building,
Sioux Falls, S D


NEBRASKA—1946

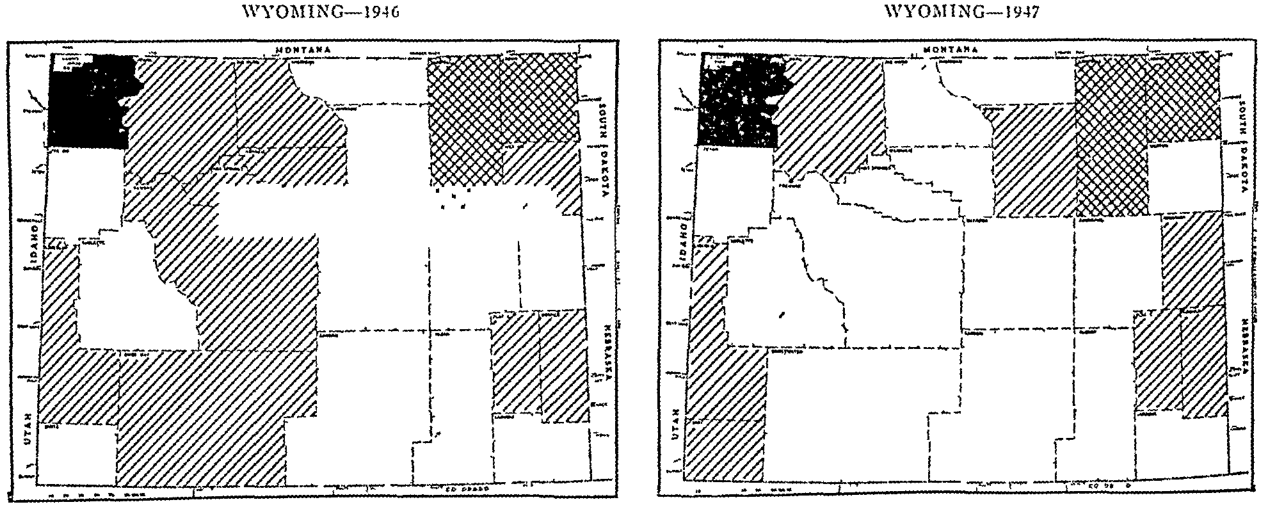
NEBRASKA—1947

Population, based on 1943 estimated Census figures per active physician (excludes teaching, research hospital administration, public health and state hospitals) by county
Key Physician population ratio by county plain area 1 999 dotted area 1,000 1 499, striped area 1,500 2,999, checked area 3 000 and over, solid black area no doctor

Areas in Nebraska Requesting General Practitioners

County	Town	Population	County	Town	Population
Boyd		6 000	Howard	Dannebrog	379
Buffalo	Shelton	983	Knox	Verdigre	556
Chase		5,310	Lincoln	Wallace	335
Dakota	Homer	477	Scotts Bluff	Scottsbluff	12,057
Deuel	Chappell	1,095	Thayer	Hebron,	1,909

Mr M C Smith, Executive Secretary,
416 Federal Securities Pldg , Lincoln, Neb


WYOMING—1946

WYOMING—1947

Population based on 1943 estimated Census figures per active physician (excludes teaching, research hospital administration, public health and state hospitals) by county
Key Physician population ratio by county plain area 1 999, dotted area 1,000 1,499, striped area 1,500 2 999, checked area 3,000 and over, solid black area no doctor

Areas in Wyoming Requesting General Practitioners

County	Town	Population	County	Town	Population
Sublette	Pinedale	647	Washakie	. . .	5,858
Sweetwater		19,407			

Dr George E Baker, Secretary,
Wyoming State Medical Society,
226 East Second Street, Casper, Wyo

Medical Legislation

STATE LEGISLATION

California

Bills Passed.—S 808, which passed the house May 29, to amend the **health and safety code**, proposes to require every licensed physician and surgeon or other person engaged in prenatal care of a pregnant woman, or attending such woman at the time of delivery, to obtain a blood specimen of such woman at the time of the first professional visit or within ten days thereafter and to submit such sample to an approved laboratory for a laboratory test for syphilis S 1026, which passed the senate May 26, 1917, to amend the **education code**, proposes to prohibit any instruction in sex relations, marital problems or like questions at any time prior to the twelfth grade The proposal would further require that where such instruction is given it shall be conducted by a duly licensed physician and handled as an individual activity retaining the normal relationship of physician and patient

Bills Enacted.—A 229, which has become chapter 377 of the Laws of 1947, makes the testing of the sight and **hearing of school children** mandatory rather than permissive and provides that such tests shall be made only by duly qualified supervisors of health, such term not being defined S 569, which has become chapter 360 of the Laws of 1947; provides an appropriation of $250 000 to be expended by the University of California to conduct additional research on the origin, prevention and **cure of cancer.**

Connecticut

Bills Passed.—S 133, which passed the house May 28, to amend the law relating to **osteopathy**, proposes to establish higher minimum requirements and more rigid supervision of the professional practice of osteopathy in the state S 169, which passed the house May 26, relating to the **practice of chiropractic**, proposes to require applicants for certification without examination to be graduates of approved schools, to meet the requirements of the state board of healing arts and to have three years of practice in the state in which they are licensed immediately prior to an application for a Connecticut license, except that persons discharged from the armed forces may have had three years of practice immediately prior to their induction

Florida

Bills Passed.—H 312, which passed the house May 23, to amend the law relating to the membership of the **state board of health**, proposes to authorize other than doctors of medicine to be members thereof, that is, "a licensed practitioner under the laws of the state of Florida of one of the healing arts for the treatment of human ills other than a doctor of medicine" H 440 which passed the senate May 29, proposes to make it unlawful for tax collectors in the several counties to issue **state and county occupational licenses** to any person applying for a license to practice medicine in any of its branches unless and until proof of current qualification and competency, as established by certificate or license issued by the state boards duly constituted and legally authorized to determine qualification and competency, be exhibited at the time of making such application

Bills Enacted.—H 253, which became law without approval on May 27, authorizes persons to donate and give their eyes for **eyesight restoration** purposes by last will and testament and authorizes any state, county, district or other public hospital to purchase and provide the necessary facilities and equipment to establish and maintain an eye bank for restoration of sight purposes S 151, which became law without approval on May 26, amends the law relating to the **practice of massage** by redefining the meaning of the practice so as to include the use of electrical apparatus

Michigan

Bills Passed.—H 451, which passed the senate May 29, proposes the enactment of a law requiring the licensing, regulation and **inspection of hospitals** and related institutions and the appointment of an advisory institutional council S 201, which passed the house May 29, proposes to authorize the state commissioner of health to regulate and promulgate rules and regulations controlling the **humane use of animals** for the diagnosis and treatment of human and animal diseases, the advancement of veterinary, dental, medical and biologic sciences, and the testing and diagnosis, improvement and standardization of laboratory specimens, biologic products pharmaceuticals and drugs The proposal would further require that no person, firm or corporation shall keep or use animals for experimental purposes unless registered to do so by the state commissioner of health S 378, which passed the house May 29, proposes to require that all children prior to registration for the first time in any of the public or private schools, kindergartens, day nurseries or any other preelementary schools in the state shall give evidence that they have been **properly immunized** against diphtheria, whooping cough and smallpox Exempted from the act are children whose parents or legal guardian have religious objections to such immunization

Nebraska

Bill Passed.—L B 250, which passed the legislature June 2, proposes to provide for the licensing inspection and **regulation of hospitals** and related institutions within the state and to create a hospital licensing council

Bill Enacted.—L B 389, which was approved May 28, redefines the **practice of chiropody** by adding to the present definition the following words "a person practices chiropody who holds himself out as being able to diagnose, treat, operate, or prescribe for any disease, pain, deficiency, deformity or physical condition of the human foot and who shall either offer or undertake by any means or methods to diagnose, treat, operate or prescribe for any disease, pain, deficiency, deformity, or physical condition of the same" The only limitation on the right to perform certain types of surgery would seem to be the amputation of the foot or toes whereas previously chiropodists were unable to make "correction of deformities requiring the use of the knife"

Pennsylvania

Bill Enacted.—S 335, which has become chapter 128 of the Laws of 1917, amends the **law relating to consumer credit** by providing that the act shall not apply to nonprofit corporations organized under the laws of the state having memberships consisting exclusively of duly licensed physicians, surgeons and dentists operated exclusively for and by their members and engaged in, among other activities, the financing of personal obligations arising from the rendering of professional services by the members of such nonprofit corporations which are limited strictly to medical, surgical, dental, operative, diagnostic and treatment services or nursing and hospital care

Rhode Island

Bill Passed.—H 612, which passed the senate May 28, proposes the enactment of a **hospital survey and construction act** requiring a survey of hospital facilities in the state and the preparation of a program for the construction of additional needed facilities The proposal would also require the appointment of an advisory hospital council and would authorize the director of the state department of health to apply to the Surgeon General for federal funds to assist in either the survey or the construction of new facilities

Texas

Bill Passed.—H 503, which passed the senate May 29, proposes the enactment of a state **hospital survey and construction act** requiring a statewide survey of hospital facilities and the preparation of a program for the construction of additional needed facilities The proposal also requires the appointment of an advisory hospital council and the establishment of regulations for the purpose of obtaining federal funds to assist in survey and construction programs The administration of this proposal would be under a division of hospital survey and construction in the department of health

Wisconsin

Bills Passed.—S 104, which passed the house May 29, proposes regulations for the licensing, inspecting and **regulating of hospitals** within the state S 509, which passed the senate May 27, proposes to authorize cooperative associations to establish and operate **nonprofit plans for sickness care**, including hospital care, for members through contracts with physicians, medical societies, hospitals and others The proposal would further provide that any person covered by such plan should be free to choose for sickness care any medical or osteopathic physician licensed in the state who has agreed to participate in the plan and abide by its terms, and no physician or osteopath shall be required to participate exclusively in any such plan

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Coming Medical Meetings

Alaska Territorial Medical Association, Fairbanks, July 28 30. Dr William J Blanton, Juneau, Secretary

American Neurological Association, Atlantic City, Marlborough Blenheim Hotel, June 16 18 Dr Walter O Klingman, 195 Ft. Washington Ave, New York 32, Secretary.

American Physiotherapy Association, Pacific Grove, Calif, July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Urological Association, Buffalo, N Y, Hotel Statler, June 30-July 3 Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn, Secretary.

Idaho State Medical Association, Sun Valley, June 16 19 Dr. William B Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St, Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30 July 2. Dr. B. B Souster, Lowry Medical Arts Bldg, St Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26 28. Dr. H. T Caraway, 115 N. 28th St, Billings, Secretary.

National Tuberculosis Association, San Francisco, June 16 19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19 20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

Wyoming State Medical Society, Sheridan, June 23 25. Dr. George E. Baker, 226 E. 2d St, Casper, Secretary.

GOVERNMENT SERVICES

ARMY

ANNOUNCE COURSE IN AVIATION MEDICINE

The recall of twenty Medical Corps Reserve Officers annually for a period of ninety days to attend a course of instruction and training in aviation medicine is announced by the War Department.

The course, which will be presented at Randolph Field, Texas, covers the principles and practice of medicine as applied to aviation and the performance of the "64" Physical Examination for Flying. Each graduate will receive a certificate designating him an aviation medical examiner.

Applicants must be under 40 years of age, meet minimum physical requirements for flying and have an efficiency index of 4.0 or above and be not currently designated a flight surgeon or aviation medical examiner. The first class will begin October 6 and extend through December 12. Government quarters will be available at Randolph Field for students enrolled in the course; facilities will not permit quarters for dependents. Applications for this training should be made by letter, accompanied by a copy of the WD AGO 64, "Physical Examination for Flying," to the Office of the Surgeon General, Attention: Military Personnel Division not later than August 15.

TIME EXTENDED FOR REGULAR ARMY COMMISSIONS

All officers and former officers of the Medical and Dental Corps of the Army will have until the end of July to apply for Regular Army commissions, the War Department has announced. Extension of time for applications for commissions for doctors and dentists was granted as a result of shortages in these classifications in the first three increments of the Regular Army Officer Integration Program. Earlier it was announced that sanitary and medical administrative officers with certain specialties would be allowed additional time in which to file for integration.

Any medical or dental officer who is now on active duty or who saw service with the Army during World War II hostilities will be eligible to submit his application to the Adjutant General. Former officers should address correspondence to the Adjutant General, Attention: AGSO-R, Washington 25, D. C. Applications from officers now on active duty may be submitted through military channels.

PUBLIC HEALTH IN JAPAN

The War Department announces that the military government of the Ryukyus on February 10 directed the establishment of leprosariums in the Ryukyus to provide complete quarantine and treatment of persons with leprosy in the communicable stage. It was estimated that there were about 250 leprous persons in the northern Ryukyus who would be confined to the Amami-O-Shima.

Diphtheria immunization for all children in the southern Ryukyus between the ages of 6 months and 10 years is in progress and 11,000 had been immunized by the end of February.

A separate public health department was set up in the northern Ryukyus, which began functioning March 1.

The number of Ryukyuans on relief in February was 42,623, a decrease from 58,000 in December. Increased and stabilized employment, along with tightening of relief requirements, counted for the relief increase.

MEDICAL EXHIBIT OPEN TO PUBLIC

The Exhibit Section of the Army Medical Museum has been expanded and is now open to the public in new quarters on Independence Avenue between 8th and 9th streets S.W., Washington, D. C. New quarters became necessary because of the acquisition of much new material. Exhibits on various diseases, comparative anatomy and embryology are on display, in addition to historical collections of coins, stamps and medical instruments. Current medical topics of interest are in preparation and will be opened to the public from time to time. These will include a large section on tropical diseases, collections of weapons and moulages depicting military injuries. Special sections containing exhibits relating to veterinary medicine and dentistry and other specialized phases of medicine are of particular interest.

PERSONAL

Vernon Tate, Ph.D., honorary consultant to the Army Medical Library and for many years chief, division of photographic archives and research, National Archives, Washington, D. C., will leave the National Archives to become librarian at the Massachusetts Institute of Technology, Cambridge, where he will direct a campaign to increase greatly the scientific holdings of that library.

ARMY AWARDS AND COMMENDATIONS

Colonel James C. Kimbrough

The Legion of Merit has been awarded to Col. James C. Kimbrough, M. C., U. S. Army, for exceptionally meritorious conduct in 1945. As commanding officer of Percy Jones Convalescent Hospital from April 23, 1945 to Dec. 23, 1945, states the citation, by virtue of his farsightedness, initiative, broad experience and attention to duty, he was responsible for the proper reorganization and enlargement of this hospital in the face of rapidly changing situations. Without benefit of previously approved plans he reorganized the hospital so that it fulfilled, admirably, existing as well as future needs. He selected and trained large numbers of personnel to fit the ever varying needs of the hospital. As a result of perseverance, innate affability and desire at all times to help patients, he raised the position of the Percy Jones Convalescent Hospital to the highest attainable, making it a constant source of pride to the Medical Department. Dr. Kimbrough graduated from Vanderbilt University School of Medicine in 1916 and entered the military service July 20, 1917.

Captain Orlo G. McCoy

The Bronze Star Medal has been awarded to Capt. Orlo G. McCoy, M. C., A. U. S., of Canton, Pa., who was battalion surgeon, 253d Armored Field Artillery Battalion, in which position he performed services beneficial to his organization in combat against the enemy from January to May 1945 in Luxembourg, Germany, Belgium and Czechoslovakia. The citation relates that he cared for the sick and wounded and gave expert medical attention to many casualties under fire throughout the battle of Bastogne and other important engagements on both sides of the Rhine. It states, further, that through his exceptional initiative, professional ability and wise counsel Captain McCoy aided greatly in keeping the health and morale of his unit at a high level and made an important contribution to its successful combat operations. Dr. McCoy graduated from the University of Pittsburgh School of Medicine in 1940 and entered the military service Oct. 1, 1942.

Lieutenant Colonel Sidney Vernon

The Bronze Star Medal has been awarded to Lieut. Col. Sidney Vernon, M. C., A. U. S., of Waltham, Mass., who, according to the citation, performed meritorious services on July 15, 1944 as a prisoner of war at Manila, Philippine Islands. By fearlessly requiring Japanese guards to permit him to remove stifling hatch covers from holds, and to rotate groups of prisoners on deck, he undoubtedly saved many Americans from suffocation. Dr. Vernon graduated from the Long Island College Hospital in 1930 and entered the service in July 1941.

NAVY

TRAINING IN MEDICAL ASPECTS OF ATOMIC ENERGY

In cooperation with the Committee on National Emergency Medical Service of the American Medical Association in the formulation of plans for national defense, the Navy is carrying out research and training personnel in the field of radiologic safety.

In December 1946 a six weeks intensive course in radiologic safety for medical officers was conducted at the Navy Department, Washington, D. C., at the Naval Medical Research Institute, Bethesda, Md., and at the Manhattan Engineer District Laboratories and Plants at Rochester, N. Y., and Oak Ridge, Tenn., for the purpose of training key personnel to be used in the indoctrination of additional personnel. Several of those who received the basic training are now receiving advanced training in radiation physics and chemistry, radiologic safety, nuclear physics and allied sciences in civilian institutions.

A number of trained navy medical officers are being used as instructors at the radiologic safety school for line officers which is being conducted at Treasure Island, Calif., and are teaching subjects relating to aspects of ionizing radiation.

Navy laboratories have been established in several localities to develop methods for the prevention of radiation injury to those who are making a study of the target vessels used in the Bikini bomb tests. At the Naval Medical Research Institute studies are being conducted concerning the biologic effects of radiation on the laboratory animals employed in the tests. In this connection the Bureau of Medicine and Surgery will present an exhibit on "The Medical Aspects of the Development and Utilization of Atomic Energy" at the Centennial Celebration in Atlantic City, June 9-13.

In an effort to provide essential information to medical personnel, the Bureau of Medicine and Surgery is now preparing a manual on radiologic safety for all medical officers (including Reserve officers on active and inactive duty), nurses and Hospital Corps personnel. This will contain the basic information not only on nuclear physics but also on certain medical aspects of atomic energy. Those who show interest and aptitude in this specialized field will be given advanced, personalized instruction.

It is believed that within a few months a faculty of well trained naval medical officers may be assembled for the purpose of giving a combined basic and advanced course in the medical aspects of atomic energy. The date of this course will be announced later.

PLASTIC SURGERY FACILITIES

The Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, has offered all facilities available in plastic surgery at the U. S. Naval Hospital, Houston, Texas, to aid in the reconstruction work of the burned patients of Texas City, following the disaster of April 16. This offer follows an announcement by Dr. I. Daniel Shorell of New York that he was calling for volunteers in the field of plastic surgery to help with the plastic work on the burn victims of that city. There are 350 persons in the hospitals of Texas City who need plastic surgery and many others who suffered disfiguring wounds. Admiral Swanson made this offer to both Dr. Shorell and Mayor J. C. Trahan of Texas City in order that the Navy might assist in this program as it did during the first few hours after the explosion.

VETERANS ADMINISTRATION

DEPENDENTS OF DECEASED VETERANS

The Veterans Administration reports that nearly 879,000 dependents of 557,000 deceased veterans of all wars and peacetime service are receiving compensation and pension checks from the Veterans Administration at the rate of over $32,000,000 a month; 396,000 are dependents of deceased World War II veterans. Of these, all but 3,525 are receiving compensation as the result of service connected death of the veteran; 363,000 are beneficiaries of deceased World War I veterans. Only 96,000 of these receive benefits resulting from service connected deaths. The rest are being compensated in cases of veteran deaths which did not result from service in the armed forces. The rolls also include 78,000 dependents of deceased Spanish-American War veterans, 19,000 from the Civil War, 2,345 from the Indian wars, 47 from the Mexican War and nearly 20,000 dependents of veterans who died in peacetime service. Of the dependents 372,000 are widows, 261,000 are children and 246,000 are parents of deceased veterans.

REORGANIZE NEW YORK CITY CLINIC

The New York Regional Veterans Administration has about completed reconstruction and administrative reorganization of its outpatient clinic at 252 Seventh Avenue, which regional office in March gave 87,200 treatments to 24,533 veterans. All types of illness are treated at the clinic by the staff of eighty full time doctors, seventeen dentists, twelve nurses, two hundred and forty-one technicians, seventy-nine consultants and numerous part time professional and subprofessional personnel in addition to the administrative staff. As of May 24 there were 16,241 requests for examination. Efforts were being made by night work to reduce this backlog so that veterans will no longer have to wait any longer than they would have to wait in a private physician's office. According to the New York *Times* an appointment system therefore has been instituted. Before the facilities were ready many of the men were sent to private physicians, but now only those are sent to private physicians that would suffer hardship if they had to come to the clinic. The potential veteran load for this area is estimated at 964,945 for the New York office and 335,839 for Brooklyn. A clinic will be opened in Brooklyn at 35 Ryerson Street during the summer.

NUMBER OF DISABILITY COMPENSATIONS OR PENSIONS

Living veterans receiving disability compensation or pensions now number 2,328,000. Their benefit checks total about $114,000,000 per month; 1,736,000 are World War II veterans, of whom all but 3,000 have service connected disabilities. The remainder is made up of 432,000 World War I veterans, 116,000 from the Spanish-American War, 99 from the Civil War, 873 from the Indian wars and 43,000 veterans disabled in peacetime service. The bulk of World War II claims, 1,208,000 cases, has been added to the rolls in the twenty months since VJ day. The number of new World War II disability claims filed per month has declined slowly from 70,000 in September 1946 to 50,000 last month. New awards in April totaled 12,638 cases, indicating that some 10,000 previously approved World War II awards were dropped during that month.

PERSONAL

Dr. J. A. Rosenkrantz has been appointed chief, outpatient department, Veterans' Hospital, Bronx, N. Y. He is a graduate of Columbia University College of Physicians and Surgeons, a specialist certified by the American Board of Internal Medicine and in the recent war served as commanding officer of an advance section of a medical laboratory and as chief of the medical service of a station hospital.

Dr. Joseph L. Kubanek, Detroit, has been appointed chief of the neuropsychiatry division at the veterans hospital, Dearborn, Mich. Dr. Kubanek for many years on the staff of the Wayne County General Hospital, has been certified by the American Board of Psychiatry and Neurology.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

DISTRICT OF COLUMBIA

Cancer Clinic for Children.—A new clinic for children with suspected cancer has been opened in Gallinger Municipal Hospital with funds from the National Cancer Institute of the United States Public Health Service. Its services are available to pediatricians throughout the district for examination, tests and diagnosis of children with abnormal growths. It is open every Wednesday at 12:30 p. m. Dr. Roy Hertz, Bethesda, Md., endocrinologist of the National Cancer Institute, is director.

Washington Diabetes Association.—The newly organized affiliate of the American Diabetes Association, organized in Washington for educational and scientific research purposes, consists of two groups: the Clinical Society, made up of qualified practitioners in the Washington metropolitan area or the state or county medical society in which they reside and physicians in military service or governmental departments and research workers in any field of medicine or its allied sciences. Associate members consist of dietitians, laboratory technicians, nurses and social workers. The Lay Society is made up of diabetic patients and their relatives and other laymen interested in the subject. Dr. John A. Reed is president and Dr. J. Ross Veal secretary-treasurer.

GEORGIA

University News.—Jose F. Nonidez, Sc.D., professor of anatomy, Cornell University Medical College, New York, on July 1 will succeed the late Dr. Joseph Krafka as head of the department of microscopic anatomy at the University of Georgia School of Medicine, Augusta.

Cancer Detection Clinic.—The Atlanta Cancer Detection Center has been organized by the Georgia Division, American Cancer Society, in space provided by the Sheffield Clinic, Georgia Baptist Hospital, Atlanta. Patients are seen by appointment only. No treatment is given.

IDAHO

State Medical Meeting at Sun Valley.—The annual session of the Idaho State Medical Association will be held in Sun Valley, June 16-19, at the Challenger Inn under the presidency of Dr. George C. Halley, Twin Falls. The scientific program will be provided by members of the faculty of Harvard Medical School, Boston: Drs. C. Sidney Burwell, internal medicine; Alan R. Moritz, legal medicine and pathology; Edward D. Churchill, surgery; Merrill C. Sosman, radiology; J. Hartwell Harrison, urology. Among the subjects to be reviewed are x-rays in the examination of the gastrointestinal tract; advances in the diagnosis and treatment of liver diseases; nature and treatment of surgical shock; neoplasms of the kidney: their differential diagnosis and treatment; management of high blood pressure; medical investigations of obscure and suspicious deaths in the interest of public safety, and nephrolithiasis: recent advances in diagnosis, treatment and prevention. There will be round table discussion groups for luncheon Monday, Tuesday and Wednesday with one of the guest speakers at each table. The annual banquet will be in the Lodge dining room Tuesday at 8:15 p. m. The Women's Auxiliary will meet June 16-19 also.

ILLINOIS

Five Deaths in Typhoid Epidemic.—The fifth death from typhoid in an epidemic that began early in April in Christian County was reported June 4. Baxter K. Richardson, senior administrative officer of the state board of health, said that he had received reports of 43 cases, all of which have been traced to an ice cream handler in Palmer. The state health department reported that the carrier had sold his business and returned to former employment as a steelworker elsewhere after agreeing to a modified quarantine.

Chicago

Epidemic Keratoconjunctivitis.—The Chicago Medical Society reports that several cases of epidemic keratoconjunctivitis have been reported in the Chicago area. In 1943 this disease swept eastward from the west coast and reached the epidemic stage. All suspected cases should be placed under immediate medical treatment and be reported to the health department.

Nursing Scholarships for High School Girls.—The Chicago Chapter, American Red Cross, will award student nursing scholarships to four senior high school girls of advanced standing who have taken the Red Cross Home Nursing training in their school course. The scholarships will cover all tuitio to the nursing school selected plus a monthly stipend for a period of three years.

Society Elections.—The Chicago Pediatric Society has elected the following officers for 1947-1948: Dr. H. William Elghammer, president; Dr. John L. Reichert, vice president; Dr. Alvah L. Newcomb, secretary, and Dr. Craig D. Butler, treasurer.——At the ninetieth annual meeting of the Chicago Academy of Sciences, May 12, Dr. Nathan Smith Davis was reelected president; William F. Henderson, Ph.D., and Leslie Arey, Ph.D., vice presidents.

Personal.—Dr. Andrew C. Ivy, vice president of the University of Illinois, left June 2 for Nuremberg, Germany, to serve as adviser at the trials of Nazi doctors charged wit crimes of a medical nature, serving as a special consultant t the secretary of war. He will return in three weeks. Dr. Iv has made two previous trips to Nuremberg, having serve as the United States representative on an international commission which investigated Nazi human experiments last Jul and having testified on the ethical principles of medical investigations, studies and experiments conducted by Nazi doctors o trial last January.

INDIANA

One Case of Smallpox at Elkhart.—Smallpox develope in a high school student in Elkhart late in April. Dr. Ivan J Markel, secretary, City Board of Health, reports that no othe case has developed and that the source of infection could not b determined.

Tumor Registry.—The Indiana Cancer Society, in collaboration with the state board of health and the cance committee of the state medical association, is setting up a tumo registry. It will develop a roster of all verified cases of cance which have been hospitalized within a given period. There ar seven hundred and thirty fully classified histories on file now

Dr. Barrett to Head Bureau of Local Health.—Dr Daniel C. Barrett, Bloomington, director, southeastern branc office, Indiana State Board of Health, has been appointe director of the Bureau of Local Health Administration. Dr Barrett, a graduate of Indiana University School of Medicine Bloomington, also holds a Master of Public Health degree fro Johns Hopkins University, Baltimore. He has served as medical director of city, county and district health department in Iowa, Kansas and Indiana, and during the recent war wa with the U. S. Public Health Service.

KENTUCKY

Rural Medical Scholarship Fund Exceeds Goal.—The statewide campaign to raise a rural medical scholarship fund of $100,000 has exceeded its goal by over $50,000. The campaign sponsored by the Kentucky State Medical Association and the University of Louisville School of Medicine ended with a dinner May 8, at which H. Fred Wilkie, chairman of the drive, presided. The campaign, launched last fall, was aimed to aid medical students by lending money for tuition on their pledge that they practice for a while in Kentucky's rural areas. According to the state department of health, unless more young doctors go into rural practice in Kentucky immediately there will be only 481 active practicing physicians in all of rural Kentucky, or 1 doctor to 4,159 people, as compared to 1 for every 1,500 considered necessary for adequate medical care. Besides Mr. Wilkie, Senator Henry Ward, Paducah, has been vice president and Dr. Irvin Abell, Louisville, headed the finance committee. Dr. Carl C. Howard, Glasgow, has been chairman of the fund's board of trustees.

MARYLAND

Society News.—At the semiannual meeting of the Baltimore City Medical Society April 11 Dr. William G. Lennox, assistant professor of neurology, Harvard Medical School, Boston, discussed "The Modern Treatment of Epilepsy."

Hospital Sesquicentennial.—Spring Grove State Hospital, Catonsville, the third oldest hospital for the treatment of the insane in the United States, celebrated its one hundred and fiftieth anniversary May 8 with an all day scientific program. Organized in 1797 for the medical treatment of seamen, it has grown to be a hospital of 2,214 beds.

MICHIGAN

Occupational Therapy Teaching Center.—Wayne University College of Medicine, Detroit, announces the opening of a new teaching center in Grace Hospital for its occupational therapy curriculum. Although the curriculum utilizes the facilities of three of Wayne's colleges and many of Detroit's clinical training facilities, the professional training itself will be offered at the new center. Medical phases of the instruction are to be directed by Dr. Max K. Newman, a psychiatrist at the hospital and a member of the Wayne faculty of medicine.

Personal.—Dr. Adolph T. Rehn, assistant medical superintendent of the State Home and Training School at Lapeer, has been appointed superintendent. A graduate of Wayne University College of Medicine, Detroit, he has been assistant physician and director of the feebleminded at the state hospital at Newberry at various times.——Dr. Fred O. Henker, formerly of the U. S. Public Health Service, has been appointed director of the Michigan Venereal Rapid Treatment Center at Ann Arbor to succeed Dr. Clement A. Smith, who has joined the staff of the University of Michigan Hospital.

Grant for Training Practical Nurses.—Wayne University's College of Nursing has received a grant of $26,400 from the W. K. Kellogg Foundation to finance a three year program in the training of teachers of practical nursing. This is the second major grant the foundation has made this year to the College of Nursing. A grant of $60,000 for the development over a three year period of advanced programs in medical, surgical and public health nursing was reported last January. The purpose of the new program will be to train nurse instructors who will be qualified to develop courses of instruction throughout the state for the training of practical nurses. The plan has been recommended jointly by the Michigan Council on Community Nursing, the Michigan Department of Public Instruction and the National Association for Practical Nurse Education.

NEW HAMPSHIRE

State Medical Meeting at Newcastle.—The annual meeting of the New Hampshire Medical Society will be held at the Hotel Wentworth, Newcastle, June 19-20 under the presidency of Dr. Ralph W. Tuttle, Wolfeboro. Round table conferences will open at 10 o'clock each morning, with general meetings following. Guest speakers include:

Dr. Hart E. Van Riper, New York, Poliomyelitis: Problems and Treatment.
Dr. Harrison L. McLaughlin, New York, Dislocations of the Shoulder.
Dr. Sara M. Jordan, Boston, The Peptic Ulcer Problem.
Dr. Dwight E. Harken, Boston, Surgery of the Heart.
Dr. Yale Kneeland Jr., New York, Antibiotics.
Dr. Harold W. Brown, New York, Indications for Early Surgical Correction of Strabismus.
Dr. John E. Howard, Baltimore, Male Hormone Deficiencies.
Dr. Nicholson J. Eastman, Baltimore, Episiotomy.
Dr. James R. Miller, Hartford, Conn., Internal Public Relations in Medicine.
Dr. Leland S. McKittrick, Boston, Clinical Aspects of the Surgical Gallbladder.

On Thursday night Harry H. Haight (MC), U.S.N., will present a technicolor movie of the Bikini incident. Friday afternoon fifty year membership certificates will be presented to Drs. Charles F. Nutter, Nashua, and Vladimir N. Sikorsky, Salem. An informal banquet will be held Friday at 7 p. m.

NEW YORK

Personal.—Dr. Harry A. Pattison, director of the Potts Memorial Institute, Livingston, N. Y., has been invited to read a paper on "Rehabilitation in the United States" at a joint meeting of the Tuberculosis Society of Scotland and the Tuberculosis Association of England and Wales on July 16. He will also attend the meeting of the National Association for the Prevention of Tuberculosis in London. Dr. Pattison will sail from New York on July 2.

Academy Adds a Section on Microbiology.—At the last meeting of the New York Academy of Medicine the request of a group of experts in the field of microbiology for the organization of the section of microbiology was approved. This, the twelfth section of the academy, will encourage the exchange of information among microbiologists and promote contacts between clinical and laboratory investigators. Dr. Gregory Shwartzman, Mount Sinai Hospital, New York, was elected chairman, and Dr. Harry Most, New York University College of Medicine, New York, secretary.

Tuberculosis in Upstate New York.—Tuberculosis in upstate New York is largely concentrated in Erie, Westchester, Monroe, Nassau, Onondaga, Albany, Oneida and Suffolk counties, which have 53 per cent of the upstate population; however, together they contribute 62 per cent of the total tuberculosis deaths, each having more than 50 per year. Thirty-eight other counties having 27 per cent of the total population contribute only 19 per cent of the total tuberculosis deaths. A study of deaths during 1944-1946 shows that out of each hundred thousand people 32 die of tuberculosis each year in the upstate area. The death rate varies in the fifty-seven counties from 10 in Yates County to 50 in Erie County. Most of the 1,980 deaths each year are among men and women in the most productive period of their lives.

New York City

Medical College Acquires Site for Expansion.—The Long Island College of Medicine, Brooklyn, on May 13 obtained title to a three block tract of land comprising 6 acres bounded by Clarkson, New York and Brooklyn avenues and Lenox Road, which tract is opposite the Kings County Hospital. An expansion program estimated to cost $5,450,000 in the initial phase is under way, and this tract will become a new campus for the medical school. The medical college, founded in 1860 as the teaching department of the Long Island College Hospital, was established in 1930 as an independent and privately operated medical school.

New York Academy of Medicine Awards.—At the Convocation of Fellowship meeting of the academy, April 24, eight Bowen-Brooks Scholarships of $500 each were presented to Drs. William Henry, New York; Joseph F. Hindman, Brooklyn; Martin H. Orens, Bellrose; Maurice S. Raben, Valhalla; Emanuel Lawrence Reichel, New York; Chauncey R. Southworth, New York; Stanley Stellar, Brooklyn, and Joseph R. Wilder, New York, all medical students. The Louis Livingston Seaman Award, given for aid and investigation in bacteriology or sanitary science, $1,000 to Professor James M. Neill, Ph.D., Cornell University Medical College, New York; $500 each to Dr. Arnold W. Pratt, New York Hospital, New York; Dr. Alwin M. Pappenheimer, New York University College of Medicine, New York, and Dr. Samuel J. Prigal, New York. The Edward N. Gibbs Memorial Prize of $1,500 was awarded to Dr. Stanley E. Bradley, assistant professor of medicine, Columbia University College of Physicians and Surgeons, New York.

Training and Research in Ophthalmology.—Extensive research is under way at the Eye Bank for Sight Restoration, Inc., with headquarters at 210 East Sixty-Fourth Street. The principal objectives are the discovery of a method for the preservation of corneal tissue over a longer time than seventy-two hours, improvement of surgical technic of corneal grafting, the use of fibrin as a substitute for sutures, and development of methods for transplanting vitreous. The eye bank has granted seven fellowships for research during the past year and sixteen scholarships for its training course on transplanting corneal tissue. Physicians from other countries who have come here on scholarships or fellowships from the eye bank include Dr. John D. Blum, Geneva, Switzerland; Dr. Walter Kornblueth of the Hebrew University, Jerusalem; Dr. Geminiano de Ocampo, Manila, instructor in eye, ear, nose and throat, Philippine General Hospital; Dr. M. K. Yue, Fukien China; Dr. P. K. Kuo, Shanghai, China, and Major M. M. A. Dubash, Bombay, India.

NORTH CAROLINA

Annual State Meeting at Virginia Beach.—The Medical Society of the State of North Carolina held its annual meeting May 12-14 at Virginia Beach, Va., under the presidency of Dr. William M. Coppridge, Durham. Out of state speakers at the general sessions were:

Dr. R. Franklin Carter, New York, Tumors of the Neck Encountered in General Surgical Practice.
Dr. Ashley W. Oughterson, New York, Strategic Planning for Control of Cancer.
Dr. J. Edwin Wood Jr., Charlottesville, Va., Significance of Renal Sodium Excretion in Congestive Heart Failure.
Dr. Raymond Hussey, Detroit, Human Relations Approach to Occupational Health.

Guest speakers at the sectional meetings Tuesday and Wednesday afternoons also included Dr. Harold W. Brown, New York, and Dr. Harry H. Ware Jr., Richmond, Va.

Professor Hollinshead Goes to Minnesota.—Dr. W. Henry Hollinshead, associate professor of anatomy, Duke University School of Medicine, Durham, has accepted the appointment of professor of anatomy, Mayo Foundation and Graduate School of Medicine, University of Minnesota, Rochester, Minn. He will organize and head a department of anatomy which is being established by the Mayo Clinic and will continue research on the peripheral nervous system and mechanisms in the reflex control of respiration and blood pressure. Dr. Hollinshead is one of the original staff of the Duke University School of Medicine, having been a member of the department of anatomy since 1930. He will assume his new duties July 1.

PENNSYLVANIA

Dr. Essick Honored.—At a testimonial dinner June 5 in Reading the mental hygiene committee of the Council of Social Agencies of Berks County honored Dr. Charles R. Essick, vice president of the board of the Guidance Institute of Berks County. Dr. Essick's interests include recreation for the children of the city, for whom he has donated tracts of land to provide park and playground space. He has promoted the program of the Reading Tuberculosis Association, of which he has been president, and the Guidance Institute, which he helped to establish.

Fifty Year Testimonials.—At the annual meeting of the 10th Councilor District in Pittsburgh May 15 twenty-two veteran physicians were presented with fifty year testimonials: Drs. Harry A. Barnhardt, Charles I. Buvinger, William A. Caven, E. Roy Gardner, Henry M. Hall Jr., Alexander R. Hampsey, Clarence H. Ingram, Edward E. Mayer, William P. McCorkle, Alpheus McKibben, William T. Pyle and William G. Shallcross, all of Pittsburgh; Charles G. Eicher, McKees Rocks; Clarence L. Leydic, Tarentum; John B. Rugh, Pitcairn; Alfred B. Sigmann, Bridgeville; Frederic S. Kellogg, Adrian, Mich.; John R. Owens, North Canton, Ohio; Edward G. Ankney, Pleasant Unity; John A. Boale, Vandergrift; Walter Witherspoon, Derry, and Robert M. Eagleson, New Castle. Dr. Howard K. Petry, Harrisburg, president of the Medical Society of the State of Pennsylvania, presented the testimonials. At a dinner of the Cambria County Medical Society in April six physicians were honored on the completion of fifty years of service in their profession. The six physicians so honored were Drs. Charles J. Hemminger, Somerset; David H. Sangston, Uniontown; Clarence B. Millhoff, Johnstown; Milton A. Noon, Everson; Charles W. Spragg, Waynesburg, and George S. Wallace, Marianna.

Philadelphia

Plans to Expand Two Municipal Hospitals.—The city council has allocated $5,000,000 for increasing the bed capacity and providing modern facilities at Philadelphia's two municipally owned hospitals. As a part of the $20,000,000 program plan, Mayor Bernard Samuel said that 1,000 additional beds would be provided at Philadelphia General Hospital, and a new 650 bed general hospital will be erected at the Philadelphia Hospital for Contagious Diseases. Plans for Philadelphia General Hospital are divided into four stages, permitting the demolition of obsolete structures and the erection of new buildings with minimum interference. A new dormitory for student nurses and interns residence, additions and alterations to the existing receiving ward, an operating building and power plant and a separate building for 600 patients suffering with chronic chest diseases are included in the plans. The 650 bed addition to Philadelphia Hospital for Contagious Diseases will not increase the present 1,050 bed capacity but will allow part of the present hospital structure to be utilized for the new general hospital. Tuberculous patients will be moved to Philadelphia General Hospital.

TEXAS

Texas Medical Center.—The third construction job to be started in the Texas Medical Center, Houston, will get under way within the next two weeks with excavation for the new $3,500,000 Hermann Hospital. The 395 bed hospital will bring the capacity of Hermann Hospital to 695, exclusive of bassinets, as the present institution has 300 beds. The new building will be at the northern edge of the medical center and eastward from the Professional Building now under construction. The latter fourteen story building will provide office space for doctors and dentists teaching and practicing in the center. The Baylor University College of Medicine building is nearing completion and will open its doors to students in September. It is the first completed building in the twenty-five or so proposed for the medical center.

VIRGINIA

Three Counties Unite in Health District.—Effective May 1, Surry County was joined to Sussex, Prince George and Dinwiddie counties, creating the Sussex-Prince George-Dinwiddie-Surry Health District with headquarters at Stony Creek. Dr. Francis J. Clements, Stony Creek, is the health officer.

J. Shelton Horsley Memorial Lecture.—Dr. Edward D. Churchill, the John Holmans professor of surgery at Harvard Medical School, Boston, delivered the first J. Shelton Horsley Memorial Lecture April 22 in Richmond on "Historical Notes on the Management of Wounds of the Thorax." This lectureship was established by Dr. Guy W. Horsley, Richmond, in memory of his father and will be given each spring at the regular meeting of the Richmond Academy of Medicine by medical men in the fields of surgery, physiology and pathology.

Changes in Health Officers.—Dr. Walter R. Johnson, Garrisonville, assumed duties as health officer of the Alleghany-Botetourt health district, with headquarters at Covington, Va., April 1.——Dr. Merle V. Bemis, Center Conway, N. H., has been appointed health officer of the Buchanan-Tazewell health district, with headquarters at Richlands, Va.——Mr. George W. Jones Jr., formerly assistant director, hospital division, Medical College of Virginia, Richmond, has been appointed to the state department of health to assist in the indigent hospitalization program.

WASHINGTON

State Urological Society.—Nineteen urologists met in Seattle April 17 and organized the Washington State Urological Society, which will petition the Washington State Medical Association for recognition as a section under that organization at the fall state meeting. Officers elected were Drs. Frank J. Clancy president, Jack N. Nelson vice president and Harold E. Eggers Jr. secretary-treasurer, all of Seattle. Dr. William L. Ross Jr., Yakima, was designated chairman of the organization committee, which will bring in a proposed constitution and by-laws at the next meeting. The purpose of the new society is purely scientific.

Dr. Allen Inaugurated President of University.—Dr. Raymond B. Allen, acting president of the University of Washington since July 1946, was inaugurated as president at ceremonies last month. Dr. Allen received his Ph.D. degree in neurology at the University of Minnesota, 1934. He was dean of Columbia University College of Physicians and Surgeons, 1934 to 1936, and associate director, New York Post-graduate Medical School and Hospital, Columbia University, 1932 to 1936. From 1930 to 1939 he was dean of Wayne University College of Medicine, Detroit, and from September 1939 to 1943 was executive dean of the Chicago colleges of the University of Illinois; from 1943 to 1946 he was dean of the University of Illinois College of Medicine, Chicago.

WISCONSIN

Dr. Meek Elected to National Academy.—Walter J. Meek, Ph.D., professor of physiology and associate dean of the Medical School of the University of Wisconsin, has been elected to membership in the National Academy of Sciences. From 1942 to 1945, in addition to duties in the department of physiology, he served as acting dean of the medical school in the absence of the dean. His contributions in the field of physiology have been extensive, the heart and vascular system having been the primary areas of his study. In addition, he has served as chairman of the advisory board of the William Beaumont Foundation, Inc.

Course in Care of Infantile Paralysis.—The University of Wisconsin Medical School, Madison, will present an intensive course in care and treatment of infantile paralysis during the week of June 23-28 at the Medical School and State of Wisconsin General Hospital and Wisconsin Orthopedic Hospital for Children in Madison. The course is being given under the auspices of the National Foundation for Infantile Paralysis, Inc., as well as the state organizations. Enrolment will be limited to physicians from communities throughout the state, who will be selected by the local Infantile Paralysis Organizations. The diagnosis of the disease and the immediate care of the patient will be emphasized. Further information may be obtained from Dr. Llewellyn R. Cole, coordinator of graduate medical education, the University of Wisconsin Medical School, 418 North Randall Avenue, Madison 6.

MEXICO

Meningitis Epidemic.—According to the Pan American Sanitary Bureau, 59 cases of epidemic cerebrospinal meningitis were reported in the city of Monterrey, State of Nuevo Leon, from February 15 to March 29. Forty more were reported during the first twenty-three days and 19 in the following three weeks; 12 cases and one death in the city of Saltillo, Coahuila from February 23 to March 16. In San Luis Potosi, 250 miles southward, 23 cases were reported in February and 16 in March.

GENERAL

International Congress of Experimental Cytology.—This society will meet in Stockholm, Sweden, July 10-17. The Swedish organization committee has planned the congress as a series of symposiums dealing with chemical constituents of the cell, submicroscopic structure of the protoplasm (including viruses), nuclear and cytoplasmic interactions, cell metabolism and development, growth and differentiation. Secretaries of the congress are Professor T. Caspersson and Docent H. Hydén, Karolinska Institutet, Institute for Cell Research, Stockholm.

International Spanish Speaking Physicians.—At a recent meeting of the board of directors of the International Spanish Speaking Association of Physicians it was decided to hold a Latin American Congress and a short questionnaire has been sent to its members requesting their opinion on where to hold the congress and in what month and on what subjects they prefer to read papers before the congress. The president and founder of this association is Dr. Jacob M. Gershberg, New York. The general secretary is Dr. William B. P. McDonough, 161 East Eighty-First Street, New York.

Cardiovascular and Respiratory Sounds.—An album of thirteen records, twenty-six sides, designed to reproduce the heart sounds and breath sounds in health and disease has been prepared by Dr. E. H. Stokes, Sydney, Australia, and recorded by Amalgamated Wireless (Asia) Limited. Records reproduce the normal heart sounds as well as the arrhythmias, murmurs and other adventitious sounds encountered in various types of heart disease. Normal and pathologic breath sounds are reproduced in like manner. The records are of the plastic variety and are singularly free from surface noise. The sounds are described in Australian accent.

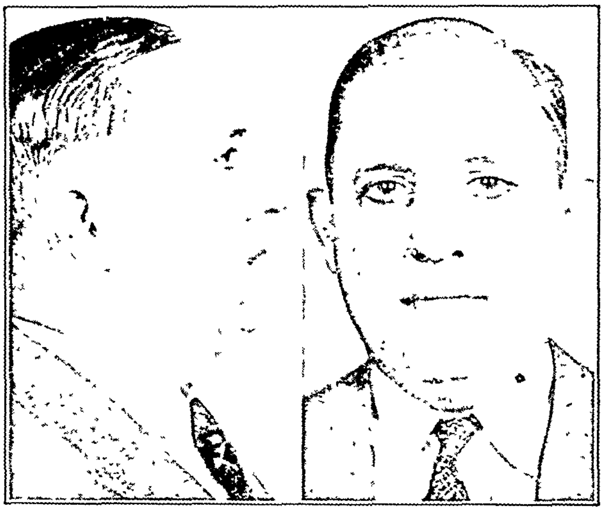
State Directors of Local Health Service.—The first postwar conference of State Directors of Local Health Services took place in Topeka, Kan., April 10-11. In attendance were representatives of twenty-two states having directors of local health services and delegates of other states. The group gave first consideration to the establishment of a basis for a permanent association, explored the possibility of district organization and 'blueprinted channels for more ready and profitable utilization of information on local health practice throughout the states and territories. Officers elected for the current year were Drs. Monroe F. Brown, Tennessee, president; John W. Shackelford, Oklahoma, and Vivian A. Van Volkenburgh, New York, vice presidents, and Mr. Richard F. Boyd, Illinois, secretary.

National Research Council Awards.—The National Research Council has announced the initial five awards under a $100,000 fund established by Merck & Co., Inc., to provide promising young scientists with further research training in the closely allied field of chemistry and biology. The selections made by the council from forty-nine applicants are Joseph Lein, New York, for advanced study at the California Institute of Technology on the specificity of enzymes produced by mutated and non-mutated genes in neurospora; Lorin John Mullins, Palo Alto, Calif., for advanced work at the Naples, Italy, Zoological Station on the experimental modification of permeability phenomena in marine vertebrates and invertebrates; Arthur Beck Pardee, Pasadena, Calif., for research at the University of Wisconsin in general physiology, histology, cytology and related fields as preparation for a career in medical research, and B. Roger Ray, Nampa, Idaho, for work at the Rockefeller Institute for Medical Research, New York, on the determination of movements of salts through certain nonaqueous solutions by means of high speed centrifugation.

Special Society Elections.—At the annual meeting of the American Pediatric Association in Philadelphia, May 21, Dr. William C. Menninger, Topeka, Kan., was named president-elect to succeed Dr. Winfred Overholser, Washington, D. C., who assumed the presidency. Dr. Leo H. Bartemeier, Detroit, was elected secretary and Dr. Howard W. Potter, New York, treasurer.——At the recent meeting of the National Academy of Sciences Dr. Alfred N. Richards, vice president in charge of medical affairs of the University of Pennsylvania School of Medicine, Philadelphia, was elected president. Frederick E. Wright, Ph.D., Carnegie Institution, Washington, was reelected home secretary.——At the meeting of the American Society for Pharmacology and Experimental Therapeutics, Chicago, May 18 to 22, the following officers were elected: Dr. Maurice H. Seevers, department of pharmacology, University of Michigan Medical School, Ann Arbor, Mich., president; Dr. Carl A. Dragstedt, professor of pharmacology, Northwestern University Medical School, Chicago, vice president; Dr. Harvey B. Haag, Medical College of Virginia, Richmond, secretary, and Dr. Ko Kuei Chen, Indianapolis, treasurer.

Meetings of World Health Organization Committees.—Three expert committees of the World Health Organization Interim Commission have held meetings recently, the first in Ottawa, Canada, March 10-21, when the International Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death convened. Detailed recommendations were made for consideration by the sixth decennial conference, which is scheduled to meet in Paris in March 1948. The Subcommittee for the Revision of the Pilgrimage Clauses of the International Sanitary Conventions met in Alexandria, Egypt, April 16 and made an eight day field inspection of the Suez area, El Tor, Jidda and other points. This committee is formulating recommendations on revision of sanitary convention clauses governing health aspects of pilgrimages. The Expert Committee on Malaria convened in Geneva, Switzerland, April 21, for five days. Recommendations of that committee will be made to the World Health Organization Interim Commission and will be considered by its Committee on Epidemiology and Quarantine when it meets in the fourth session in Geneva on August 30.

Warning—Stock Swindler Among Physicians.—Hobart M. Prosser, alias Harry Moore, is being sought by the Federal Bureau of Investigation on a warrant issued for his arrest June 6, 1946 at Louisville, Ky. After inveigling physicians to buy Canadian stocks, he manages to regain possession of the stock and disappears. He is 64 years old, 5 feet 6½ inches tall, weighs 160 pounds, has brown eyes and hair and is medium stout. He has a brown mole on the back of his left hand, an irregular scar on his upper lip and another on his left temple. He has had a colostomy. His former residence is Oak Park, Ill. Any person having information which may assist in locating Prosser is requested to notify immediately the director of the Federal Bureau of Investigation, U. S. Department of Justice, Washington, D. C., or the nearest special agent in charge of the division of the Federal Bureau of Investigation.



Hobart M. Prosser, alias Harry Moore.

Marriages

Emory Arthur Rittenhouse, McKeesport, Pa., to Miss Ellen A. Cheves of Atlanta at Fort Myer, Va., recently.

Richard Morris Moore, Des Moines, to Miss Polly Van Zile of Evanston, Ill., in Bloomington, Ill., Dec. 21, 1946.

Walter Stauffer Price, Washington, D. C., to Miss Patricia Jean Darling of Lowell, Mass., recently.

Dorn C. Pittman of Fairmont, N. C., to Miss Betty Mitchell of Winston-Salem February 22.

Roscoe F. Morton, Dumas, Ark., to Miss Mary Jane Tolliver of Carthage, Mo., February 22.

Milton L. Kroungold to Miss Betty Roseman, both of Philadelphia, Sept. 18, 1946.

Alexander Leavitt to Miss Beatrice Schiffman, both of Brooklyn, in February.

Deaths

Eben James Carey ⊕ dean and professor of anatomy at Marquette University School of Medicine in Milwaukee, died June 5, aged 57, of acute infectious hepatitis. Born in Chicago July 31, 1889, Dr. Carey attended high school in Los Angeles and took his premedical work and two years of medical studies at the University of California in Berkeley-San Francisco. He graduated from Rush Medical College Chicago, in 1925, and served an internship at the Presbyterian Hospital in that city. He received the bachelor of science, master of science and doctor of science degrees from Creighton University in Omaha, where he taught for six years before coming to Marquette University in 1920. While at Marquette he was dean of medical students from 1921 to 1928, medical director of the Free Dispensary from 1924 to 1928 and chief of staff of the University Hospital from 1926 to 1928. He was commissioned a first lieutenant in the Reserve Officers' Training Corps and later became a lieutenant colonel in the National Guard of Wisconsin. He was a fellow of the American Association for the Advancement of Science and the New York Academy of Medicine, a member of the Milwaukee Academy of Medicine, serving as its president in 1939 and 1940, Chicago Institute of Medicine, the American Association of Anatomists and a former vice president of the Association of American Medical Colleges. The Radiological Society of North America awarded him a gold medal in 1933 in recognition of his x-ray study of bone growth. He was chairman of the program committee of the council on scientific work of the State Medical Society of Wisconsin, which in 1938 presented him with the Council Award. In 1931 he was chairman of the scientific exhibition of the Interstate Postgraduate Assembly in Milwaukee. During the Century of Progress in Chicago in 1933 and 1934, Dr. Carey was director in charge of medical exhibits. He was a member of the advisory committee on medical exhibits at the Texas Centennial in Dallas in 1935 and 1936, the Golden Gate International Exposition in 1939, and since 1931 had been director of medical science exhibits at the Museum of Science and Industry in Chicago. He was a member of the Council on Physical Medicine and of the advisory committee of the Scientific Exhibit of the American Medical Association. He was awarded the silver medal of the Association for an exhibit on the dynamics of origin, structure and repair of bone at the convention in Minneapolis in 1928, a citation of merit at the convention in Portland in 1929 for his exhibit illustrating a continuation of the experimental studies on bone growth, citation of merit in Detroit in 1930 and Philadelphia in 1931, in 1937 at Atlantic City, the silver medal for an exhibit on intrinsic wave mechanics of the nervous and muscular systems; and in 1942 in Atlantic City he received a gold medal for his exhibit on experimental ameboid motion of motor end plates. Dr. Carey was the author of "Studies in Anatomy" published in 1924 and of many scientific articles. More recently he gave much time to research on poliomyelitis. He was especially devoted to the advancement of medical education and to the education of the public in health.

Eben James Carey, M.D., 1889-1947

Arthur D. Knott ⊕ Camilla, Ga.; born in Belton, Texas, June 27, 1876; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; formerly professor of preventive medicine and hygiene at the Medical College of Virginia, Richmond; health officer of Mitchell County; for many years health officer of Wood County in Parkersburg, W. Va.; at one time health commissioner of Accomack County in Virginia; past president of the West Virginia Public Health Association and the Ashley County (Ark.) Medical Society; fellow and life member of the American Public Health Association; served during World War I; received his degree of doctor of public health from Johns Hopkins University in Baltimore; died in the Archbold Memorial Hospital in Thomasville, March 19, aged 70, of coronary occlusion.

George Hale Ryder, Quincy, Mass.; Harvard Medical School, Boston, 1919; member of the American Medical Association and the New England Ophthalmological Society; fellow of the American College of Surgeons; for many years affiliated with the Massachusetts Eye and Ear Infirmary in Boston and consulting surgeon at the Norfolk County Hospital in Braintree; consulting surgeon at Quincy City Hospital; specialist certified by the American Board of Ophthalmology; formerly on the faculty of Tufts College Medical School and Harvard Medical School; died March 12, aged 72, of coronary thrombosis.

Howard David MacFarland ⊕ Utica, N. Y.; Baltimore Medical College, 1910; member of the American Urological Association; past president and for many years treasurer of the Oneida County Medical Society; member of the staff of the Faxton Hospital, where he had been president for many years; consulting physician, St. Elizabeth Hospital, Utica Memorial Hospital and the Broadacres Sanatorium; formerly health officer of Rome, where he had been on the staff of the Rome Hospital; died March 6, aged 59, of skull fracture received when he fell from a third story window.

John Morgan Settle, Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1929; member of the American Medical Association; fellow of the American College of Surgeons; associate in obstetrics and gynecology at the Medical College of the State of South Carolina; specialist certified by the American Board of Obstetrics and Gynecology; on the staffs of St. Francis Xavier Infirmary and the Baker Memorial Sanatorium; died in the Roper Hospital March 25, aged 41, as a result of burns received in December when he fell asleep while smoking.

George A. Anderson, Springville, Utah; Jefferson Medical College of Philadelphia, 1909; formerly mayor of Springville; on the staff of the Utah Valley Hospital in Provo; died March 28, aged 65, of heart disease.

Henry Watson Armistead, Indianapolis; Meharry Medical College, Nashville, 1894; died in the City Hospital March 25, aged 79, of arteriosclerosis.

Henry Grady Banister, Ila, Ga.; Emory University School of Medicine, Atlanta, 1916; member of the American Medical Association; served during World War I; died in Clearwater Beach, Fla., March 2, aged 55, of carcinoma of the lungs.

Everette Erwin Butler, Louisville, Ky.; University of Louisville Medical Department, 1918; member of the American Medical Association; on the staff of the Norton Memorial Infirmary; died in Vero Beach, Fla., March 23, aged 54, of injuries received in an automobile accident.

William Howard Cantrell, Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1940; member of the American Medical Association; served during World War II; died March 9, aged 32, of acute dilatation of the heart.

Salvatore Castallo ⊕ Providence, R. I.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1896; died March 18, aged 75, of cardiovascular disease.

Thomas E. Chapman, St. Paul, Va ; Kentucky University Medical Department, Louisville, 1904; served during World War I; died in Norton March 17, aged 69, of cerebral hemorrhage.

Charles Matthew Coe, St. Louis; College of Physicians and Surgeons of Chicago, 1883; died March 21, aged 88, of chronic myocarditis.

John George Dickert ⊕ Englewood, N. J.; Long Island College Hospital, Brooklyn, 1893; also a graduate in pharmacy; an Affiliate Fellow of the American Medical Association; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; served as consulting surgeon, Brooklyn Eye and Ear Hospital and the Bethany Deaconess Hospital, Brooklyn, where he died March 13, aged 75, of gangrenous cholecystitis.

Thomas Roche Donovan ⊕ Fitchburg, Mass.; Tufts College Medical School, Boston, 1909; member of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; on the staff of the Burbank Hospital; died March 30, aged 64, of bronchopneumonia and arteriosclerotic heart disease.

Paul Harold Ellis ⊕ Omaha; John A. Creighton Medical College, Omaha, 1899; past president of the Omaha-Douglas Counties Medical Society; died in Los Angeles March 12, aged 70, of coronary thrombosis and carcinoma of the ileum.

Edward Stanley Emery Jr., ⊕ Boston; Harvard Medical School, Boston, 1920; instructor in medicine at his alma mater; specialist certified by the American Board of Internal Medicine; member of the American Gastro-Enterological Association and the American Society for Clinical Investigation; on the staff of the Peter Bent Brigham Hospital, where he died March 15, aged 52, of coronary occlusion.

Henry Wilson Fancher ⊕ Thompsonville, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; interned at the West Baltimore General Hospital in Baltimore and the New Britain (Conn.) General Hospital; served during World War I; on the staffs of the Springfield and Wesson hospitals in Springfield, Mass.; died March 19, aged 47, of coronary thrombosis.

John Lee Farmer ⊕ Passed Assistant Surgeon, Lieutenant Commander, U. S. Navy, retired, San Diego, Calif.; Baylor University College of Medicine, Dallas, 1918; entered the U. S. Navy on Jan. 5, 1921; retired June 1, 1932 for incapacity resulting from an incident of the service; since 1942 anesthetist at the San Diego County General Hospital; died in the U. S. Naval Hospital January 10, aged 52, of cerebral hemorrhage.

Jasper Jewett Garmany, New York; Bellevue Hospital Medical College, New York, 1882; formerly clinical professor of surgery at the New York University College of Medicine; died March 26, aged 88, of heart disease.

Harrison Milton Gibson ⊕ Moline, Ill.; Rush Medical College, Chicago, 1920; president of the staff of the Moline Public Hospital, where he died March 16, aged 52, of cerebral edema caused by cerebral thrombosis.

Robert Hall Glover, Philadelphia; University of the City of New York Medical Department, New York, 1894; for many years a medical missionary; since 1943 home director emeritus of the China Inland Mission; died March 23, aged 75.

Emil Hahn ⊕ Cincinnati; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; served during World War I; on the staff of the Jewish Hospital, where he died March 8, aged 66, of carcinoma of the esophagus.

Louis Joseph Halloin, Luxemburg, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; died March 2, aged 79, of injuries received when struck by an automobile as he was crossing the street.

John Alexander Hunter, Cleveland; University of Wooster Medical Department, Cleveland, 1912; member of the American Medical Association and the Cleveland Academy of Medicine; an examiner for a draft board during World War II; on the staff of the Polyclinic Hospital; died March 25, aged 64, of coronary disease.

George Rheems Irwin ⊕ Bridgeport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; school physician; member of the police commission; Reading railroad physician; died in Norristown, Pa., March 16, aged 78, of injuries received when struck by an automobile as he was crossing the street.

Thomas Zadock Johnson, Walnut Ridge, Ark.; Memphis (Tenn.) Hospital Medical College, 1902; member of the American Medical Association; past president of the Lawrence County Medical Society; died March 1, aged 75, of cerebral hemorrhage.

Charles William Karraker ⊕ Louisville, Ky.; Louisville and Hospital Medical College, 1908; past president of the board of the Kentucky Baptist Hospital, where he died March 14, aged 65, of coronary occlusion.

Jacob Meek Lanning ⊕ Miami, Okla.; Memphis (Tenn.) Hospital Medical College, 1902; died March 7, aged 72.

Daniel Henry Lawler, Hammond, Ind.; University of Maryland School of Medicine, Baltimore, 1912; member of the American Medical Association; served during World War I; director of health of the public schools; died March 15, aged 59, of coronary embolism.

Raymond Vincent Lawrence ⊕ Rochester, N. Y.; University of Buffalo School of Medicine, 1913; served during World War I; member of the Rochester Academy of Medicine; on the staff of St. Mary's Hospital; died March 12, aged 57, of myocarditis.

John Joseph McDermott ⊕ St. Joseph, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1914; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; affiliated with the Mercy Hospital in Benton Harbor and St. Joseph Sanitarium; died in the Wesley Memorial Hospital, Chicago, March 19, aged 59, of myocardial infarction.

John Roy McDowell ⊕ Lakewood, Ohio; Western Reserve University Medical Department, Cleveland, 1905; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America; served overseas during World War I; on the staff of the Lakewood Hospital, where he died March 10, aged 68, of coronary occlusion.

Edward C. Nast, Douglas, Wyo.; Denver and Gross College of Medicine, 1906; died in the Converse County Memorial Hospital March 24, aged 64, of myocarditis.

John Southworth Niles Sr., ⊕ Carbondale, Pa.; Jefferson Medical College of Philadelphia, 1891; fellow of the American College of Surgeons; joined the staff of the Emergency Hospital, which later became the Carbondale General Hospital, where he resigned as chief of staff in 1944, a position he had held for many years; died March 21, aged 84, of coronary occlusion.

Michael A. O'Hare, Cincinnati; Miami Medical College, Cincinnati, 1905; member of the American Medical Association; died March 12, aged 68, of hypertensive heart disease.

Hiram Olsan ⊕ Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1909; died March 18, aged 63, of coronary occlusion.

Hovhanness Kevork Peltekian, Baltimore; Baltimore Medical College, 1893; served during the Spanish-American War and World War I; major, medical reserve corps, not on active duty; member of the Association of Military Surgeons of the United States; on the staff of the Maryland General Hospital, where he died March 8, aged 75, of coronary occlusion

J. Edward Richmond, Weirton, W. Va.; Louisville (Ky.) Medical College, 1905; member of the American Medical Association; past president of the Hancock County Medical Society; served as health officer of Hollidays Cove, physician for the state police and on the staffs of the Ohio Valley Hospital and the Gill Memorial Hospital in Steubenville; died March 13, aged 64, of coronary disease.

Albert F. Schmeling, Columbus, Wis.; Milwaukee Medical College, 1898; died in St. Mary's Hospital February 2, aged 79, of cerebral thrombosis and cerebral arteriosclerosis.

William Lord Smith, New York; Harvard Medical School, Boston, 1892; an associate of the American Museum of Natural History in New York; fellow of the Royal Geographical Society; died in the Brattleboro Retreat in Brattleboro, Vt., recently aged 83, of bronchopneumonia and cerebral arteriosclerosis.

Charles R. Vance, Bristol, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1891; member of the Medical Society of Virginia and the American Medical Association; veteran of the Spanish-American War; died February 26, aged 79, of coronary thrombosis and cerebral embolus.

Morley S. Vaughn, Carleton, Mich.; Detroit College of Medicine, 1912; interned at the Jackson City Hospital in Jackson, where he served as chief physician and surgeon at the State Prison of Southern Michigan; affiliated with the Monroe (Mich.) Hospital, where he died March 15, aged 59, of chronic nephritis.

Theodore Luther Vosseler ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1905; associate professor of anatomy at his alm mater; fellow of the American College of Surgeons; surgeon, Carson C. Peck Memorial Hospital; consultant, Brooklyn Eye and Ear Hospital; died March 20, aged 72, of coronary thrombosis.

Grant Bixler Weaver, Lancaster, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1906; served overseas during World War I; served as medical inspector for the U. S. Veterans Bureau; on the visiting staff of the St. Joseph's Hospital; died March 10, aged 67, of heart disease.

Foreign Letters

AUSTRALIA

(From Our Regular Correspondent)

April 1, 1947.

Free Medical Services Still a Long Way Off

The minister of health and social services in the commonwealth government said in Sydney recently that the free medical services envisaged under the referendum were from ten to fifteen years distant. Plans at the moment were almost nonexistent. The commonwealth had to face shortages of materials, equipment and personnel as well as the difficulty of agreeing on doctors' payments. The free medical services scheme called for an institute for training doctors, nurses and administrators; pathologic laboratories; x-ray, maternity, gynecologic and tuberculosis hospitals; research institutes; the manufacture, sale and distribution of medical equipment, and provision of specialist services. A vast increase in the demand for better hospitals would call for hospital administrators of a high caliber.

Director of Medical Research for Queensland

Dr. Ian M. Mackerras, one of Australia's leading entomologists, has been selected from eleven overseas and two Australian applicants as director of the new Queensland Institute of Medical Research. The purpose of the institute is to carry out research into any factor, social or economic, affecting the health of the public. A veteran of both world wars, Dr. Mackerras was responsible for much of the army's malaria control and associated entomologic and field parasitologic work. His investigations on scrub thyphus, anopheline vectors of malaria and transmission of dengue fever made possible the control of these diseases, which played such an important part in the Southwest Pacific campaign. In 1944 Dr. Mackerras was sent by the army director general of medical services to England and America to study research work being performed in the chief malaria research laboratories in those countries. He later visited Panama, West Africa and Canada to make additional studies.

An Australian Tuberculosis Association

At the fifth session of the Australian Medical Congress in Adelaide, South Australia, in 1937 tuberculosis was given special consideration. Emphasis was laid on governmental responsibility in tuberculosis control. Not that the obligations of the medical practitioner in the care of the individual patient were minimized, but his efforts were shown to be only partially effective unless allied to active and whole hearted departmental cooperation.

The idea that one tuberculosis association should be brought into being to cover the whole commonwealth originated in South Australia when the South Australian Tuberculosis Association adopted its new constitution in 1943. Among the objects was a determination to foster the formation of an Australian National Tuberculosis Association. A draft constitution for an all Australian association was submitted to a committee convened for the purpose in New South Wales. It was agreed that the Australian Tuberculosis Association should be formed and should consist of six branches, one from each state. By the agency of such a body, it was thought that propaganda could be directed to state and federal governments and that this propaganda should work for increased efforts to eradicate the disease and for the securing of adequate economic relief for sufferers and their dependents. It was also considered that steps should be taken by means of leaflets, films and radio and press publicity to form an enlightened public opinion so strong and held by such numbers of people that governments in office would be forced to take notice, since the opinion of the people who elect them to office is the only kind of opinion which influences politicians. A third advantage of the projected association would be the encouragement of the study of the disease in all its forms and relationships. Much of the setup for the association has been culled from the National Association for the Prevention of Tuberculosis in England and from the constitutions of associations in Canada and the United States. The new association will not be concerned with treatment. It will help to create conditions in which treatment can be undertaken with the greatest possible benefit to the individual patient and to the community. The ultimate aim is the increase of preventive treatment and the decrease of curative treatment until a stage is reached at which the latter will seldom need to be used.

Prevention of Silicosis with Aluminum

Although there is no evidence that the inhalation of aluminum powder affects established silicosis, the method is justified as a prophylactic under some circumstances. This was the general summary of a report by Dr. W. E. George of the Bureau of Medical Inspection, Broken Hill, New South Wales, after a visit to Canada and the United States to study the use of different types of aluminum powder in the prevention and treatment of silicosis. Dr. George reported that there was sufficient experimental evidence to justify the use of aluminum powder as a prophylactic, under strict supervision, in some circumstances. If, in an industry, the employer found that silica dust was still being inhaled by his employees after the reduction of the dust hazard to its economically practicable minimum, or if the men employed showed a susceptibility to silicosis or evidence of the progression of preexisting silicosis, they should receive aluminum inhalation treatment on a voluntary basis, provided they showed no evidence of active tuberculosis. In addition to receiving the aluminum, such men should be removed from exposure to silica dust.

Dr. George also considered that a course of prophylactic aluminum treatment could be given to men who have been exposed to dangerous quantities of silica dust within the past two years (provided tuberculosis is not present), regardless of lack of hazard in their present occupation. Also if it should become necessary to expose men to known hazardous concentrations of silica-containing dust which, because of the nature of the process, cannot be satisfactorily controlled by engineering methods, these men should receive aluminum powder by inhalation during the period they are exposed to such hazard.

However, emphasis is laid on the fact that constant supervision of the aluminum powder treatment and the recording of careful clinical observations, including periodic lung x-ray examination, are necessary if the true value of the process is eventually to be assessed. All treatment with aluminum powder should be on a voluntary basis, after its experimental nature has been explained to those whom it is proposed to treat. There is no justification at present for applying aluminum treatment to all employed in an industry unless there is definite evidence that silicosis is being produced in that industry. Aluminum inhalation should not be used indiscriminately. The best method of prevention of the development of silicosis remains the elimination of the dust hazard by controlling the liberation of dust into the atmosphere at its point of origin, and under no circumstances should the use of aluminum be permitted to lead to any relaxation in the control of silica hazards by competent engineering and medical supervision.

These conclusions seem consistent with those reached in the joint Council reports on the prevention and treatment of silicosis (The Journal, April 27, 1946, p. 1223).

Correspondence

VACCINATION AGAINST SMALLPOX

To the Editor:—In view of the nationwide problem of vaccination against smallpox which now faces this country, it is significant that a number of simple, yet very important, details are not common knowledge among the public and the medical profession.

In private practice the matter of dressings is a constant source of discussion between physician and patient or parent of the child to be vaccinated. Considerable conservation of time and avoidance of misunderstanding can be effected by placing a plain band-aid over the insert immediately after vaccination. In my experience no harm can come from such a type of dressing. This may be removed the following day, and further dressings need not be used. However, with the appearance of the vesicle (about the fourth day) daily application of 3 per cent picric acid solution in medicated ("rubbing") alcohol produces a hard, resistant vesicle. To quote the original source of this information (Ratner, Bret: Allergy, Anaphylaxis and Immunotherapy, Basic Principles and Practice, Baltimore, Williams & Wilkins Company, 1943, p. 271), "Much or all of the difficulty of the subsequent care of the vaccination can be prevented by daily application to the vesicle of a 3 per cent picric acid solution in medicated alcohol. This produces a hard, resistant vesicle. The child can be bathed throughout the period of vesiculation and pustulation. Secondary infection is minimized, no protection is needed, scarring is lessened because of the smaller degree of pustulation and finally itching is reduced. There is no interference in any way with successful vaccination. I have used this method for the past twenty years with complete satisfaction, after having read about its use by a medical army officer in some journal which reference I cannot recall. Schamberg and Kolmer (1911) also report on this method, advising the use of 4 per cent picric acid solution in 70 per cent alcohol." I have observed the formation of a hard, resistant vesicle within twelve to twenty-four hours after several applications of 3 per cent solution in medicated ("rubbing") alcohol, and the parents have unanimously praised the procedure.

Since occasional instances of postvaccinal tetanus have been reported, every effort should be made to immunize infants and children against the disease (tetanus) preceding vaccination. It is therefore pertinent that the alum precipitated toxoid can be given at intervals of three to four weeks (instead of three months) without interfering with the development of adequate immunity (to be published later). Hence the present nationwide urge toward vaccination against smallpox can be utilized to immunize against tetanus (alone or against diphtheria simultaneously by the use of diphtheria-tetanus toxoid). Obviously, the absence of immunity against tetanus should not deter the physician from vaccinating, particularly if the picric acid solution (as described) is employed.

The selection and preparation of the site for vaccination justify comment. The use of the deltoid region is safer than the lower extremity (less likelihood of infection). With the multiple pressure technic, using a very small insert, supplemented by the use of the picric acid solution in alcohol, the problem of disfiguring scars may be dismissed. The best technic is described by Ratner (see previous reference): "The skin of the upper arm in the region of the depression formed by the insertion of the deltoid muscle should be gently but thoroughly cleansed with acetone on sterile gauze or cotton and wiped or allowed to dry a few seconds. Acetone is suggested as a cleansing agent rather than alcohol for the following reasons: 1. It is a more efficient cleanser. 2. It is cheaper. 3. It is not denatured with substances which may possibly affect the vaccination result. 4. It evaporates more rapidly. 5. Approximately 200 vaccinations performed after the use of acetone and alcohol on alternate subjects resulted in more successful vaccinations with acetone than with alcohol."

Most patients or parents find it difficult to understand the course of vaccination (no immunity, partial immunity, complete immunity and unsuccessful). Verbal descriptions leave them more confused than enlightened. Consequently a colored description of the various types of take is of value. A good example may be found in Holt and McIntosh's textbook of pediatrics. I have used this for instruction in my office and have found it invaluable. It would be very helpful to have an office form describing the various types of local reaction so that parents could determine whether or not the vaccinations have pursued a proper course.

A word of caution is indicated concerning constitutional reactions to vaccination. The appearance of fever and associated complaints with the appearance of the pustule may or may not be caused by the vaccination. I can recall several instances in which constitutional complaints at the time of the pustulation were caused by other diseases (e. g. influenza bacillus meningitis, membranous tonsillitis).

It is commonly believed (at least by the public) that failure of repeated attempts at vaccination indicates immunity. Obviously this belief is an error. Sir William Osler could not be vaccinated successfully but developed smallpox following clinical exposure (see Harvey Cushing's Life of Osler).

Ralph Spaeth, M.D., Chicago.

EOSINOPHILIC GRANULOMA OF BONE

To the Editor:—In The Journal, April 26, there appeared an editorial comment on eosinophilic granuloma of bone. The statement is made "Neither have any visceral lesions been described, a curious feature inviting close study."

I wish to call attention to "Eosinophilic Granuloma of Bone—Report of a Case with Multiple Lesions of Bone and Pulmonary Infiltration" (*Arch. Int. Med.* **79**:176 [Feb.] 1947) by Albert Weinstein, Herbert C. Francis and Bertram F. Sprofkin. In this case are described lesions in the lungs which were best explained by the eosinophilic granulomatous lesion which was proved to be the nature of the bone lesions. These pulmonary changes disappeared under x-ray therapy as did the bone lesions. We feel very strongly that this is a true instance, and therefore the initially reported example, of a visceral lesion as part of the clinical picture of eosinophilic granuloma of bone.

The possible relationship of Letterer-Siwe's disease, Hand-Schüller-Christian syndrome and eosinophilic granuloma were emphasized in our report by tabulating the data presented in the review by Mallory (Medical Progress: Pathology: Disease of Bone, *New England J. Med.* **227**:995 [Dec. 10] 1942).

Albert Weinstein, M.D., Nashville, Tenn.

To the Editor:—I wish to draw your attention to the case report by Dr. Eulyss R. Troxler and myself in the *Annals of Internal Medicine* (**25**:960 [Dec.] 1946). This is with reference to the editorial comment on eosinophilic granuloma of bone in The Journal, April 26, page 1284.

Our case demonstrates the skeletal, cerebral and pulmonary manifestations of generalized xanthomatosis. Eosinophilic granuloma represents only one phase of this generalized disease. We believe that wherever there is reticuloendothelium there can be lipoid granulomatosis. Thus the clinical symptoms produced depend on the tissues involved and the degree of involvement. Many names have been given to these various manifestations, such as eosinophilic granuloma of bone, Hand-Schüller-Christian syndrome and Letterer-Siwe disease.

David Niemetz, M.D., Beverly Hills, Calif.

POSTGRADUATE COURSES FOR VETERAN AND CIVILIAN PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for Period July 1, 1947 to Jan. 15, 1948

Medical schools, hospitals, state medical societies and other medical educational institutions and organizations are providing the Council with a growing body of information on courses designed primarily to meet the needs of returning medical officers. These have been incorporated into the lists on these pages. They are not specifically designated for veterans, since most if not all of them may also be open to interested civilian physicians. Furthermore, all courses listed which were not designed primarily for physician veterans are also open to qualified returning medical officers.

Note that each course is listed only once, without cross indexing, so that in some instances a prospective student should look under more than one heading for a desired course.

Table of Contents

Subject	Page	Subject	Page	Subject	Page
Allergy	626	Chemistry	628	Fractures	630
Anatomy	626	Chest Diseases	628	Gastroenterology	630
Anesthesiology	627	Dermatology and Syphilology	628	Genetics and Anthropology	630
Arthritis	627	Diabetes	629	Hematology	630
Bacteriology	627	Electrocardiography	629	Hospital Administration	631
Basic Sciences	627	Electroencephalography	629	Industrial Medicine	631
Biochemistry	627	Endocrinology	629	Malignant Diseases	631
Cardiovascular Diseases	627	Endoscopy	630	Medicine, General	631
				Neurology and Psychiatry	633

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ALLERGY		
University of California Medical School, San Francisco 22	Orientation Course in Clinical Allergy	5 days, full time, July 7-11, 1947	$40.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Allergy	1 month, full time, 1st of every month	200.00
	Personal Course in Allergy	6 months, 1st of month when plans are available	125.00
	Allergy and Related Conditions	10 weeks, part time, October 8, 1947	125.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago At Chicago Professional Colleges	Allergy	1 year, full time, September 29, 1947	Residents 300.00 Nonresidents 600.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Allergy Clinic and Conference	1 morning a week for 1 qtr., July 1947	per qtr. 25.00
	Allergy Clinic and Conference	1 morning a week for 1 qtr., October 1947	per qtr. 25.00
At Receiving Hospital	Allergy Clinic and Conference	3 months, Tuesday mornings, July 1, 1947	25.00
American College of Allergists, 401 La Salle Medical Bldg., Minneapolis 2 At University of Cincinnati College of Medicine, Cincinnati, Ohio	Post Graduate Instructional Course in Allergy	1 week, November 3-8, 1947	100.00
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave., Brooklyn 16 At Beth El Hospital	Allergy	8 sessions, once a week, October 9, 1947	20.00
At Kings County Hospital	Allergy	8 sessions, once a week, October 7, 1947	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At Mount Sinai Hospital	Allergy	2 weeks, part time, October 20-29, 1947	40.00
At Roosevelt Hospital	Recent Advances in Allergy	1 week, full time, November 10-15, 1947	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Allergy	2 months, part time, arranged	50.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Allergy	3 weeks, full time, November 5-25, 1947	200.00
	Allergy	8 sessions, part time, January 9-February 27, 1948	25.00
American College of Allergists, 401 LaSalle Medical Bldg., Minneapolis At Cincinnati, Ohio	Intensive Fall Graduate Instructional Course in Allergy	1 week, November 3-8, 1947	100.00
Graham Thomas Clinic, 201 W. Franklin St., Richmond 20, Va.	Fellowship in Allergy	1 year, in selected cases 6 months, July 1, 1947	None
	ANATOMY		
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis, Ind. At St. Elizabeth Hospital, Lafayette, Ind.	*Post graduate Instruction in Anatomy*	2 hours per week, Monday of each week	per week 15.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore	General Anatomy, Review Course	Arranged, part or full time	Varies
	Surgical Anatomy	15 weeks, full time, January 1948	150.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Surgical Anatomy	Every Tuesday afternoon for 1 qtr., October 1947	per qtr. 20.00
University of Minnesota Medical School, Minneapolis 14 At Center for Continuation Study	Anatomy (Dissection)	2½ months, July 1-September 15, 1947	Arranged
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Applied Anatomy for the Anesthetist	125 hours, arranged	275.00
	Applied Anatomy for the General Surgeon	250 hours, arranged	375.00
	Applied Anatomy for the Otolaryngologist	1 month, full time, arranged	275.00
	Anatomy of the Thorax	100 hours, arranged	150.00
	Anatomy of the Urogenital System	130 hours, arranged	300.00
	Anatomy of the Abdomen	100 hours, arranged	150.00
	Anatomy for the Orthopedic Surgeon	100 laboratory hours, arranged	150.00

References will be found on page 634

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	Schools and Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
New York Polyclinic Medical School and Hospital, 311-353 W. 50th St, New York	Head and Neck Dissection	6 weeks, arranged	150.00
University of North Carolina School of Medicine, Chapel Hill	Anatomy	Not given, arranged	25.00
Duke University School of Medicine, Durham, North Carolina	Anatomy	3 months or longer, full time, arranged	per mo 50.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Applied Anatomy	Arranged	per wk. 25.00
	ANESTHESIOLOGY		
University of Southern California School of Medicine, 1200 N. State St, Los Angeles 33 At Los Angeles County Hospital	Anesthesia (Course 754)	12 weeks, part time, September 16, 1947	50.00
University of Illinois College of Medicine, 1853 W Polk St, Chicago At: Research and Educational Hospital	Bronchoscopy for Anesthesiologists	1 week, full time, November 3-8, 1947	100.00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Inhalation Anesthesia	1 month, 1st of every month	200.00
University of Illinois College of Medicine, 912 S Wood St., Chicago	Bronchoesophagology (Given in conjunction with Anesthesia Dept Open to Anesthetists only)[2]	1 week, full time, November 3-8, 1947	100.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City 3	Refresher Course in Anesthesiology	3 days, September 9-11, 1947	15.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St, New York 32 At: Mount Sinai Hospital	Anesthesia Diagnostic and Therapeutic Nerve Blocking	5 weeks, part time, October 21-November 21, 1947	50.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Clinical Anesthesiology	3 months, full time, arranged	200.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St, New York	Anesthesia	3 months, October 1, 1947-January 2, 1948	300.00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Anesthesia	Arranged, full time Arranged, starting after September 15, 1947	125.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital	Anesthesiology	24 weeks, full time, Fall 1947	400.00
	Regional Anesthesia	2 weeks, full time, September 2-13, 1947	150.00
	Regional Anesthesia	2 weeks, full time, January 5-24, 1948	150.00
Duke University School of Medicine, Durham, North Carolina	Anesthesia	3 or 6 weeks, full time, arranged	per mo. 50.00
	ARTHRITIS		
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn 16, New York At: Jewish Hospital	Arthritis	8 sessions, once a week, October 8, 1947	20.00
New York Post-Graduate Medical School, 303 E 20th St., New York 3	Arthritis and Allied Rheumatic Disorders	5 days, full time, November 10-14, 1947	65.00
	Arthritis and Allied Rheumatic Disorders	8 sessions, part time, January 6-February 24, 1948	45.00
New York University College of Medicine, 477 First Ave, New York 16 At: Bellevue Hospital	Arthritis and Rheumatic Disorders	6 weeks, part time, September 29, 1947	100.00
	BACTERIOLOGY		
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Newer Bactericidal Agents	1 qtr, 1 afternoon a week, July 1947	10.00
	Parasitology	1 qtr., 1 morning a week, July 1947	20.00
	Parasitology	1 qtr., part time, October 1947	Not given
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Parasitology	6 weeks, half time, arranged	75.00
	Immunology	6 weeks, half time, arranged	50.00
	Bacteriology	3 months, half time, arranged	100.00
New York University College of Medicine, 477 First Ave, New York 16	Bacteriology	Not given, part time Fall 1947	Vets. 50.00 Non Vets 60.00
University of North Carolina School of Medicine, Chapel Hill	Bacteriology and Immunology	Not given, arranged	25.00
Duke University School of Medicine, Durham, North Carolina	Bacteriology and Parasitology	3 months or longer, full time, arranged	per mo. 50.00
	BASIC SCIENCES		
University of California Medical School, San Francisco 22	Training Course in the Basic Sciences[1]	To be announced	To be announced
George Washington University School of Medicine, 1335 H St, N W., Washington 5, D C	Basic Sciences for Physicians	8 months, part time, October 1, 1947-May 30, 1948	175.00
	Basic Sciences for Surgeons	8 months, part time, October 1, 1947-May 30, 1948	175.00
University of Illinois College of Medicine, 912 S Wood St, Chicago	Basic Science	9 months, October 1, 1947	600.00
Indiana University School of Medicine, 1040 W Michigan St, Indianapolis	Basic Science	6 weeks, July 7, 1947	Not given
University of Minnesota Medical School, Minneapolis 14 At Center for Continuation Study	Basic Sciences and Their Clinical Application	10 months, full time, September 28, 1947-June 14, 1948	Arranged
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Basic Medical Sciences	9 months, full time, October 1947	Other 600.00 Surgery 800.00
University of Oklahoma School of Medicine, 800 Northeast Thirteenth St, Oklahoma City	Post Internship Educational Program in Basic Sciences	12 weeks, September 2-November 22, 1947	None
	Post Internship Educational Program in Basic Sciences	12 weeks, December 2, 1947-March 1948	None
Baylor University College of Medicine, 509 Lincoln Ave, Houston, Tex	Residency Training Program	6 months, full time, July 1-December 15, 1947	300.00
University of Wisconsin Medical School, 418 N Randall Ave, Madison 6, Wis	The Basic Sciences	Arranged	sem 145.00
Marquette University School of Medicine, 561 N Fifteenth St, Milwaukee 3	Basic Sciences	6 months, September 1947-February 1948	150.00
	BIOCHEMISTRY		
New York University College of Medicine, 477 First Ave, New York 16	Biochemistry	Part time course Fall 1947	Vets 65.00 Non Vets. 75.00
University of North Carolina School of Medicine, Chapel Hill, North Carolina	Biochemistry	Not given, arranged	25.00
Duke University School of Medicine, Durham, North Carolina	Biochemistry	3 months or longer, full time, arranged	per mo 50.00
	CARDIOVASCULAR DISEASES		
University of Southern California School of Medicine, 1200 N State St, Los Angeles 33 At Los Angeles County Hospital	Cardiology and Vascular Disease (Course 732)	12 months, full time, September 15, 1947-September 15, 1948	1,000.00
	Cardiology (Course 733)	12 weeks, part time, September 15, 1947	50.00

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	Schools and Course	Registration Fee and/or Tuition
CARDIOVASCULAR DISEASES—Continued			
California Heart Association, 45 Second St, San Francisco 5 At Los Angeles	Postgraduate Course in Cardiovascular Disease	1, 2 or 3 days, October 1947	10 00 and 15 00
Georgetown University School of Medicine, 1335 H St N W, Washington 5, D C	Postgraduate Course in Cardiology for Practitioner's	12 weeks, 1 evening a week, October 2 December 8, 1947	50 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Heart Disease and Electrocardiography	11 weeks, part time, October 1, 1947	125 00
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn 16 At Israel Zion Hospital	Clinical Cardiology and Advanced Electrocardiography	8 sessions, twice a week, October 17, 1947	20 00
At Jewish Hospital	Electrocardiography and Clinical Cardiology	15 sessions, twice a week, October 11, 1947	20 00
University of Buffalo School of Medicine, 24 High St, Buffalo, N Y	Symposium—Cardiac Diseases	3 days, part time, September 30 October 2, 1947	Not given
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York At Bellevue Hospital	Cardio-pulmonary Physiology in Clinical Medicine (PM82)	2 weeks, full time, October 20-31, 1947	60.00
	Intermediate Cardiology (PM 61-A)	18 weeks, part time, September 23, 1947-January 20, 1948	150 00
At. Montefiore Hospital	Cardiology	40 weeks, part time, September 25, 1947-June 17, 1948	250 00
	Advanced Cardiology (PM61 B)	20 weeks, part time, January 27-June 8, 1948	250 00
At Mount Sinai Hospital	Cardiovascular Diseases	5 weeks, part time, October 16 December 1, 1947	110 00
	Bedside Clinics in Heart Disease (PM 46)	2 weeks, part time, October 20 December 1, 1947	30 00
New York Medical College Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Cardiology	10 weeks, part time, every 10 weeks except July and August	150 00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York 19	Diagnosis and Treatment of Diseases of the Heart	3 weeks, part time, arranged	75 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Cardiology	5 days, full time, December 1 5, 1947	55 00
	Cardiology	8 sessions, part time, January 5-February 16, 1948	45 00
New York University College of Medicine, 477 First Ave, New York At Beth Israel Hospital	Cardiovascular Diseases	12 weeks, part time, October 2, 1947	50 00
St Francis Sanatorium for Cardiac Children, Roslyn, N Y	A Comprehensive Postgraduate Course in Rheumatic Fever and Rheumatic Heart Disease	2 weeks, full time, July 14-25, 1947	75 00
	Seminars on Rheumatic Fever and Rheumatic Heart Disease	2 months, part time, October-November 1947	20 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At: Philadelphia General Hospital	Cardiology	8 weeks, every Thursday, October 1947	80 00
	Cardiology	8 weeks, every Thursday, January 1948	80 00
Medical College of Virginia, Richmond	Cardiovascular Disease	2 weeks, September 1-13, 1947	Not given
CHEMISTRY			
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Physiological Chemistry Seminar	1 qtr., every Wednesday afternoon, July 1947	per qtr. 10 00
	Physiological Chemistry Seminar	1 qtr, once a week, October 1947	per qtr 10 00
Duke University School of Medicine, Durham, North Carolina	Practical and Theoretical Instruction in Clinical Chemistry	3 months, full time, arranged	per mo. 50 00
	Seminars in Clinical Chemistry	10 12 weekly seminars, part time, arranged	per mo. 50 00
CHEST DISEASES			
California Tuberculosis and Health Association, 45 2nd St, San Francisco At Medical Schools in Los Angeles	Tuberculosis	3 days to 2 weeks, arranged	None
At. Various conveniently located places	Postgraduate—Disease of the Chest	Individually arranged	None
American Trudeau Society, 1790 Broadway, New York At University of Colorado School of Medicine Denver	Thoracic Diseases	2 weeks, July 28 August 9, 1947	160 00
American College of Chest Physicians, 500 N Dearborn St, Chicago At Municipal Tuberculosis Sanitarium	Diseases of the Chest	5½ days, September 15 20, 1947	50 00
City of Chicago Municipal Tuberculosis Sanitarium, 5601 N Pulaski Road	Postgraduate Course in Tuberculosis	Arranged, July 1, 1947 January 15, 1948	None
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Technic of Physical Examination and Diagnosis of the Chest	8 weeks, part time, October 10, 1947	60 00
University of Kansas School of Medicine, 39th St and Rainbow Blvd Kansas City	Tuberculosis	4 days, October 20 23, 1947	20 00
Mississippi State Sanatorium, Sanatorium	Refresher and Postgraduate (Chest Diseases)	1 week 6 months, all year	None
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32 At Bellevue Hospital	Tuberculosis and Diseases of the Chest	2 weeks, full time, October 6-18, 1947	50 00
	Cardiopulmonary Physiology in Clinical Medicine (PM 82)	2 weeks, full time, October 20 31, 1947	60 00
At Montefiore Hospital	Diseases of the Chest	19 weeks, part time, January 2 May 14, 1948	60 00
At. Mount Sinai Hospital	Diseases of the Chest	3 weeks, part time, November 10 29, 1947	60 00
New York Medical College Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Pulmonary Tuberculosis	1 month, arranged	150 00
Trudeau School of Tuberculosis, Saranac Lake, New York	Refresher Course in Tuberculosis	4 weeks, September 8, 1947	100 00
Medical Society of the State of New York, 428 Greenwood Place, Syracuse At State Department of Health Tuberculosis Hospitals in various cities in the State of New York	Course of Instruction in Pulmonary Disease and Tuberculosis	3 12 months, arranged	Stipend[3]
DERMATOLOGY AND SYPHILOLOGY			
University of Southern California School of Medicine, 1200 N. State St, Los Angeles 33 At. Los Angeles County Hospital	Dermatology and Syphilology (Course 760)	11 months, full time, October 6, 1947	1,000 00

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	Schools and Course	Registration Fee and/or Tuition
	DERMATOLOGY AND SYPHILOLOGY—Continued		
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	2 Weeks Clinical Course in	2 weeks, every 2 weeks	75 00
		12 months, when openings are available	1,000 00
	ogy (Formal)	2 weeks, full time, October 20, 1947	100.00
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Dermatology Seminar	1 qtr, 1 morning a week, July 1947	per qtr. 10 00
	Dermatology Seminar	1 qtr, 1 morning a week, October 1947	per qtr. 10 00
University of Minnesota Medical School, Minneapolis 14 At Center for Continuation Study	Pathology of Diseases of the Skin	4 6 weeks, full time, Fall 1947	Arranged
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32 At Montefiore Hospital	Common Skin Diseases and Treatment (PM 68)	5 weeks, part time, October 6 November 7, 1947	40.00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York 19	Dermatology and Syphilology	6 weeks, part time, 1st of any month	100 00[4]
	Dermatology and Syphilology	3 months, part time, 1st of any month	150 00[4]
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Dermatology and Syphilology for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, September 29 October 3, 1947	75 00
	Seminar in Practical Dermatology and Syphilology	5 days, full time, September 8 12, 1947	55 00
New York University College of Medicine, 477 First Avenue, New York At Beth Israel Hospital	Dermatology	4 weeks, part time, October 1947	25 00
	"	4 weeks, part time, November 1947	25 00
	"	4 weeks, part time, January 1948	25 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	"	8 months, full time, October 1947-May 1948	800 00
	DIABETES		
New England Deaconess Hospital, 15 Deaconess Road, Boston 15	Diabetes in Relation to General Medicine	5 days, full time, October 6 11, 1947	20 00
Long Island College of Medicine, 1313 Bedford Ave, Brooklyn 16 At Israel Zion Hospital	Diabetes Mellitus and Its Complications	12 sessions, once a week, October 9, 1947	20 00
At Jewish Hospital	Diabetes	8 weeks, once a week, October 9, 1947	20 00
New York Post-Graduate Medical School 303 E 20th St, New York 3	Diabetes Mellitus, Nephritis and Hypertension	5 days, full time, October 27 31, 1947	55 00
	Diabetes Mellitus, Nephritis and Hypertension	8 sessions, part time, January 8 February 26, 1948	45 00
	ELECTROCARDIOGRAPHY		
University of Southern California School of Medicine, 1200 N State St, Los Angeles 33 At Los Angeles County Hospital	Electrocardiography (Course 734)	12 weeks, part time, October 7, 1947	30 00
Georgetown University School of Medicine, 3900 Reservoir Road, N W, Washington, D C At Georgetown University Hospital	Practitioner's Postgraduate Course in Electrocardiography	16 weeks, part time, January 8, 1948	50 00
Michael Reese Hospital Postgraduate School 29th St and Ellis Ave, Chicago	Electrocardiography for Graduate Physicians	2 weeks, full time, August 18-30, 1947	150 00
University of Michigan Medical School, 1313 E Ann St., Ann Arbor	Electrocardiographic Diagnosis	1 week, full time, November 10 15, 1947	50 00
Wayne University *College of Medicine, 1516 St Antoine St,* Detroit	Electrocardiography	1 qtr, 1 morning a week, July 1947	per qtr 10 00
	Beginning Electrocardiography	1 qtr., 1 morning a week, October 1947	per qtr. 10 00
	Advanced Electrocardiography	1 qtr., 1 afternoon a week, July 1947	per qtr 25 00
	Advanced Electrocardiography	1 qtr, 1 afternoon a week, October 1947	per qtr 25 00
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn At Beth El Hospital	Electrocardiography and Heart Sound Recording	10 sessions, twice a week, October 7, 1947	20 00
At Israel Zion Hospital	[illegible]	8 sessions, twice a week, October 7, 1947	20 00
At Jewish Hospital	ical Cardiology	15 sessions, twice a week, October 14, 1947	20 00
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32 At Mount Sinai Hospital	Intensive Course in Elementary Electrocardiography	1 week, full time, September 29 October 4, 1947	60 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Electrocardiography	2 weeks, part time, October 1947	100 00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York 19	Electrocardiographic Interpretation	2 weeks, part time, arranged	75 00
New York Post-Graduate Medical School, 303 E 20th St., New York 3	Electrocardiography	5 days, full time, October 6 10, 1947	55 00
New York University College of Medicine, 477 First Ave, New York 16 At Beth Israel Hospital	Electrocardiography	12 weeks, part time, October 2, 1947	40 00
University of Texas Medical Branch, 912 Avenue B, Galveston	Electrocardiography	3 months, once a week, October December 1947	Not given
Medical College of Virginia, 12th and Marshall Streets, Richmond	Continuation Course in Electrocardiography	2 hours every Friday, November 1947-June 1948	5 00
	ELECTROENCEPHALOGRAPHY		
University of Illinois College of Medicine, 912 S Wood St, Chicago	Electroencephalography for Doctors	2 months, full time, arranged—probably will be started September 15, 1947	200 00
	Neuroroentgenology and Electroencephalography	12 weeks, once a week, September 30, 1947 (tentative)	20 00[10]
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32	Clinical Electroencephalography	2 months, part time, October 9 December 18, 1947	60 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 *At Graduate Hospital and Pennsylvania Institute*	Electroencephalography	6 weeks, once a week, arranged	150 00
University of Texas Medical Branch, 912 Avenue B, Galveston	Electroencephalography	Arranged	Not given
	ENDOCRINOLOGY		
University of Southern California School of Medicine, 1200 N State St, Los Angeles 33 At Los Angeles County Hospital	Graduate Endocrinology Lectures (Course 735)	12 weeks, 1 evening a week, October 8, 1947	50.00
Wayne University College of Medicine, 1516 St. Antoine St, Detroit	Endocrinology	1 qtr, part time, July 1947	Not given

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	Schools and Course	Registration Fee and/or Tuition
	ENDOCRINOLOGY—Continued		
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn At. Beth El Hospital At. Jewish Hospital	Endocrine Diseases in Children and Adolescents	8 sessions, once a week, October 9, 1947	20 00
Columbia University College of Physicians and Surgeons, 630 W. 168th St, New York 32	Female Sex Endocrinology	10 sessions, once a week, October 13, 1947	20 00
	Disorders of the Endocrine System	10 sessions, twice a week, October 13, 1947	20 00
At: Mount Sinai Hospital	Diseases of Metabolism	2 weeks, part time, October 27-November 8, 1947	40 00
	Endocrinological Diseases	15 days, part time, November 10 26, 1947	30 00
New York Academy of Medicine, 2 E 103rd St, New York 29 At. Academy and Local Hospitals	Disorders of Metabolism and the Endocrine Glands	2 weeks, full time, October 6 17, 1947	5 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Endocrinology	3 weeks, full time, December 1947	150 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Diseases of the Thyroid and Other Endocrine Glands, and Disorders of Nutrition	8 sessions, part time, January 9-February 27, 1948	45 00
	Gynecological Endocrinology	24 sessions, part time, October 2 November 29, 1947	150 00
	Gynecological Endocrinology	24 sessions, part time, January 3 26, 1948	150 00
	ENDOSCOPY		
American Broncho-Esophagological Association, 700 N Michigan Ave, Chicago At. University of Illinois College of Medicine, Research and Educational Hospital	Broncho-Esophagology and Laryngeal Surgery	2 weeks, full time, September 15 28, 1947	150 00
University of Illinois College of Medicine, 912 S Wood St, Chicago	Special Course in Broncho-Esophagology	2 weeks, full time, November 1947 (tentative)	150 00
Columbia University College of Physicians and Surgeons, 630 E 168th St, New York 32 At. Columbia Presbyterian Medical Center	Bronchoscopy	3 weeks, part time, October 13 31, 1947	250 00
	Gastroscopy [2]	2 months, 3 afternoons a week, not given	250 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Cystoscopy and Endoscopy	15 sessions, part time, September 29-October 31, 1947	75 00
	Cystoscopy and Endoscopy	15 sessions, part time, November 10-December 12, 1947	75 00
New York University College of Medicine, 477 First Avenue, New York 16 At New York Eye and Ear Infirmary	Broncho-Esophagology [2]	12 days, full time, November 1947	250 00
At Beth Israel Hospital	Peroral Endoscopy	16 weeks, every Monday afternoon, Fall 1947	Vets. 150 00 Non-Vets. 175 00
Temple University School of Medicine, 3400 N Broad St, Philadelphia At Temple University Hospital	Broncho-Esophagology	2 weeks, full time, arranged	250 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At Affiliated Institutions	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	2 weeks, full time, arranged	250.00
	FRACTURES		
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Special Course in Fractures	10 weeks, part time, October 9, 1947	125 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Fractures and Allied Trauma	1 month, full time, Fall 1947	150 00
	GASTROENTEROLOGY		
University of Southern California School of Medicine, 1200 N. State St, Los Angeles 33 At Los Angeles County Hospital	Gastroenterology (Course 744)	12 months, full time, September 15, 1947	1,000 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Personal Course in Gastroscopy and Gastroenterology	2 weeks, full time, September 22, 1947	200 00
	Gastroenterology	10 weeks, part time, September 24, 1947	100 00
Wayne University College of Medicine, 1516 St. Antoine St, Detroit	Gastroenterology	1 qtr, part time, July 1947	Not given
	Gastroenterology	1 qtr, part time, October 1947	Not given
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn 16	Gastroenterology	10 sessions, twice a week, October 6, 1947	20 00
At· Beth El Hospital			
At. Greenpoint Hospital	Gastroenterology	12 sessions, twice a week, October 14, 1947	20 00
At Jewish Hospital	Gastroenterology	10 sessions, once a week, October 13, 1947	20 00
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32	Gastroenterology	13 weeks, part time, November 4, 1947-February 17, 1948	75 00
At: Montefiore Hospital			
At: Mount Sinai Hospital	Gastrointestinal Diseases	5 weeks, part time, October 6-November 12, 1947	80 00
	Surgery of the Gastro-Intestinal Tract	4 weeks, full time, October 20-November 14, 1947	150.00
	Surgery of the Gastro-Intestinal Tract	4 weeks, full time, January 5 30, 1948	150 00
New York Medical College Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Gastroenterology	3 weeks, full time, December 1947	100 00
	Gastroscopy	2 weeks, part time, arranged	200 00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York	Clinical Gastroenterology	6 weeks, October 1, 1947 January 2, 1948	50 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Gastroenterology	10 days, full time, October 13 24, 1947	100 00
	Gastroenterology	8 sessions, part time, January 7-February 25, 1948	45 00
New York University College of Medicine, 477 First Ave, New York 16	Clinical Gastroenterology	20 weeks, part time, September 17, 1947	100 00
At: Bellevue Hospital			
At: Beth Israel Hospital	Gastroenterology	8 weeks, part time, September 29, 1947	55 00
At Lenox Hill Hospital	Gastroenterology	7 weeks, part time, October 1, 1947	50 00
University of Oregon Medical School, Portland	Gastro-Intestinal Diseases	5 days, full time, December 1-5, 1947	50 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At· Graduate Hospital	Clinical Gastroenterology [2]	16 weeks, full time, arranged	400 00
	GENETICS AND ANTHROPOLOGY		
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Evolution of Human Body	1 qtr, part time, October 1947	Not given
	Human Inheritance	1 qtr., part time, October 1947	Not given
	Readings in Phys Anthropology	1 qtr., part time, October 1947	Not given
	HEMATOLOGY		
University of Southern California School of Medicine, 1200 N. State St, Los Angeles 33	Hematology (Course 738)	12 weeks, part time, January 1948	50 00

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	Schools and Course	Registration Fee and/or Tuition
	HEMATOLOGY—Continued		
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Hematology	10 weeks, part time, September 17, 1947	100 00
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Beginning Hematology	1 qtr., 1 afternoon a week, July 1947	20 00
	Beginning Hematology	1 qtr, 1 afternoon a week, October 1947	20 00
	Advanced Hematology	1 qtr., 1 afternoon a week, July 1947	20 00
	Advanced Hematology	1 qtr, 1 morning a week, October 1947	20 00
	Therapeutic Conference and Hematology Clinic	1 qtr., part time, July 1947	Not given
	Therapeutic Conference and Hematology Clinic	1 qtr., part time, October 1947	Not given
Long Island College of Medicine and Medical Society County of Kings, Brooklyn 16 At Jewish Hospital	Clinical Hematology	8 sessions, once a week, October 16, 1947	20 00
Columbia University College of Physicians and Surgeons, 630 W. 168th St, New York 32 At: Montefiore Hospital	Advanced Hematology (PM 67)	16 weeks, part time, September 25, 1947-January 8, 1948	75 00
	Clinical Hematology	20 weeks, part time, September 16, 1947-January 27, 1948	75 00
At: Mount Sinai Hospital	Hematology	6 weeks, part time, October 23 December 6, 1947	65 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St, New York	Hematology	2 months, one afternoon a week, arranged	50 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Clinical Hematology	8 sessions, part time, January 7-February 25, 1948	30 00
New York University College of Medicine, 477 First Ave, New York 16	Hematology	6 weeks, one afternoon a week, October 1, 1947	50 00*
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At. Bryn Mawr Hospital	Clinical and Laboratory Hematology	6 weeks, full time, October 1, 1947	200 00
	Clinical and Laboratory Hematology	6 weeks, full time, December 1, 1947	200 00
	HOSPITAL ADMINISTRATION		
Yale University School of Medicine, 333 Cedar St, New Haven, Conn	Hospital Administration [3]	9 months [5] September 1947 June 1948	450 00 plus fees 50 00
University of Minnesota School of Public Health, Minneapolis 14	Hospital Administration	2 years, full time, beginning September 1947	Res 30 00 Non Res. 75 00
Columbia University School of Public Health, 600 W. 168th St, New York 32	1. Public Health	1 year minimum	year 490 00
	2 Hospital Administration	Not given	
	INDUSTRIAL MEDICINE		
Yale University School of Medicine, 333 Cedar St, New Haven, Conn At: Institute of Occupational Medicine	Industrial Medicine	10 weeks, part time, January-April 1948	Nominal
	MALIGNANT DISEASES		
Colorado State Medical Society; Colorado Division, American Cancer Society; Rocky Mountain Cancer Foundation [illegible], Denver	Rocky Mountain Cancer Conference	2 days, full time, July 9-10, 1947	None
[illegible] of Medicine, 39th St. and Rain- [illegible] 3	Radiology and Cancer	3 days, January 19 21, 1948	15.00
National Cancer Institute, U. S Public Health Service, Bethesda, Md. At. Various Institutions Throughout Country	Diagnosis and Treatment of Cancer (Traineeship) [6]	May be appointed at any time	None [7]
University of Buffalo School of Medicine, 24 High St, Buffalo, N. Y.	Symposium—Cancer	3 days, part time, September 30-October 2, 1947	Not given
Cornell University Medical College, 1300 York Ave., New York	Cytologic Diagnosis of Cancer	2 weeks, September 8-20, 1947	100 00
University of Oregon Medical School, 3181 S W. Marquam Hill Road, Portland 1	Diagnosis and Treatment of Malignant Growths	4 days, full time, September 22 25, 1947	25 00
Tennessee State Medical Association, Postgraduate Committee, 4 University Center Building, Memphis At: County seat towns and centers	Cancer Instruction, With Emphasis Upon Diagnosis For the General Medical Profession	10 weeks,[8] 1947 1948	10 00
Tennessee State Medical Association, 510 Doctors Building, Nashville At: Various cities in Tennessee (5)	Post-Graduate Instruction in Cancer	10 lectures, once a week	10 00
State Medical Society of Wisconsin, 917 Tenney Building, Madison 3	Five Diagnostic Teaching Clinics on Cancer	1 week, July 9 15, 1947	None
	MEDICINE, GENERAL		
Medical College of Alabama, 620 S. 20th St, Birmingham 5 At: Birmingham	Medicine, Surgery, Gynecology and Obstetrics	3 days, full time, October 1947 (tentative)	None
At: Mobile	Medicine, Surgery, Gynecology and Obstetrics	3 days, full time, October 1947 (tentative)	None
Sage Memorial Hospital, Ganado, Ariz	Harlow Brooks Memorial Navajo Clinical Conference	3 days, August 25-27, 1947	Not given
California Medical Association, 450 Sutter St, San Francisco At: Leading cities in California	Postgraduate Program	All year	None
College of Medical Evangelists, Boyle and Michigan Ave, Los Angeles	Basic Sciences in Internal Medicine	33 weeks, full time, October 1, 1947 June 11, 1948	500 00 plus nominal fees
University of Southern California School of Medicine, 1200 N State St., Los Angeles 33	Internal Medicine (Course 730)	12 weeks, full time, September 15, 1947	250 00
At. Los Angeles County Hospital	Internal Medicine (Course 730)	12 weeks, full time, January 5, 1948	250 00
	Internal Medicine Course (Course 731)[9]	9 months, full time, January 5, 1948	750 00
	Recent Advances in Diagnosis and Treatment (Course 743)	12 weeks, part time, September 18, 1947	50 00
	Quantitative Methods in Medicine (Course 770)	12 weeks, part time, September 1947	50 00
University of California Medical School, San Francisco 22 At: Medical Center	Course in Internal Medicine	12 weeks, every Monday evening, September 22 December 8, 1947	40 00
	Applications of Nuclear Physics to the Biological and Medical Sciences [10]	3 weeks, full time, June 30-July 18, 1947	350 00 Lectures only 100 00
San Joaquin County Medical Society, Stockton, Calif.	Refresher Course — Stockton Postgraduate Study Club	7 sessions, September December 1947	10 00
Connecticut State Medical Society, 258 Church St, New Haven, Conn, and Yale University School of Medicine, 333 Cedar St., New Haven, Conn	Connecticut Clinical Congress	3 days, full time, September 1947	members 3 00 non members 5 00

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
GENERAL MEDICINE—Continued			
Georgetown University School of Medicine, 3900 Reservoir Rd, N W, Washington, D C At: Georgetown University Hospital	Recent Advances in General Medicine	30 sessions, Thursday afternoons, October 16, 1947	75.00
The Medical Society of the District of Columbia, 1718 M St, N W, Washington	18th Annual Scientific Assembly	3 days, October 6-8, 1947	members None guests 5.00
Emory University School of Medicine, 50 Armstrong St, Atlanta, Ga. At. Grady Memorial and Emory University Hospitals	General Internal Medicine	Arranged, full time	per qtr. 125.00 per week 12.00
University of Georgia School of Medicine, University Place, Augusta	Postgraduate Course for Colored Physicians	5 days, June 30-July 4, 1947	None
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	2 weeks Course in Internal Medicine	2 weeks, full time, October 6, 1947	75.00
Illinois State Medical Society, 30 N Michigan Ave Chicago At Throughout State of Illinois	Postgraduate Conferences (12) on Diversified Medical Topics	1 day each conference, next fiscal year 1947-1948	None
The Institute of Medicine of Chicago, 86 E Randolph St, Chicago	Where We Stand Today in Medicine	Twice a month, beginning September 12, 1947	None
Indiana Board of the General Practice of Medicine, Inc, Lafayette, Ind At Medical Center, Indianapolis	Graduate Training in the General Practice of Medicine	8 months, once a month, September 1947-June 1948	None
Indiana University School of Medicine, 1040 W Michigan St, Indianapolis 7 At. Indiana University Medical Center	Refresher Course for General Practitioners	1 week, October 1947	Not given
At St Elizabeth Hospital, Lafayette	Postgraduate Extension Course in Medicine	Monthly (3 hours), first Tuesday of each month	None
Mississippi Valley Medical Society, Quincy, Illinois At Burlington, Iowa	Practical Papers for General Practitioners	3 days, full time, October 1-3, 1947	None
State University of Iowa School of Medicine, Iowa City At Charles City	Internal Medicine and Obstetrics and Gynecology	1 day, arranged	None
At Decorah	Internal Medicine, Surgery and Dermatology	2 days, arranged	None
At Estherville	Internal Medicine and Dermatology	1 day, arranged	None
At Iowa City	Medicine General	5 days, full time, July 28-August 1, 1947	None
	Medicine General	5 days, full time, August 25-29, 1947	None
	Medicine General	5 days, full time, September 22-26, 1947	None
	Medicine General	5 days, full time, October 27-31, 1947	None
	Medicine General	5 days, full time, November 24-28, 1947	None
	Informal Refresher Course	Arranged, full time	None
At Red Oak	Internal Medicine and Obstetrics and Gynecology	1 day, full time, arranged	None
Kentucky State Medical Association, 620 S Third St, Louisville 2 At University of Louisville School of Medicine	Refresher Course in Medicine	6 weeks, continuously	None
Massachusetts Medical Society, 8 The Fenway, Boston At Copley Plaza Hotel	New England Postgraduate Assembly	3 days, October 29-31, 1947	regis. 3.00
At Throughout Massachusetts	Postgraduate Extension Course	8 months, October 1947-May 1948	None
University of Michigan Medical School Wayne University College of Medicine, Michigan Dept of Health and Michigan State Medical Society, Ann Arbor	Practitioners Course	2 days, Fall 1947	None
At Battle Creek-Kalamazoo	Practitioners' Course	2 days, Fall 1947	None
At Bay City	Practitioners' Course	2 days, Fall 1947	None
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Diagnostic Conference	1 qtr, once a week, July 1947	per qtr 10.00
	Diagnostic Conference	1 qtr, one morning a week, October 1947	per qtr 10.00
	Graduate Conference	1 qtr, part time, July 1947	Not given
	Graduate Conference	1 qtr, part time, October 1947	Not given
	Medical Seminar	1 qtr, part time, July 1947	Not given
	Medical Seminar	1 qtr, part time, October 1947	Not given
University of Michigan Medical School, Wayne University College of Medicine, Michigan Dept of Health, Michigan State Medical Soc			
At Flint	Practitioners' Course	2 days, Fall 1947	None
At Grand Rapids	Practitioners' Course	2 days, Fall 1947	None
At Houghton	Practitioners' Course	2 days, Fall 1947	None
At Ironwood	Practitioners' Course	2 days, Fall 1947	None
At Jackson-Lansing	Practitioners' Course	2 days, Fall 1947	None
At Marquette	Practitioners' Course	2 days, Fall 1947	None
At Powers	Practitioners' Course	2 days, Fall 1947	None
At Saginaw	Practitioners' Course	2 days, Fall 1947	None
At Traverse City	Practitioners' Course	2 days, Fall 1947	None
At Upper Peninsula	Practitioners' Course	2 days, Fall 1947	None
American Congress of Physical Medicine, 30 N Michigan Ave, Chicago 2 At Hotel Radisson, Minneapolis	Instruction Seminar	4 days, September 2-5, 1947	a lecture 2.00 10 lectures 15.00
Kansas City Southwest Clinical Society, 630 Shukert Bldg, Kansas City, Mo	Annual Fall Clinical Conference	4 days, full time, October 6-9, 1947	15.00
Interstate Postgraduate Medical Association, 16 N Carroll St, Madison, Wis At St Louis, Mo	International Medical Assembly—A Postgraduate School	4 days, full time, October 14-17, 1947	regis 5.00
Omaha Mid-West Clinical Society, Omaha, Neb At Hotel Paxton	Fifteenth Annual Assembly	5 days, October 27-31, 1947	regis 5.00
University of Nebraska College of Medicine, 42nd St. & Dewey Ave, Omaha	General Refresher Course	44 hours per week, September, October, November, December 1947	25.00
Rutgers University and State University of New Jersey, New Brunswick, N J At Camden	Postgraduate Medical "Rutgers Plan"	3 years; 2 half days each week, beginning July 1947	per qtr. 24.00
Long Island College of Medicine, Medical Society of County of Kings 1313 Bedford Ave, Brooklyn 16	Manikin	12 sessions, once a week, October 14, 1947	20.00
At Greenpoint Hospital	Sterility[2]	12 sessions, once a week, October 7, 1947	20.00
At Jewish Hospital	Peripheral Vascular Diseases	8 sessions, twice a week, October 7, 1947	20.00
	Hypertension and Nephritis	8 sessions, once a week, October 15, 1947	20.00
University of Buffalo School of Medicine, 24 High St, Buffalo, N Y	Symposium—Body Proteins	3 days, September 25-27, 1947	Not given
	For General Practitioners	2 weeks, September 9-20, 1947	60.00
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32	Peripheral Vascular Diseases	4 months, part time, September 25, 1947-January 22, 1948	75.00
At. Montefiore Hospital	Geriatrics	4 months, part time, October 7, 1947-February 3, 1948	65.00
	Diseases of the Kidneys	4 days, part time, October 13-16, 1947	15.00
	Diseases of the Liver	10 days, part time, October 6-15, 1947	35.00
At Mount Sinai Hospital	Peripheral Vascular Diseases	3 months, part time, October 7, 1947-January 6, 1948	40.00
	Symposium on Internal Medicine	8 weeks, full time, October 6-December 6, 1947	350.00

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
American College of Surgeons, 40 E Erie St, Chicago At New York	Thirty-Third Clinical Congress	5 days, September 8-12, 1947	5.00[11] Non-Mem 10.00
Cornell University Medical College, 1300 York Ave, New York 21 At Bellevue Hospital	Graduate Course in Internal Medicine	6 months, full time, continuously, 1st of each month	6 months 300.00 2 weeks 50.00
New York Medical College Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Internal Medicine	1 month, full time, monthly except July and August	150.00
	Peripheral Vascular Disease	2 weeks, Fall semester	200.00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York	Course for General Practitioners	6 weeks, arranged	100.00[4]
	Course for General Practitioners	3 months, arranged	200.00[4]
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Diseases of the Liver, Biliary Tract and Pancreas—Introductory Course	6 sessions, part time, November 12-Dec. 17, 1947	60.00
	Diseases of the Liver and Biliary Tract	8 sessions, part time, January 7-February 25, 1948	30.00
	Peripheral Vascular Diseases	8 sessions, part time, January 6-February 24, 1948	30.00
	Psychological Aspects of Internal Medicine	8 sessions, part time, January 9-February 27, 1948	25.00
	Review of Internal Medicine	13 weeks, full time, September 23-December 13, 1947	400.00
	Seminar in Internal Medicine	2 months, full time, January 5-February 27, 1947	300.00
New York University College of Medicine 477 First Ave, New York 16 At Bellevue Hospital At Beth Israel Hospital At Lenox Hill Hospital	Internal Medicine	12 weeks, part time, September 29, 1947	12 weeks 150.00 8 weeks 100.00 4 weeks 50.00
	Internal Medicine	4 weeks, part time, Fall 1947	75.00
	General Review for General Practitioners	8 weeks, full time, Fall 1947	Vets 125.00 Non-Vets. 150.00
University of North Carolina School of Medicine Chapel Hill At Various towns in North Carolina	University Postgraduate Course in Clinical Medicine	8 weeks, once a week, Fall 1947	Not given
	University Postgraduate Course in Clinical Medicine	8 weeks, once a week, Fall 1947	Not given
Duke University School of Medicine, Durham, N C	General Medicine	1-2 weeks or longer, full time, arranged	per month 50.00
	Medicine	3 months or longer, full time, arranged	per month 50.00
American College of Surgeons, 40 E Erie St Chicago At *Cleveland Public Auditorium* Cleveland O	Thirty-Second Clinical Congress	5 days, December 16-20, 1947	Fellows None Non Mem 10.00
Oklahoma City Clinical Society, 512 Medical Arts Bldg, Oklahoma City At Biltmore Hotel	Oklahoma City Clinical Society Annual Fall Clinical Conference	4 days, October 27-30, 1947	15.00[12]
Medical Society of State of Pennsylvania, Pittsburgh At Allentown	Refresher Course for Practitioners[13]	5 weeks, once a week, Fall 1947	50.00
At Johnstown	Refresher Course for Practitioners[13]	5 weeks, once a week, Fall 1947	50.00
At Oil City	Refresher Course for Practitioners[13]	5 weeks, once a week, Fall 1947	50.00
At Wilkes-Barre	Refresher Course for Practitioners[13]	5 weeks, once a week, Fall 1947	50.00
At Williamsport	Refresher Course for Practitioners[13]	5 weeks, once a week, Fall 1947	50.00
University of Oregon Medical School, 3181 S W Marquam *Hill Road Portland 1*	General Informal Review	Arranged	per month 75.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4 At Graduate Hospital	Internal Medicine (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
	Segmental Neuralgias Relief by Regional Anesthesias	5 weeks, full time, monthly, October 1947-May 1948	200.00
Piedmont Postgraduate Clinical Assembly, 209 N Main St, Anderson, S C	*Piedmont Postgraduate Clinical Assembly*	1 day *(including night)* September 15, 1947	5.00
Alumni Association Medical College of the State of South Carolina, 16 Lucas St, Charleston	Alumni Post-Graduate Seminar	3 days, full time, November 4-6, 1947	15.00
Vanderbilt University School of Medicine Nashville 4 Tenn	Medicine	1-3 months, October 1947	3 months 166.66
Southwestern Medical College of Southwestern Medical Foundation, 2211 Oak Lawn, Dallas, Tex	*Postgraduate Course in Medicine in Preparation for Specialty Board Examination*	46 weeks, part time, September 1947-June 1948	10.00
University of Texas Medical Branch, 912 Avenue B Galveston	General Internal Medicine	1 week, to be announced	25.00
	Tumor Symposia	1 qtr, September 13, 1947	Not given
	Quarterly Tumor Conference	1 day, December 1947	5.00
University of Vermont College of Medicine, Pearl St, College Park, Burlington	General Practice	12 weeks, part time, July 1947-January 1948	per year 500.00 or pro rated
	General Practice, Internal Medicine, Surgery	1-9 months, 1st of any month, *July 1947-January 1948*	per year 500.00 *or pro rated*
	Internal Medicine	4 weeks minimum, part time, July 1947-January 1948	per year 500.00 or pro rated
Graham-Thomas Clinic 201 W Franklin St, Richmond, Va.	Clinical and Didactic	*12 months, full time, July 1, 1947*	None
	Clinical and Didactic	12 months, full time, January 1, 1948	None
Washington State Medical Association, Seattle	Internal Medicine	4 weeks, September 1-27, 1947	Not given
Jackson Clinic 16 S Henry St, Madison, Wis At Methodist Hospital	*Post-Graduate Clinics* (Series of bi-monthly programs from ½ to 1 day each)	First Friday morning in month	None
State Medical Society of Wisconsin, 917 Tenney Bldg, Madison 3 At *Three cities in Western and Northern Wisconsin*	Postgraduate General Clinics (Surgery, Obstetrics and Internal Medicine)	3 days, August 6-8, 1947	6.00 or per day 7.00[11]
University of Wisconsin Medical School, 418 N Randall St, Madison At Wisconsin General Hospital	Course for Specialists in Internal Medicine[2]	2-6 months, arranged	per month 100.00
	Observation Course in Medical and Clinical Subjects	1-5 months, arranged	per month 100.00
NEUROLOGY AND PSYCHIATRY			
University of Southern California School of Medicine, 1200 N State St, Los Angeles 33 At *Los Angeles County Hospital*	Electrodiagnosis and Electromyography (Course 778)	4 weeks, full time, August 4, 1947	100.00
	Psychosomatic Medicine (Course 742)	12 weeks, once a week, January 1948	50.00
University of California Medical School, San Francisco 22	Postgraduate Course in Psychiatry	12 weeks, full time, September 8-November 28, 1947	200.00
	Psychiatry and Neurology	3 months, September 1947	200.00
American College of Physicians, 4200 Pine St Philadelphia At Colorado Psychopathic Hospital, Denver	Psychosomatic Medicine	2 weeks, September 15-27, 1947	Not given

References will be found on page 634.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
Catholic University of America, Dept of Psychology and Psychiatry, Washington D C At St Elizabeth's Hospital	Psychiatric Conferences	2 semesters, September 1947	per year 20 00
	Group Psychotherapy	2 semesters, September 1947	per sem 20 00
	Individual Psychotherapy	2 semesters, September 1947	per sem 20 00
Catholic University of America Dept of Psychology and Psychiatry, Washington D C	Psychiatry — Case Seminar in Psychotherapy	2 semesters, September 1947	per sem 20 00
	Introduction to Psychiatry	1 semester, September 1947	10 00
	Clinical Psychiatry	2 semesters, September 1947	per sem 20 00
	Psychopathology	2 semesters, September 1947	per sem 10 00
	Neurology, Neuropathology and Neuroroentgenology	2 semesters, September 1947	per sem 20 00
	Seminar in Clinical Psychology and Psychotherapy	1 semester, September 1947	20 00
St Elizabeth's Hospital, Washington, D C	Postgraduate Courses in Psychiatry and Neurology	10 months, part time, October 19, 1947 August 1948	None
Cook County Graduate School of Medicine 427 S Honore St, Chicago	Clinical Neurology for the General Practitioner	10 weeks, part time, October 1, 1947	80 00
Institute for Psychoanalysis, 664 N Michigan Ave Chicago	Fundamentals of Psychodynamics	Every Friday, October 4 December 20, 1947	15 00
At Cook County Psychopathic Hospital	Psychiatric Case Demonstrations	Every Monday, September 30 December 23, 1947	10 00[15]
At Illinois Neuropsychiatric Institute	Psychosomatic Case Demonstrations	5 weeks, once a week, October 8-December 17, 1947	None
At Michael Reese Hospital	Psychopathological Case Demonstrations	Every Monday, October 6, 1947	None
University of Illinois College of Medicine 912 S Wood St, Chicago 12	Basic Psychiatry (1)	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
	Basic Psychiatry (2)	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
	Neuroanatomy	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
	Neuroroentgenology and Electroencephalography	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
	Review Course in Basic Neurology and Psychiatry	12 weeks, once a week, September 30 1947 (tentative)	120 00[16]
	Neuropathology	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
	Neurophysiology	12 weeks, once a week, September 30, 1947 (tentative)	20 00[16]
University of Kansas School of Medicine, 39th and Rainbow Blvd, Kansas City	Psychosomatic Medicine	Arranged, late Fall 1947	Not given
At State of Kansas Circuit	Psychosomatic Medicine	1½ days each area, September 1947	5 00
The Topeka Institute for Psychoanalysis, 3617 W Sixth Ave Topeka, Kan At Menninger Clinic	Psychoanalytic Literature[17]	14 seminars, every 2 weeks, July 8, 1947-January 6, 1948	42 00
	Basic Concepts of Psychoanalysis[17] (3 seminars)	2 weeks, once a week, July 7 21, 1947	9 00
	Psychoanalysis and Anthropology[17] (6 seminars)	Once every 2 weeks, July 1 September 9, 1947	18 00
	Psychoanalytic Contributions to the Theory and Treatment of Psychoses[17] (10 seminars)	Once a week, September 8-November 10, 1947	22 50
	Psychoanalytic Technique Part I[17] (3 seminars)	Once a week, November 17 December 1 1947	9 00
	Continuous Case Seminar[17] (29 seminars)	Once a week, July 3, 1947 January 15, 1948	87 00
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Orthopsychiatry and Pediatrics	1 qtr, part time, July 1947	Not given
	Orthopsychiatry and Pediatrics	1 qtr, part time, October 1947	Not given
	Clinical Neurology	1 qtr, part time, July 1947	Not given
	Clinical Neurology	1 qtr, part time, October 1947	Not given
	Clinical Psychiatry Seminar	1 qtr, part time, July 1947	Not given
	Clinical Psychology Seminar	1 qtr, part time, October 1947	Not given
	Neuropathology	1 qtr, part time, October 1947	Not given
	Psychology—Infant and Child	1 qtr, part time, July 1947	Not given
	Psychology—Infant and Child	1 qtr, part time, October 1947	Not given
University of Minnesota Medical School Minneapolis 14	Psychosomatic Medicine	2 weeks, arranged	Arranged
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave Brooklyn 16 At Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Neurology and Neuropathology	8 sessions, once a week, October 3, 1947	20 00
At Jewish Hospital	Child Psychiatry	10 sessions, once a week, October 7, 1947	20 00
American Institute for Psychoanalysis, 266 West End Ave, New York 23	Theory of Neurosis	15 weeks, September 1947	30 00
	Seminar on Dreams[18]	10 weeks, February 1948	20 00
	The Analytic Process[18]	15 weeks, September 1947	30 00
	Introductory Lectures on Psychoanalytic Technique	5 sessions, September 1947	10 00
	Continuous Case Seminar[18]	10 sessions, September 1947	20 00
	Neuroses and Psychoses	15 sessions, September 1947	15 00
	Readings and Psychoanalysis, Part II Reading in Freud	20 sessions, September 1947	40 00
At New School for Social Research	Introduction to the Rorschach Method of Personality Diagnosis	10 lectures, 5 seminars, September 1947	17 50
	Literary Figures in the Light of Modern Psychoanalysis	15 weeks, February 1948	20 00

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1 Special contract to War Department
2 Specialists only
3 Stipends up to a maximum of $250 00 per month are available if certain qualifications can be met
4 Half fee to physicians in service
5 Followed by 12 months in hospital administrative internship
6 Training given in various institutions throughout country Applicant must make his own arrangement with institution
7 Stipend paid on per diem basis
8 In each teaching district—covering the state in 2 years
9 Pre-requisite—Course 730
10 Evening seminars to be announced during course
11 Fellows and Jr candidates
12 Including dinners and luncheons
13 Write for schedule to Committee on Graduate Education, 230 State St Harrisburg, Pa
14 Includes meals
15 Free to physicians on active duty at Cook County Psychopathic Hospital
16 Full time employees of the Illinois Department of Public Welfare pay no fee
17 Restricted to physician candidates of the Topeka Institute for Psychoanalysis
18 Candidates in training only

(To be concluded next week)

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, June 7, page 556.

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 24-26. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

Arizona: * *Examination.* Phoenix, July 1-2. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

California: *Written.* San Francisco, July 7-10. *Oral.* San Francisco, July 19-20. *Oral Clinical Examination for Foreign Medical Graduates.* San Francisco, June 21. Sec., Dr. Frederick N. Scatena, 1020 N. St., Sacramento 14.

Colorado: * Denver, July 18. Final date for filing application is June 15. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

Connecticut: *Examination.* Hartford, July 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 8. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 8-10. *Endorsement.* Dover, July 15. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

Florida: * *Examination.* Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

Georgia: Atlanta, Oct. 14-16. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

Hawaii: *Examination.* Honolulu, July 8-11. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

Idaho: Boise, July 14-16. Sec., Bureau of Occupational Licenses, Dr. S. M. Poindexter, Eastman Bldg., Boise.

Illinois: Chicago, June 24-26. Sec., Mr. Philip M. Harman, Supt. of Registration, State House, Springfield

Indiana: *Examination.* Indianapolis, June 17-19. Exec. Sec., Board of Medical Registration and Examination, Miss Ruth V. Kirk, 416 K. of P. Bldg., Indianapolis.

Kansas: *Endorsement.* Kansas City, June 26. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

Kentucky: *Examination.* Louisville, Sept. 22-24. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Augusta, July 1-2. Sec., Board of Registration in Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Medical Examination.* Baltimore, June 17-20. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, July 8-11. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 E State House, Boston.

Michigan: * Semi-Annual meeting, Lansing, June 24. Sec., Board of Registration in Medicine, Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Minnesota: * *Examination.* Minneapolis, June 17-19. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June 23-24. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

Montana: Helena, Oct. 6-8. Sec., Dr. Otto G. Klein, 302 N. Main St., Helena.

Nebraska: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Capitol Bldg., Lincoln.

New Hampshire: *Examination.* Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord

New Jersey: *Examination.* Trenton, June 17-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New York: *Examination.* Albany, Buffalo, New York and Syracuse, June 23-26. Sec., Dr. Jacob L. Lochner Jr., State Education Bldg., Albany.

North Carolina: *Endorsement.* Raleigh, June 24. *Examination.* Raleigh, June 23-26. Acting Sec., Mrs. L. McNeill, 226 Hillsboro St., Raleigh.

North Dakota: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

Ohio: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oregon: * *Examination.* Portland, July 23-25. Applications must be on file on or before July 9. Sec., Miss Lorienne M. Conlee, 608 Failing Bldg., Portland.

Rhode Island: * *Examination.* Providence, June 19-20. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: Columbia, June 23-25. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: * Pierre, July 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

Utah: Examinations are held in June of every year. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: Richmond, June 18-21. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., 30½ Franklin Rd., Roanoke.

West Virginia: *Examination.* Charleston, June 30, July 1-2. Commissioner, Public Health Council, Dr. Newman H. Dyer, State Capitol, Charleston 5.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: June 17. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

District of Columbia: *Examination.* Washington, Oct. 20-21. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6012 E. Municipal Bldg., Washington.

Iowa: Des Moines, July 8. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Compensability of Injury from Mercury Bichloride Poisoning.—The claimant filed a petition for disability compensation alleged to be due to him for injuries resulting from mercury bichloride poisoning contracted during the course of his employment. From an award in favor of the claimant, the defendant employer and insurer appealed to the Supreme Court of Florida.

Of the 9th, 10th and 11th of August 1943 claimant was directed by his employer to wash the interior of a building with a solution of bichloride of mercury. He had been a painter for many years but had had no previous experience with, or knowledge of the dangerous nature of, the mercury solution. The only warning given was not to get the solution in his mouth. The building in which he worked was not ventilated, the weather was hot and mosquito bites were plentiful. Conditions were favorable for poisonous fumes to penetrate his body and blood stream. On the 20th claimant complained to the foreman on the job and requested relief under the workmen's compensation law but the foreman rejected the claim because claimant had suffered no accident. In December following, claimant's teeth became loose, his gums became red and swollen, his fingers and finger nails turned brown. From all appearances he was a very sick man. Soon thereafter the doctors diagnosed his ailment as nephritis or "Bright's disease," caused by the absorption of bichloride of mercury.

The question which claimed the most attention, said the court, was whether or not the injury was caused by an accident as contemplated by the workmen's compensation act. The point was made that claimant did not use the poisonous solution through an accident. This is not important. Neither, continued the court, will recovery be precluded because reputable medical testimony was introduced to show that the ill effects would have appeared sooner if the injury had been caused by the mercury poisoning. The commission found that the workman was enclosed without ventilation in hot weather, causing the pores of his skin to open; mosquitoes punctured his skin. He was a strong and well man before then. The period of time for the poison to react would naturally depend somewhat on the degree of physical resistance of the individual, as well as on the peculiar conditions surrounding the exposure.

It was urged that the element of time, place and cause must be clearly proved, but evidence was abundantly clear, said the court, that the cause of claimant's ailment was mercury poisoning, absorbed in the Link Trainer building on August 9th, 10th and 11th, 1943. It is objected that claimant was unable to identify some event which preceded the injury. The event, said the court, was the sudden entry of the poisonous fumes into his body. The injury followed. The victim had no way to recognize the event. None of the five senses will detect the fumes of mercury poison. In fact, the court pointed out, the damage to the blood stream and kidneys is painless, the victim's first knowledge being when and after the injury has been done.

We are satisfied, concluded the court, that this judgment rests on an inference of liability which is sustained by the facts, namely: Claimant was well immediately preceding the 9th, 10th and 11th of August. He was sick soon after. During those three days he was exposed to a highly dangerous solution which undoubtedly would cause the kind of illness of which he soon became a sufferer. The evidence showed a natural sequence of events based on facts from which liability could be inferred. The judgment in favor of the claimant was affirmed.—*Mechan v. Crowder, 28 So. (2d) 435 (Fla., 1946).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

73:257-390 (March) 1947

*Pathogenesis of Passive Rh Isosensitization in Newborn (Erythroblastosis Fetalis). Ruth R. Darrow and Josephine Chapin.—p. 257.
Pathogenesis of Mongolism. T. H. Ingalls.—p. 279.
Blood Pressure of Normal Girls from 3 to 16 Years of Age. M. Elizabeth Downing.—p. 293.
*Alexander's Rabbit Serum in Treatment of Influenzal Meningitis: Evaluation of Its Use in Conjunction with Sulfonamide Compounds. K. H. Beck and F. R. Janney.—p. 317.
*Xanthoma Tuberosum, Aortic Stenosis, Coronary Sclerosis and Angina Pectoris: Report of Case in Boy 13 Years of Age. C. D. Cook, H. L. Smith, C. W. Giesen and G. L. Berdez.—p. 326.
Pyloric Stenosis in Twins: Review of Literature and Report of Case. J. H. Laubscher and A. M. Smith.—p. 334.

Pathogenesis of Passive Rh Isosensitization.—According to Darrow and Chapin, analysis of cases of erythroblastosis fetalis not only corroborates Levine's theory of isoimmunization but supports also the concept of sensitization of the anaphylactic type. These two states, both based on antigen-antibody relationships, appear to be present to varying extents but are not necessarily parallel in occurrence or severity. This produces the extreme variety of symptoms. The passive isoimmune reaction is presumed to take place between the specifically modified (maternal) globulin and the baby's Rh-positive erythrocytes, resulting in their destruction. The reversed, passive isosensitization reaction, on the other hand, would be expected to occur within the tissue cells, principally those of the liver, between the specific sensitizing antibody and the Rh antigen freed by the destruction of the Rh-positive erythrocytes. This intracellular reaction produces injury to the cell, causing histamine and other cellular constituents having toxic effects to be released into the circulation. These substances, in turn, have a damaging effect on susceptible tissues elsewhere in the body.

Alexander's Rabbit Serum for Influenzal Meningitis.—Beck and Janney review observations on patients with influenzal meningitis who were admitted to the Milwaukee Children's Hospital from January 1939 to April 1946, which is the span of time since Alexander's serum has been available and sulfonamide compounds have been given in massive dosages. Previous to this time only 3 of 66 patients with proved influenzal meningitis had survived. Of 45 patients treated during the period when Alexander's serum was available, 24 died and 21 recovered, but 9 of 24 fatalities occurred within the first twenty-seven hours after hospitalization and thus cannot be considered in judging the efficacy of immune rabbit serum in combination with sulfonamide drugs. Of 22 patients who were treated adequately according to Alexander's standards, 19 recovered and 3 died. Of 9 patients treated with sulfonamide drugs and without serum therapy, 2 lived and 7 died. Diagnosis of influenzal meningitis must be made early in order to combat it effectively with rabbit serum and sulfonamide drugs. The sulfonamides must be given in high concentrations and by intravenous or subcutaneous routes. Serum should be preceded by intravenous fluids so that the free floating type-specific carbohydrate of the organism is eliminated from the blood stream and the dehydration alleviated. Alexander's anti-influenzal rabbit serum (administered according to her recommendations) combined with sulfonamide drugs is 85 per cent efficient in cases in which therapy is instituted before the patient is moribund. To date it is the only efficient method for treating meningitis due to Hemophilus influenzae type B.

Xanthoma Tuberosum and Heart Disease.—Cook and his co-workers report the occurrence of xanthoma tuberosum, a typical history of angina pectoris and significant changes in the electrocardiogram in a boy aged 13 years. A review of the literature revealed 20 cases of xanthoma tuberosum with definite or probable cardiac involvement among patients 23 years of age or less at the time the cardiac lesion developed. In 3 of these cases angina pectoris was present. The cardiac lesions in the cases were due to xanthomatous infiltration of the aortic valve and coronary arteries. This hypothesis is substantiated by necropsy in similar cases.

American Journal of Medical Sciences, Philadelphia

213:257-384 (March) 1947

*Studies on Malignant Hepatitis. G. Alsted.—p. 257.
Diagnosis of Acute Respiratory Tract Infections. J. E. Ziegler Jr., E. C. Curnen, G. S. Mirick and F. L. Horsfall Jr.—p. 268.
Changing Concept of Myeloma of Bone. E. Aegerter and R. Robbins.—p. 282.
*Disseminated Calcification of Pancreas: Subacute and Chronic Pancreatitis. C. W. Wirts Jr. and W. J. Snape.—p. 290.
*Experiences with Penicillin and Dicumarol in Treatment of Subacute Bacterial Endocarditis. C. J. Thill and O. O. Meyer.—p. 300.
*Treatment of Acute Diphtheria and Chronic Carrier State with Penicillin. L. Weinstein.—p. 308.
Effects of Blockade of Autonomic Ganglia in Man with Tetraethylammonium: Preliminary Observations on Its Clinical Application. R. H. Lyons, G. K. Moe, Rosalie B. Neligh and others.—p. 315.
Insensitivity to Epinephrine in Patient with Functioning Tumor of Adrenal Medulla. R. L. Mayock and E. Rose.—p. 324.
Increased Reactivity Caused by Adrenalin. E. E. Cameron.—p. 331.
Thiamine Circulation Time. A. Ruskin and G. M. Decherd Jr.—p. 337.
Electrocardiographic Changes Caused by Hyperventilation. D. Scherf and M. Schlachman.—p. 342.
Injectional Treatment of Internal Hemorrhoids. R. Turell.—p. 350.
Complications of Mumps. J. Humphries.—p. 354.
Further Report on Use of Bismuth Sodium Tartrate Intravenously in Treatment of 203 Additional Patients with Tularemia. W. W. Jackson.—p. 358.
Flea versus Rat Control in Human Plague. J. E. Gordon and P. T. Knies.—p. 362.

Malignant Hepatitis.—Alsted says that in Denmark acute hepatitis has run a course parallel to that in the rest of the world. During the last four years the disease has been from seven to eight times as frequent as it was in the prewar period. In 1944 and 1945 a considerable number of patients developed a malignant form of hepatitis. This form occurs chiefly in women over 45 years of age and has a fatality rate of 50 per cent. Most frequently its duration is from four to nine months, but both a much more acute and a more protracted course may be observed. The clinical features are jaundice, frequent febrile attacks of pain and symptoms of portal stasis. As to prognosis, the result of Takata's test is important, whereas the remaining liver function tests are of only secondary value. The lesions are characterized by destruction of the liver tissue and in the more chronic cases by the development of a cicatrized connective tissue. The etiology is obscure. The disease differs from acute infectious hepatitis both etiologically and clinically. The treatment has until now been entirely symptomatic.

Disseminated Calcification of Pancreas.—Wirts and Snape direct attention to the least frequently recognized form of pancreatic lithiasis, known variously as disseminated calcification of the pancreas, pancreatitis petrificans and diffuse parenchymal calcification of the pancreas. They add 2 cases to those existing in the literature. The patients complain chiefly of abdominal pain, which is most frequently present in the epigastrium, going through to the back, but which may also radiate to the right or left hypochondriac regions, the pelvis or either shoulder. The possibility of disseminated calcification of the pancreas should be considered in any patient with a long history of upper abdominal pain. Diagnosis is made on (1) a plane film of the abdomen including that area between the first and fourth lumbar vertebrae, (2) stool examination for total fat and creatorrhea and (3) the pancreatic function test. Recognition of this disease may prevent the needless removal of a gallbladder, appendix or kidney. The clinician should always be on guard to rule out disease of the pancreas when deep seated pain in the epigastrium is associated with mental symptoms. Remaining alert to the possibility of the existence of disseminated calcification of the pancreas is probably the most important single factor in its recognition.

Penicillin and Dicumarol in Bacterial Endocarditis.—Of the 22 patients with subacute bacterial endocarditis reviewed by Thill and Meyer, 13 received both penicillin and dicumarol, and 9 were given only penicillin. Treatment with penicillin alone or combined with dicumarol should be persistent for a minimum of six weeks. This prolonged therapy has given decidedly better results than anything previously employed. Although their results favor combined therapy, the authors remain skeptical that anticoagulant therapy offers advantages. Anticoagulant therapy carries with it grave hazards.

Penicillin for Acute Diphtheria and the Chronic Carrier.—Weinstein reports the effect of penicillin on the clinical course and bacterial flora of the nose and throat in acute cases of diphtheria and on the value of the drug in the chronic diphtheria carrier state. Penicillin has no effect on the clinical course of diphtheria. Its use does not eliminate the necessity of administering adequate amounts of antitoxin. Penicillin reduces the duration of both the convalescent and chronic diphtheria carrier states. A dose of at least 120,000 and preferably 240,000 units of penicillin daily for twelve days is recommended for the treatment of acute diphtheria. A minimum of 240,000 units of penicillin a day for twelve days is suggested for the treatment of the chronic diphtheria carrier state.

American Journal of Medicine, New York

2:229-326 (March) 1947

*Streptomycin Treatment of Urinary Tract Infections, with Special Reference to Use of Alkali. H. W. Harris, R. Murray, T. F. Paine, L. Kilham and M. Finland.—p. 229.
Dienestrol: Another Synthetic Estrogen of Clinical Value. Stella H. Sikkema and E. L. Sevringhaus.—p. 251.
Bacillus Pyocyaneus Infections: Review, Report of Cases and Discussion of Newer Therapy, Including Streptomycin. M. M. Stanley.—p. 253.
Rheumatic Heart Disease in Adult. C. Eggleston.—p. 278.
Treatment of Acute Rheumatic Fever and Acute Rheumatic Heart Disease. L. M. Taran.—p. 285.
Permanent Heart Block Following German Measles. D. Goldfinger, W. Schreiber and P. H. Wosika.—p. 320.

Streptomycin with Alkali in Urinary Infections.—Harris and his associates report the effects of streptomycin in 21 cases of protracted urinary tract infections in which other treatments had either failed or seemed inadvisable. The results obtained suggest that the maintenance of an alkaline reaction of the urine throughout the period of streptomycin therapy increases the efficacy of the streptomycin and reduces the likelihood of the development of streptomycin fastness in the infecting organisms.

American Journal of Ophthalmology, Cincinnati

30:257-396 (March) 1947

Influence of Hypersensitivity on Endogenous Uveal Disease. A. C. Woods.—p. 257.
Contribution to Knowledge of Ocular Siderosis and Posterior Degenerative Pannus: Part I of Research in Industrial Ophthalmology. A. Loewenstein and J. Foster.—p. 275.
Accommodative Astigmatism. J. M. O'Brien and R. E. Bannon.—p. 289.
Involvement of Orbit in Chronic Inflammation of Frontal Sinus. M. C. Benford and H. Brunner.—p. 297.
Observations on 300 Consecutive Cases of Ocular War Injuries. J. G. Bellows.—p. 309.

American Journal of Pathology, Ann Arbor, Mich.

23:173-326 (March) 1947

Pathology of High Altitude Frostbite. N. B. Friedman and R. A. Kritzler.—p. 173.
Tuberous Sclerosis with Congenital Tumors of Heart and Kidney: Report of Case in Premature Infant. H. R. Pratt-Thomas.—p. 189.
Pathogenesis of Polycystic Livers: Reconstructions of Cystic Elements in 2 Cases. R. F. Norris and R. M. Tyson.—p. 201.
Histologic Study of Reaction in Hamster Spleen Produced by Virus of Colorado Tick Fever. W. C. Black, L. Florio and M. O. Stewart.—p. 217.
Blindness in Ducks Accompanying Hypoglycemia: Clinical and Pathologic Study. R. H. Rigdon and D. E. Fletcher.—p. 227.
Plasmacytoma of Stomach: Report of Case. H. Schwander, J. Estes and W. G. Cooper.—p. 237.
Fate of Carcinoma Emboli in Lung. O. Saphir.—p. 245.
Permeability of Renal Glomeruli of Several Mammalian Species to Labeled Proteins. H. Smetana.—p. 255.
Intralobular Regeneration of Liver Cells in Man. C. T. Ashworth and H. C. Reid.—p. 269.
Giant Cell Tumor of Bone: Critical Survey. E. E. Aegerter.—p. 283.
Residual Tissue Changes in Male Dogs Following Cessation of Orally Administered Stilbestrol. R. M. Mulligan and D. L. Becker.—p. 299.
Studies on Motor Cells of Spinal Cord: V. Poliomyelitic Lesions of Spinal Motor Nuclei in Acute Cases. H. C. Elliott.—p. 313.

American Journal of Psychiatry, New York

103:*433-576 (Jan.) 1947*

Alumni Appraisal of Psychiatric Education. W. C. Porter and H. A. Davidson.—p. 440.
Psychiatry in Medical Education: Teacher Characteristics and Qualifications. J. C. Whitehorn.—p. 446.
What Should Be Taught. N. D. C. Lewis.—p. 450.
Genetics of Epilepsy. W. G. Lennox.—p. 457.
Neuropsychiatric Program of Veterans Administration. D. Blain and J. H. Baird.—p. 463.
Care and Treatment of Psychiatric Patient in Veterans Administration. H. J. Tompkins and A. W. Snedeker.—p. 467.
Neuropsychiatric Training Program of Veterans Administration. Florence Powdermaker.—p. 470.
New Role of Psychologic Testing in Psychiatry. K. Menninger, D. Rapaport and R. Schafer.—p. 473.
Psychoanalytic Approach to Masculine and Feminine Principles in Music. Margaret Tilly.—p. 477.
Dilantin Treatment for Behavior Problem Children with Abnormal Electroencephalograms. Charlotte F. Walker and Barbara B. Kirkpatrick.—p. 484.
Racial Aspects of Emotional Problems of Negro Soldiers. R. B. Stevens.—p. 493.
Mental Illness Among Negro Troops Overseas. H. S. Ripley and S. Wolf.—p. 499.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

57:145-280 (Feb.) 1947

Edison and Roentgenology. A. W. Fuchs.—p. 145.
Trend Toward Cancer Specialization. W. E. Costolow.—p. 157.
*Cancer of Eyelid Treated by Radiation, with Consideration of Irradiation Cataract. H. B. Hunt.—p. 160.
*Cancer of Tongue. G. S. Sharp and H. D. Spickerman.—p. 181.
Carcinoma of Anus. O. N. Meland.—p. 199.
*Pulmonary Complications of Dorsal Sympathectomy. R. C. Pendergrass and F. F. Allbritten Jr.—p. 205.
Webs and Constricting Bands in Upper Esophagus (Sideropenic Dysphagia). M. A. Thomas.—p. 213.
Carcinoma of Pancreas with Generalized Bone Metastases: Report of 2 Cases. M. J. Geyman and A. J. Present.—p. 220.
Sickle Cell Anemia: Case Report with Unusual Roentgen Findings. E. Kraft and G. Bertel.—p. 224.
Anterior Vertebral Wedging—Frequency and Significance. G. H. Fletcher.—p. 232.
Solitary Myeloma of Bone. S. D. Blum.—p. 239.
Recognition and Significance of Bacteriogenic Gas in Soft Tissues. R. L. Nichols and C. L. Hinkel.—p. 245.

Radiation in Cancer of Eyelid.—The survey presented by Hunt is based on 100 patients selected from 134 seen from 1930 to 1946. Carcinoma of the eyelid is a disease of the elder age group, three fourths of the patients being past 60 years of age. Men are slightly more susceptible than women. Four fifths of the lesions are located along the lower lid or about the inner canthus. Basal cell carcinomas represent three fourths of the neoplasms of the eyelid, and these lesions usually show slow growth. Squamous cell carcinoma of the eyelid, although not common, is a more serious lesion, shows greater local invasion and frequently metastasizes to the parotid or submaxillary glands. Cancer of the eyelid can be as effectively controlled by fractionated roentgen therapy as by surface radium. Careful fulguration is the treatment of choice in the removal of benign moles and papillomas. Surgical ablation of large elevated carcinomas of the eyelid prior to roentgen therapy permits more effective treatment of their base with less mass irradiation of the eyeball and other adjacent nondiseased tissues by both primary and scattered rays. Four of the hundred cases reviewed have ended fatally from cancer of the eyelid during the past fifteen years. Therapeutic failures result from advanced and inaccessible disease, impairment of the tumor bed by prior inadequate therapy, insufficient or uneven dosage, incomplete marginal coverage of lesion, and inadequate follow-up of patients. Superficial roentgen therapy is effective in eradication of cancer of the eyelid with maximal preservation of the uninvolved tissues and with minimal injury to the eye when properly protected by an eyeshield.

Cancer of Tongue.—Sharp and Spickerman present a flexible plan for the eradication of the primary lesion as well as of metastatic cervical involvement in cancer of the tongue. The incidence of lingual carcinoma can be drastically reduced by early recognition and treatment of precancerous lesions. The relation between the site of the primary lesion, the etiology and the degree of malignancy is pointed out. Definite diagnosis of the character of a lesion is possible only on the basis of biopsy and pathologic examination. No ill effects from biopsy were observed in this series. Through medication with penicillin and the *sulfonamide* drug infection of the primary lesion and resultant dissemination of cancerous cells have largely been eliminated. The primary lesion is treated exclusively by irradiation, roentgen therapy being combined with subsequent implantation of radium needles. By using a short target-skin distance, the daily dose has been increased while the total dose has been considerably lowered; thus, the course of roentgen treatments has been reduced to ten or twelve days. For interstitial radium therapy platinum needles have been employed almost exclusively. In the *treatment of metastatic cervical nodes, preoperative* roentgen therapy is combined with subsequent radical neck dissection. When surgery is contraindicated, administration of a larger dose of x-rays is immediately followed by implantation of radium needles. An unselected, consecutive series of 81 cases is reviewed. The described course of treatments led to five year cures in 31.3 per cent of all cases.

Pulmonary Complications of Dorsal Sympathectomy.—Pendergrass and Allbritten review the anatomy and surgical procedure of dorsal sympathectomy. Extrapleural hemothorax, pneumothorax, pleural *effusion*, atelectasis and mediastinal emphysema are the most frequent complications of dorsal sympathectomy. Extrapleural hemothorax is the most serious. Aspiration should be carried out early. Six cases are reviewed. Routine x-ray examinations of the chest should be made within a few days after dorsal sympathectomy.

American Journal of Surgery, New York

73:311-420 (March) 1947

Posterior Colpotomy for Diagnosis of Pelvic Disease. A. Decker.—p. 313.

Primary Cyst of Round Ligament. M. A. Castallo and B. J. Giletto.—p. 320.

*Tissue Cultures as Clinical Aid in Diagnosis of Malignant Tumors. E. J. Grace.—p. 326.

Recurrent Dislocation of Patella. F. R. Thompson and D. M. Bosworth.—p. 335.

Common Errors in Burn Treatment. H. L. Romence.—p. 340.

*Streptomycin Therapy for Bacteremia. E. J. Pulaski and W. H. Amspacher.—p. 347.

Pyriform Syndrome in Relation to Sciatic Pain. D. R. Robinson.—p. 355.

Hydrogen Ion Concentration (*p*H) of Vagina Associated with Ectropion of Cervix (Cervicitis). K. J. Karnaky.—p. 359.

Significance of Hyperuricemia in Surgery: Introduction to Current Observations. B. J. Ficarra.—p. 363.

End Results of Ruptured Intervertebral Disks in Industry. A. P. Aitken and C. H. Bradford.—p. 365.

Tissue Culture in Malignant Tumors.—Grace maintains that tumor cells can be more readily identified by tissue culture than by section. Malignant cells can proliferate from a single cell. This does not take place in normal tissue. This fact may point the way to earlier diagnosis. Increase in activity of tumor cell growth is related to the degree of malignancy. The author has graded tumors into four classes, according to their degree of malignancy. Tissue culture methods have been used to differentiate nodules of Hodgkin's disease from other lymphomas. This procedure should be universally used in the difficult diagnosis of Hodgkin's disease. Tumors with differentiated cells have less tendency to metastasis than those with undifferentiated cells. High activity of cells in tissue culture gives warning of danger.

Streptomycin Therapy for Bacteria.—Pulaski and Amspacher summarize experiences in U. S. Army hospitals with streptomycin therapy in bacteremias due to gram-negative bacilli and gram-positive cocci. The majority of patients received 1 Gm. or more of streptomycin in divided, intramuscular doses, and treatment was continued for an average period of fourteen days. Twenty-two of 24 patients recovered and 2 died. Beneficial results attributable to streptomycin was noted in 18 of the 22 who recovered, while in 4 others the streptomycin was of questionable value. One patient died shortly after the initial dose of streptomycin was given. The other death was of a patient with rapidly progressive fulminating staphylococcic pyemia. Death occurred on the tenth day of therapy. Necropsy confirmed widespread abscess formation and also revealed an acute ulcerative endocarditis. In the 18 cases in which administration of streptomycin was considered beneficial, best results were obtained when the suppurating lesion was amenable to and had the benefit of surgical drainage. Streptomycin therapy in bacteremia can be expected to be successful if the organisms are susceptible in vitro, if the dosage is adequate, if the interval between doses provides bacteriostatic blood levels and the duration of treatment is long enough, if surgical drainage of the primary focus is prompt and exact and if due consideration is given to management of the patient as a whole.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

31:101-238 (March) 1947

Transmission of Experimental Syphilis from Mouse to Mouse—Absence of Spirocheta Pallida and of Pathologic Changes in Presence of Successful Inoculation. U. J. Wile.—p. 109.

Six to Twelve Month Follow-Up Results in Early Syphilis Treated by a Twenty Day Intensive Arsenobismuth System. D. M. Pillsbury and A. B. Loveman.—p. 115.

Treatment of Early Syphilis by the Twenty-Six Week Mapharsan-Bismuth Schedule. T. H. Sternberg and W. Leifer.—p. 124.

*Reactions to Twenty Day Intensive Therapy with Mapharsen and Bismuth for Syphilis, with a *Note on Use of BAL in Their Management*. F. E. Cormia and S. G. Blauner.—p. 135.

Dichlorophenarsine Hydrochloride in Treatment of Syphilis. H. Beerman and V. S. Wammock—p. 150.

Treatment of Paroxysmal Hemoglobinuria with Penicillin: Report of Case. L. C. Goldberg.—p. 163.

Clinical, Radiologic and Pathologic Aspects of Late Pulmonary Syphilis—Effects of Penicillin Therapy. G. V. Kulchar and F. Windholz.—p. 166.

Proposed Clerical System for a City Venereal Disease Control Program. H. Pariser.—p. 181.

Present Status of Immunity and Allergy in Syphilis. E. Urbach and H. Beerman.—p. 192.

Weltmann Serum Coagulation Reaction in Syphilis. J. L. Callaway, with technical assistance of Louise W. Adams.—p. 216.

Nonspecific Serologic Tests for Syphilis. L. W. Shaffer.—p. 221.

Practical Aspects of Verification Tests for Syphilis in Office Practice. S. W. Becker.—p. 225.

Problem of Positive Serologic Tests for Syphilis in Lupus Erythematosus, with Report of 3 Cases. C. J. White.—p. 235.

Twenty Day Intensive Therapy with Mapharsen and Bismuth.—Cormia and Blauner review observations in 500 cases of syphilis treated with moderate daily doses of mapharsen over a twenty day period. Mapharsen was given daily for twenty days in a unit dosage of 1 mg. per kilogram of body weight daily with the individual daily dose limited to a maximum of 75 mg. Bismuth subsalicylate in a unit dosage of 0.2 Gm. was administered concurrently at intervals of three days, with a total of eight injections in a period of twenty-two days. The prescribed treatment was completed in 476, or over 95 per cent, of the 500 patients. Types of reactions encountered in the 24 patients in whom the treatment had to be terminated were cerebral irritation, jaundice, toxic erythema, agranulocytosis, severe fever, hemorrhagic encephalitis and persistent albuminuria. Reactions of sufficient severity to interrupt therapy were encountered in 190 patients. BAL, or 2,3-dimercaptopropanol, was administered to 18 patients in 2 cc. ampules by intramuscular injection. The small number of patients treated and the variable plan of therapy do not permit the drawing of definite conclusions regarding the effectiveness of BAL.

American Review of Tuberculosis, New York

55:1-108 (Jan.) 1947

Tuberculosis Program of the Veterans Administration. P. R. Hawley.—p. 1.

National Tuberculosis Association and Its Interest in the Tuberculous Veteran. H. R. Edwards.—p. 8.

Recent Developments in Tuberculosis Control. H. E. Hilleboe.—p. 17.

Tuberculosis as International Problem. J. A. Doull.—p. 21.

Tuberculosis Experience of United States Army in World War II. E. R. Long.—p. 28.

Significance of Rehabilitation. E. S. Mariette.—p. 38.

Rehabilitation of the Tuberculous: Program of a Municipal Sanatorium. I. D. Bobrowitz.—p. 43.

Occupational Therapy and Rehabilitation. A. N. Aitken.—p. 49.

*Streptomycin in Miliary Tuberculosis: Its Effect on Pathologic Lesions of Generalized Miliary *Tuberculosis in Human Beings*. A. H. Baggenstoss, W. H. Feldman and H. C. Hinshaw.—p. 54.

Tuberculosis in a Laboratory Monkey Colony: Its Spread and Its Control. K. Habel.—p. 77.

Tuberculosis in Alabama State Hospitals: Mass Radiography for Its Control. A. H. Russakoff.—p. 93.

Streptomycin in Miliary Tuberculosis.—Baggenstoss and his co-workers present clinical, roentgenologic and pathologic observations in 5 cases of *miliary* tuberculosis treated with streptomycin. Evidence of regression and healing of the miliary tubercles in the lungs was observed roentgenologically in 4 cases, ophthalmoscopically in the choroid layer of the eye in 2 cases and histologically in the lungs and liver in 4 cases and in the spleen in 3 cases. The development of widespread tuberculous meningitis apparently was inhibited in 1 case and was either prevented or cured in 2 other cases. There was renal tubular damage in 1 case, but outside of that there was no microscopic evidence that streptomycin produces toxic effects. The observations on the 5 cases offer further evidence of the efficacy of streptomycin in tuberculosis and offer some hope for the effective treatment of two hitherto consistently fatal forms of the disease.

Annals of Surgery, Philadelphia

125:257-384 (March) 1947

*Surgical Therapeutic Significance of Functional Behavior of Thyroid Nodules. I D. Puppel, C. P. Leblond and G. M. Curtis.—p. 257.
Malignant Adenoma of Thyroid, with Secondary Metastases to Bone: Discussion of So-Called Benign Metastasizing Goiter. R. E. Outerbridge.—p. 282.
Mechanism of Hemostasis. L. M. Tocantins.—p. 292.
Thoracic Surgery in Hospital Center. L. Miscall and A. W. Harrison. —p. 311.
Modern Technic of Le Fort Operation. R. Tauber.—p. 334.
Compound Injuries of Knee Joint: *Study I. Treatment of Noninfected* Knee Joints. J. M. Parker and J. J. Modlin.—p. 341.
Treatment of Peripheral Nerve Injuries Complicated by Skin and Soft Tissue Defects. S. E. Potter and E. J. Croce.—p. 349.
*Use of Radioactive Sodium in Study of Peripheral Vascular Disease. Beverly C. Smith and Edith H. Quimby.—p. 360.
Value of External Skeletal Fixation in Elective Orthopedic Surgery. W. J. Stark.—p. 372.

Functional Behavior of Thyroid Nodules.—The histologic picture of nodules of 6 patients with nodular goiter examined by Puppel and his co-workers showed wide variations. The nodules of patients with toxic nodular and toxic diffuse goiter were of the hyperplasia-involution type. All nodules showed a decreased function when compared with the paranodular thyroid tissues. The nodules of patients with nontoxic nodular goiter, toxic nodular goiter, toxic diffuse goiter and so-called fetal adenoma appeared functionally autonomous. They showed less avidity for administered radio iodine, and also much less thyroxine and diiodotyrosine was made by them than by the surrounding thyroid tissue. The diffuse goitrous tissue of 2 patients with nontoxic diffuse colloid goiter showed great avidity for iodine, but its ability to produce thyroxine and diiodotyrosine did not appear greatly increased. The diffuse hyperplastic tissue of a patient with toxic diffuse goiter showed the greatest avidity for iodine and the greatest ability to produce thyroxine and diiodotyrosine. The diffuse paranodular thyroid tissue of 3 patients with nontoxic nodular goiter showed many of the microscopic characteristics of diffuse colloid goiter. It acted biochemically to a greater extent like the tissue of nontoxic diffuse colloid goiter, which indicates that during thyroidectomy it is this tissue which should be left behind to protect the patient against further decrease in the function of the thyroid gland. Iodine should perhaps be given postoperatively to help restore the remaining tissue. The paranodular thyroid tissue of a patient with toxic nodular goiter acted biochemically to a greater extent like the diffuse hyperplastic tissue of toxic diffuse goiter, which suggested that this tissue should be more adequately resected to decrease the incidence of persistence or pseudorecurrence of symptoms.

Radioactive Sodium in Study of Peripheral Vascular Disease.—Smith and Quimby point out that the use of radioactive isotopes as "tracers" is a new method for obtaining information of the status of the peripheral circulation. Radioactive sodium, introduced into a vein, is rapidly carried throughout all the blood vessels and then passes through the capillary walls into the extravascular fluid. The arrival of the material at an extremity and the nature of its build-up there to equilibrium between intravascular and extravascular fluid can be followed with a Geiger-Müller counter. Curves plotted from these data give information regarding arterial blood supply to the extremity. By correlating this with clinical findings, conclusions can be reached regarding the degree of main or collateral circulation. Estimates can be made of the degree of pathologic change in main or peripheral vascular disease. Cases are presented which indicate the manner in which the curves are used to determine when sufficient collateral circulation exists to warrant local conservative therapy. Similar studies at different levels of the leg have given valuable accurate information as to the site for amputation at which healing is to be expected. This has resulted in more amputations being done below the knee. Observations on patients with essential hypertension indicate that this test can be used to select cases which will or will not respond to thoracolumbar sympathectomy.

Archives of Dermatology and Syphilology, Chicago

55:155-308 (Feb.) 1947

*"Eosinophilic Granulomas" of Skin. F. D. Weidman.—p. 155.
Eosinophilic Granuloma: Theoretical and Practical Considerations Based on Study of Case. G. M. Lewis and F. E. Cormia.—p. 176.
Eosinophilic Granuloma of Skin: Its Relation to Erythema Elevatum Diutinum and Eosinophilic Granuloma of Bone; Report of Case. W. F. Lever.—p. 194.
*Granulomatous Hodgkin's Disease of Skin with Extreme Eosinophilia: Eosinophilic Granuloma of Skin? W. L. Dobes and F. D. Weidman. —p. 212.
Treatment of Various Types of Cutaneous Tuberculosis with Promizole and *Streptomycin: Preliminary Report.* P. A. O'Leary, E. T. Ceder, H. C. Hinshaw and W. H. Feldman.—p. 222.
Elephantiasis Neuromatosa: Manifestation of von Recklinghausen's Disease. R. J. Westcott and L. V. Ackerman.—p. 233.
Dyskeratosis Congenita with Pigmentation, Dystrophia Unguium and Leukoplakia: Patient with Evidence Suggestive of Addison's Disease. J. Garb.—p. 242.
Primary Lichen Amyloidosis: *Report of Necropsy.* S. S. Greenbaum and J. T. Bauer.—p. 251
Hyperkeratosis of Palms and Soles Due to Ingestion of Quinacrine Hydrocloride. L. Paxton.—p. 256.
Pseudomonas Aeruginosa Infection of Ear Treated with Streptomycin. J. L. Callaway.—p. 257.
*Dermatitis from Glass Fabrics. L. Schwartz.—p. 258.
Tinea Capitis in Southeastern Tennessee. C. Shaw.—p. 258.

Eosinophilic Granulomas of Skin.—According to Weidman the term "eosinophilic granuloma of the skin" was first used in 1937 by Nanta and Gadrat. The disease is not an entity but a histologic syndrome. In view of the frequent plaquelike involvement of the face, it must be taken into account in the differential diagnosis of apparent sarcoid, leukemia, erythema elevatum diutinum and possibly lupus erythematosus. It is not possible to formulate diagnostic formulas or prognoses to cover all cases of this disease. As cutaneous manifestations appear in Loeffler's syndrome in the form of persistent erythema multiforme, it is in order (1) to determine whether sections of skin in this syndrome exhibit the features of eosinophilic granuloma and (2) to take note of the role of Loeffler's syndrome in dermatology. Eosinophilic granuloma of bone does not appear to be related to eosinophilic granuloma of the skin, but the demonstration of fat in cutaneous lesions opens the way for further inquiry through the avenue of Letterer-Siwe disease. In line with the ideas of Sulzberger concerning histamine and allergy, the thesis is offered that the eosinophilic features are but additive to well known dermatologic entities such as erythema multiforme and Hodgkin's disease and that the eosinophilogenic factors may be responsible for obscuring and/or modifying the typical features of such entities.

Granulomatous Hodgkin's Disease with Extreme Eosinophilia.—According to Dobes and Weidman, granulomatous lesions in Hodgkin's disease are relatively rare in the skin. They develop tardily and incompletely compared with those in the lymphadenoid tissues. It appears that in the initial stages the tissue reaction in the skin is far more acute in type than that in the lymph nodes. In the reported case the extreme polymorphonuclear neutrophil reaction was particularly significant. The fibrosis and the development of Sternberg-Reed cells are so seldom exhibited in the skin that the dermatopathologist is denied this assistance in diagnosis in a way that is not the case for the general pathologist. Lymph nodes are far more promising leads toward histologic diagnosis than the skin. The extraordinary eosinophilia in the reported case may or may not be significant for an interrelationship with eosinophilic granuloma. It remains to be demonstrated whether the scope of Letterer-Siwe disease is sufficiently broad genetically to include Hodgkin's disease, but the demonstration of fat in a lymph node of this patient may be significant.

Dermatitis from Glass Fabrics.—Schwartz calls attention to outbreaks of dermatitis from women's suits and children's coats in which the lining was made of Fiberglass, which mechanically irritated the skin. Investigations disclosed that dermatitis had developed among girls working on the lining, which was thought to be rayon. The number of cases of dermatitis reported was so great that both the women's suit manufacturer and the babies' coat manufacturer were compelled to recall all the suits and coats, remove the lining and replace it with other fabric. The trade journals and the manufacturers of the Fiberglass fabric were notified of this outbreak of dermatitis, and a warning was given against use of Fiberglass for clothing. Recently reports have been received of dermatitis occurring from glass fabric being used for binding seams in women's dresses.

Archives of Otolaryngology, Chicago

45:145-282 (Feb.) 1947

Congenital Cysts of Tongue, Floor of Mouth, Pharynx and Larynx G. B. New.—p 145.

Junction of Nasal Cavity and Pharyngeal Tube in Rat G. Kelemen —p. 159.

*Streptomycin Used in Treatment of Suppurative Otitis Media· Preliminary Report J. B. Holt and F. B Snell —p 169.

Measurement of Overflow Capacity of Maxillary Sinus and Its Significance B. R. Dysart.—p. 173.

Role of Columellar and Septocolumellar Sutures in Rhinoplasty. J. Daley. —p. 178.

Dental Treatment of Trismus, Tinnitus, Otalgia and Obscure Neuralgias W. J. Kelly and H. W. Langheinz.—p 191.

Peroral Endoscopy. L. H. Clerf, J. T Spencer Jr and S A Fuhring —p. 245.

Streptomycin for Treatment of Suppurative Otitis Media.—Holt and Snell used streptomycin in 20 cases of suppurative otitis media representing 26 ears infected with gram-negative organisms. Two Gm. of streptomycin was given daily for five days. The 2 Gm. of the drug was dissolved in 24 cc of sterile water and given in 2 cc. doses intramuscularly every two hours day and night. The ears were dried daily, and streptomycin drops were instilled into the external canals hourly throughout the waking hours. Complete drying of all discharge occurred in 50 per cent of the infected ears Improvement was noted in 31 per cent. Nineteen per cent showed no improvement. Tests for sensitivity to streptomycin revealed that the infecting organisms varied from 1 to 16 units per cubic centimeter. After treatment the organisms in the cases in which streptomycin failed to effect improvement proved to be resistant to .128 units per cubic centimeter. This suggests a rapid development of resistance to streptomycin.

Archives of Surgery, Chicago

54:117-248 (Feb) 1947

*Vitamin C in Gastric Resection for Peptic Ulcer E de Jesus Zerbini. —p. 117.

Incised Wounds of Head Inflicted by Bayonets K H Abbott —p 121

*Use of Small Threaded Wires in Treatment of Fractures I Fractures of Lower Extremities. H. R McCarroll —p 138

Id : II. Fractures of Upper Extremities. H R McCarroll —p 154

Id : III. Their Use in Fixation of Bone Grafts H R McCarroll —p 170.

*Treatment of Deep Venous Thrombosis with Reference to Subcutaneous Injection of Heparin and Use of Dicumarol W D Holden —p 183.

Pathognomonic Sign for Cyst of Knee Cartilage A J Pisani —p 188.

Progress in Orthopedic Surgery for 1945 IV. Conditions Involving Hip Joint J. J Fahey —p. 191.

Id : V Conditions Involving Foot and Ankle E. D W. Hauser and R. P. Montgomery.—p. 201.

Id : VI. Congenital Dislocation of Hip A B Gill —p 218

Review of Urologic Surgery. A. J Scholl, F Hinman and A. B Hepler and others —p 220.

Vitamin C in Gastric Resection for Peptic Ulcer.—The observations reported by de Jesus Zerbini were made on 2 vitamin C deficient patients with duodenal ulcer subjected to gastric resection. One with a total, though unsuspected, absence of ascorbic acid in white cells and plasma, without clinical manifestations and uncorrected by preoperative therapy, exhibited severe surgical shock during operation, which seemed to respond promptly to the intravenous injection of 2 Gm. of the vitamin. The other, with a known absence of ascorbic acid in plasma and white cells, completely corrected before operation, exhibited after operation a fall to zero in the plasma level, with no corresponding fall in the white cell level in spite of the daily injection of 200 mg. of the vitamin; on removal of stitches on the seventh postoperative day, the wound showed no evidence of healing. This suggests that a low or zero level of plasma ascorbic acid should not be looked on as harmless and that a sufficient amount should be given after operation in order to maintain a high plasma level.

Small Threaded Wires in Treatment of Fractures.—McCarroll discusses the use of small threaded wires in the treatment of fractures. The small size of the wire, the excellent fixation afforded by the threads and the minimum amount of trauma to bone and soft tissues render them superior to other forms of internal fixation in certain types of fractures. The method has been used for comminuted intertrochanteric fractures of the femur, for spinal or oblique fractures of the tibia and fibula and for fractures about the ankle joint. The small threaded wire can be used in fractures of the clavicle, in dislocation of the acromioclavicular joint, in fractures of the proximal end of the humerus, for fractures of the epicondyle of the humerus with displacement, in comminuted fractures of the lower end of the humerus with extreme displacement of the fragments, in fractures of the olecranon and in fractures and dislocations of the metacarpals.

Heparin and Dicumarol in Treatment of Deep Venous Thrombosis.—Holden presents a plan for the treatment of venous thrombosis embracing the physiologic principles underlying the use of and the indications for anticoagulant therapy, venous ligation and anesthesia of the paravertebral sympathetic system. Sixteen of 31 patients with venous thrombosis had pulmonary infarcts before the diagnosis of peripheral venous thrombosis was made. All 31 patients were treated primarily with subcutaneous administration of heparin and dicumarol. Five of the 31 patients had ligations of the superficial femoral vein, and 3 had paravertebral sympathetic blocks. All recovered.

Arkansas Medical Society Journal, Fort Smith

43:229-256 (March) 1947

Cancer of Thyroid Gland. J. H. Hayes —p. 229.

Injuries Involving Accessory Nasal Sinuses. E C. Gay and W. G. Sittler —p 231.

Surgical Experiences with Vascular Disease. H Mahorner.—p. 236.

43:257-284 (April) 1947

Tuberculosis Control Activities of Arkansas State Board of Health A C. Curtis —p. 257.

Consideration of Surgical Complications of Amebiasis of Colon and Rectum D. B. Stough Jr.—p. 261

Trends in Tuberculosis Control Procedures. H. R Edwards —p. 270.

Blood, New York

2:111-216 (March) 1947

Dietary Factors Concerned in Erythropoiesis G. E Cartwright —p 111

Effect of Diet on Hemoglobin, Erythrocyte and Leukocyte Content of Blood of Rhesus Monkey (Macaca Mulatta). Edith S. Jones, K. B. McCall, C. A. Elvehjem and P. F Clark.—p. 154.

Hemopoiesis in Riboflavin Deficient Rats K. M. Endicott, A. Kornberg and Maurine Ott.—p 164.

Hematologic Response in Dogs to Administration of Anti Spleen Serum. J. B Miale.—p. 175.

Contribution to Pathogenesis of Hemophilia A. Pavlovsky.—p 185.

Renal Function During Chronic Anemia in Man. S. E. Bradley and Geraldine P. Bradley.—p. 192.

Bulletin of Johns Hopkins Hospital, Baltimore

80:1-106 (Jan) 1947

*Objective Studies of Some Physiologic Responses in Mild Chronic Trench Foot. G. E Burch, H. L Myers, R. R. Porter and N. Schaffer —p. 1.

Use of Psychosomatic Concept in Medicine. F Deutsch —p. 71.

Use of Psychosomatic Concept in Social Case Work. E. E. Cockerill —p 86

*Elimination of Poliomyelitis Virus from Human Mouth or Nose. R. Ward and B. Walters —p. 98.

80:107-148 (Feb.) 1947

Physiologic Studies in Congenital Heart Disease: I. Procedures. R. J. Bing, L. D. Vandam and F. D. Gray Jr.—p 107.

Id · II. Results of Preoperative Studies in Patients with Tetralogy of Fallot. R J. Bing, L. D. Vandam and F. D. Gray Jr.—p 121.

Lipotropic Effect of N^1-Methylnicotinamide. V. A. Najjar and I. M. Ratcliffe —p. 142.

Physiologic Responses in Trench Foot.—Burch and his co-workers aimed to find an objective test which would aid in determining whether or not patients who formerly had acute trench foot are still showing evidences of active disease. This study is based on the premises that trench foot is an inflammatory disease produced by exposure to cold and moisture and that tissue reaction and repair persist long after initial exposure. Temperature studies by means of skin thermocouples supplemented by evaluations of skin color and the rate of refilling of pressure emptied skin vessels were used to uncover local inflammation and the rate of circulation. The comparative rates of water loss from the skin of normal and trench foot subjects were also observed. There was practically no difference in sweating between normal and trench foot subjects. The initial temperature of the foot of the mild chronic trench foot subject was higher than that of the normal subject, and there was a direct correlation between the clinical severity of the disease and the height of this temperature. Trench foot subjects did not adapt to environmental cooling like the controls. This fact was demonstrated by studies conducted on the refilling time of pressure emptied skin vessels. An "activity index" based on the initial stabilization temperature, number of degrees temperature fall following fifteen minutes of occlusion and rise during hyperemia after release of the circulation can be devised to express the amount of inflammatory activity in a part injured by cold and moisture. Such an index might be further supported by data on the refilling time of pressure emptied skin vessels.

Elimination of Poliomyelitis Virus from Mouth or Nose.—Ward and Walters carried out tests on 19 patients in the early stages of poliomyelitis. Virus was demonstrated in material expelled from the mouth or nose of 2 of the 19 patients. This was achieved by having patients blow and spit into cloth masks from which virus was extracted. Virus was also detected in nasal swabs of the first patient and pharyngeal swabs of the second patient shown to have eliminated virus from the mouth or nose. In 5 additional patients virus was isolated only from swabs of the pharynx. This is believed to be the first demonstration of virus elimination from mouth or nose under circumstances which come fairly close to being natural.

Cancer Research, Baltimore

7:129-192 (March) 1947

Sensitivity of Different Tissues in Street Strain Mice to 9,10-Dimethyl-1,2-Benzanthracene. J. Engelbreth-Holm and R. Rask-Nielsen.—p. 129.
Induction of Neoplasms in Five Strains of Rats with Acetylaminofluorene. W. F. Dunning, M. R. Curtis and M. E. Madsen.—p. 134.
Observations on Radiation Induced Lymphoid Tumors of Mice. H. S. Kaplan.—p. 141.
Changes in Succinoxidase Activity of Livers from Rats During Development of Hepatic Tumors on Feeding p-Dimethylaminoazobenzene. Cornelia Hoch-Ligeti.—p. 148.
Production of Tumors in Livers of Rats Fed m-Methyl-p-Dimethylaminoazobenzene. Ruth Cortell.—p. 158.
p-Dimethylaminoazobenzene Carcinogenesis with Purified Diets Varying in Content of Cysteine, Cystine, Liver Extract, Protein, Riboflavin and Other Factors. P. N. Harris, M. E. Krahl and G. H. A. Clowes.—p. 162.
Effect of Biotin on p-Dimethylaminoazobenzene Carcinogenesis. P. N. Harris, M. E. Krahl and G. H. A. Clowes.—p. 176.
Effect of Diet Containing Dried Egg Albumin on p-Dimethylaminoazobenzene Carcinogenesis. P. N. Harris.—p. 178.
Etiologic Factors in Carcinoma of Penis. R. Schrek and H. Lenowitz.—p. 180.

Diseases of Chest, Chicago

13:91-188 (March-April) 1947

*Physiologic and Antibiotic (Penicillin) Therapy in Chronic Hypertrophic Pulmonary Emphysema. A. L. Barach and Bettina Garthwaite, with technical assistance of Eva Levenson and Dora Rader.—p. 91.
*Treatment of Thoracic Empyema with Sodium Tetradecyl Sulfate 1: 500 in Azochloramid 1: 3,300. E. H. Tonolla and O. C. Brantigan.—p. 123.
Treatment of Tension Cavities with Pneumothorax. I. D. Bobrowitz.—p. 133.
Pneumoperitoneum with Diaphragmatic Paralysis in Treatment of Pulmonary Tuberculosis. D. J. Gilmore.—p. 153.

Physiologic and Antibiotic Therapy in Pulmonary Emphysema.—Of 86 courses of treatment administered by Barach and Garthwaite in 51 cases of pulmonary emphysema, clinical improvement attributable chiefly to penicillin, administered as an aerosol in most cases and with systemic administration in resistant cases, was definite in 20, moderate in 19 and slight in 25; in 22 no improvement took place. The results of physiologically directed therapy, a combination of periodic administration of aminophylline and epinephrine, bed rest, administration of meperidine hydrochloride (demerol), manual compression of the upper abdomen underneath the ribs during the latter part of expiration and inhalation of 70 to 100 per cent oxygen for twenty to thirty minutes two or four times daily, in the same group were definite improvement in 9, moderate in 36, slight in 23 and none in 18. Of a total of 86 courses, 66 patients manifested moderate or pronounced improvement. In analyzing the role played by each therapeutic factor, 31 of the 66 improved cases appeared to be more influenced by physiologic therapy and 27 by penicillin treatment, with an equal effectiveness in 8 cases. In some of the cases in this series previous exposure to physiologic therapy had resulted in a baseline of improvement which gave the appearance of less striking effect from this type of therapy than might have been anticipated in cases in which the procedures used in bronchial relaxation and inhalational therapy had not been employed. The study of the sputum culture before and after treatment revealed the characteristic disappearance of gram positive organisms in the majority of cases with replacement by gram negative bacteria.

Treatment of Thoracic Empyema.—Tonolla and Brantigan employed sodium tetradecyl sulfate 1: 500 in azochloramid 1: 3,300 in the treatment of 7 patients subjected to aspiration of the pleural cavity with instillation of this chemotherapeutic agent. The effect of this substance is to lower surface tension, thereby allowing better penetration of the antiseptic agent, and to facilitate the removal of the exudate. The solution tends to prevent reformation of intrapleural fluid while sterilizing the area. These patients recovered and remained well. If the infection is not eliminated in three to six days, as it happened in the seventh case, either closed or open thoracotomy should be resorted to. Twenty-eight patients were treated with closed drainage and 20 patients with open thoracotomy. In none has there been a chronic empyema.

Journal of Allergy, St. Louis

18:81-148 (March) 1947

Reactions to Antipneumococcal Rabbit Serum: V. Effects on Reversed Passive Anaphylaxis of Lengthening Interval Between Constant Sensitizing Doses of Pneumococcal Polysaccharide and Constant Shocking Doses of Antipneumococcal Rabbit Serum: VI. Diminution of Circulating Pneumococcal Polysaccharide: VII. Variations in Reversed Passive Anaphylactogenic Properties of Different Lots of Antipneumococcal Rabbit Serum. O. Swineford Jr., M. A. Holliday, P. Webb and H. R. Pearsall.—p. 81.
Delayed Absorption of Proteins in Guinea Pig. J. R. Ross.—p. 86.
Quantitative Changes in Various Fractions of Precipitable Nitrogen in Ragweed Extracts During Incubation (37 C.). F. A. Stevens.—p. 90.
Sensitization by Topical Application of Sulfonamides. M. B. Sulzberger, A. Kanof, R. L. Baer and Clare Lowenberg.—p. 92.
*Effective Treatment of Extremely Sensitive Hay Fever Patients by Chilling Method. L. C. Lazarowitz.—p. 104.
*Penicillin in Intractable Asthma. M. W. Miller.—p. 109.
Etiologic Evaluation of Asthma in 100 Cases Returned from Overseas. A. P. Fishman.—p. 115.

Treatment of Sensitive Hay Fever Patients.—Lazarowitz thinks that the disadvantages of treating hay fever patients with injections are due in many instances to the too rapid absorption of the antigen, especially in those most sensitive. Many attempts have been made to slow the absorption of pollen extracts by the addition of various substances known to cause delay. The principle of chilling is presented as a new approach to solve the problem of slow absorption of allergenic extracts. A small ice bag supported by a bandage was applied to the midouter part of the arm for fifteen minutes prior to and for fifteen minutes subsequent to the subcutaneous injection of ragweed extract to retard the circulation in and around the site of the injection. Thirty hay fever patients were treated with dosages exceeding three to four times the routine dosage of ragweed extract due to the retardation of absorption following the vasoconstriction of chilling. The chilling procedure is time saving, since it diminishes the number of visits by 40 per cent. Constitutional reactions occurred seldom, and no delayed reaction was observed. The treatment gave effective relief of symptoms of hay fever in all treated patients. Chilling renders the injections painless.

Penicillin in Intractable Asthma.—Miller reports observations on 26 adults and 3 children to whom penicillin was administered at three hour intervals in doses of 12,500 or 25,000 units. The average total dose was 1,000,000 Oxford units. Eleven of the 29 patients showed an excellent response while receiving penicillin; they became symptom free or so nearly so that they required no symptomatic therapy. Eleven showed improvement but continued to require occasional, although less frequent, symptomatic treatment. Seven showed no change whatever either during the hospital course or thereafter. Penicillin cannot be considered a panacea for intrinsic asthma. It should be regarded as a treatment of infectious processes and as such seems to be effective in selected cases of bacterial asthma.

Journal of Clinical Investigation, Boston

26:1-144 (Jan.) 1947. Partial Index

Cardiac Output in Man: Studies with Low Frequency, Critically Damped Ballistocardiograph and Method of Right Atrial Catheterization. J. L. Nickerson, J. V. Warren and E. S. Brannon.—p. 1.
Intubation Studies of Human Small Intestine: XXV. Absorption of Galactose from Intestine of Normal Individuals and Thyrotoxic Patients. V. Moseley and F. W. Chornock.—p. 11.
Nutritional Requirements for Nitrogen Balance in Surgical Patients During Early Postoperative Period. Cecilia Riegel, C. E. Koop, J. Drew, L. W. Stevens and J. E. Rhoads, with technical assistance of Louisa Bullitt and others.—p. 18.
*Metabolic Effects of Steroid Hormones in Osteoporosis. E. D. Reifenstein Jr. and F. Albright.—p. 24.
Immunologic Studies in Insulin Resistance: III. Measurement of Insulin Antagonist in Serum of Insulin Resistant Patient by Blood Sugar Curve Method in Mice. F. C. Lowell.—p. 57.
Trichinella Skin Tests in Orphanage and Prison: Comparison with Serologic Tests for Trichinosis and with Tuberculin Reaction. G. T. Harrell, S. F. Horne, J. K. Aikawa and Nancy J. Helsabeck.—p. 64.
*Pamaquine Naphthoate as Prophylactic for Malarial Infections. H. A. Feldman, H. Packer, F. D. Murphy and R. B. Watson.—p. 77.
Electrophoretic Changes in Serum of Patient with Rheumatoid Arthritis. V. P. Dole and S. Rothbard, with technical assistance of K. Winfield.—p. 87.
Variation in Protein and Polysaccharide Content of Serums in Chronic Diseases, Tuberculosis, Sarcoidosis and Carcinoma. Florence B. Seibert, Mabel V. Seibert, A. Jane Atno and H. W. Campbell.—p. 90.
Anemia of Infection: III. Uptake of Radioactive Iron in Iron Deficient and in Pyridoxine Deficient Pigs Before and After Acute Inflammation. M. M. Wintrobe, G. R. Greenberg, S. R. Humphreys and others.—p. 103.
Circulating Red Cell and Plasma Volume and Distribution of Blood in Large and Minute Vessels in Experimental Shock in Dogs, Measured by Radioactive Isotopes of Iron and Iodine. J. G. Gibson 2d, A. M. Seligman, W. C. Peacock and others.—p. 126.

Steroid Hormones in Osteoporosis.—Reifenstein and Albright studied the effect of certain steroid hormones, notably estrogens, androgens and progesterone, in 11 cases of osteoporosis: 5 cases of the postmenopausal type, 1 case of the senile type, 2 cases of the type seen following orthopedic operations (atrophy of disuse) and 3 cases of the Cushing's syndrome type. Estradiol benzoate and diethylstilbestrol decreased the calcium and phosphorus excretions in the four types of osteoporosis studied. Testosterone propionate and methyl testosterone decreased the calcium and phosphorus excretions in the postmenopausal, senile and Cushing's syndrome osteoporosis. Progesterone in the dosages of 10, 25 and 100 mg. daily had no effect whether given alone or in combination with an estrogen. The effect on the calcium metabolism of estrogen and androgen in combination was greater than that of either alone in the postmenopausal and senile groups. In Cushing's syndrome estrogen probably does have a beneficial effect on the calcium balance, previous statements to the contrary from this clinic notwithstanding. Testosterone compounds have a much more striking effect in this condition, as opposed to other types of osteoporosis.

Pamaquine Naphthoate as Prophylactic for Malarial Infections.—"Pamaquine" is the term the United States Pharmacopeia applies to plasmoquine, 6-methoxy-8-(1-methyl-4-diethylamino) butyl-aminoquinoline. Feldman and his associates administered pamaquine naphthoate to 36 patients with dementia paralytica as a prophylactic against mosquito induced infections with Plasmodium vivax and Plasmodium falciparum. Daily doses of either 160 or 180 mg. administered the day before, the day of and for five or six days after the day of inoculation with P. vivax have prevented or postponed the primary attack for months. In the case of P. falciparum postinoculation treatment could be shortened to three days with similar results, except that delayed primary attacks were not observed. Two instances of acute hemolytic anemia were encountered among 11 Negro patients. One of these was reexposed to the drug and promptly had another hemolytic episode. Methemoglobinemia was regularly encountered in all subjects. Elevations of the serum bilirubin and moderate hematocrit decreases were commonly noted among those receiving the higher, more prolonged courses, regardless of race. Pamaquine naphthoate is rapidly absorbed and excreted.

Journal Industrial Hygiene & Toxicology, Baltimore

29:59-144 (March) 1947

Leroy Upson Gardner, 1888-1946. P. Drinker.—p. 59.
Quinone Vapors and Their Harmful Effects: I. Corneal and Conjunctival Injury. J. H. Sterner, F. L. Oglesby and B. Anderson.—p. 60.
Id.: II. Plant Exposures Associated with Eye Injuries. F. L. Oglesby, J. H. Sterner and B. Anderson.—p. 74.
Toxicity of 2,4 Dichlorophenoxyacetic Acid for Experimental Animals. E. V. Hill and H. Carlisle.—p. 85.
Study of Hazards of Exposure to Metallic Fumes and Dust in Brass Foundries. W. W. Stalker.—p. 96.
Study of Pneumonia in Shipyard Workers, with Special Reference to Welders. M. F. Collen.—p. 113.
Acute and Chronic Toxicity of Methyl Chloride: II. Symptomatology of Animals Poisoned by Methyl Chloride. W. W. Smith and W. F. von Oettingen.—p. 123.
Microscopic Detection of Cadmium Oxide Particles in Lung Tissue. R. E. Thiers, E. M. S. Arthur, J. R. Mills, D. R. Hamly and F. E. Beamish.—p. 129.
*Duodenal Ulcer Following Exposure to Carbon Tetrachloride: Report of 2 Cases. Adelaide R. Smith.—p. 134.
Rapid Method for Determination of Chromic Acid Mist in Air. L. Silverman and J. F. Ege Jr.—p. 136.
*Loose versus Close Fitting Clothing for Work in "Tropical Heat." C. P. Yaglou and M. N. Rao.—p. 140.

Duodenal Ulcer Following Exposure to Carbon Tetrachloride.—In the 2 cases of carbon tetrachloride poisoning reported by Smith, duodenal ulcer followed exposure to toxic concentrations of this solvent. In neither case had there been any previous history of digestive disturbance. While it is recognized that silent cases of ulcer do occur, the development in both these instances of ulcer symptoms following promptly on severe exposure is believed strongly suggestive of a causal relationship. A review of case histories of carbon tetrachloride poisoning suggests that the development of peptic ulcer, even though infrequently reported, may not be an uncommon complication.

Loose versus Close Fitting Clothing for Work in "Tropical Heat."—Yaglou and Rao carried out tests which demonstrate that in tropical heat, when solar radiation is not a factor, *any clothing is a hindrance to loss of body heat.* If clothing must be worn it should be loose fitting and of light weight; it should expose as much skin area as possible and *should be designed for maximum ventilation. Clothing designed* for skin ventilation by "bellows action" is more efficient for evaporative cooling during work in tropical heat than is a close *fitting absorbent garment.*

Journal of Investigative Dermatology, Baltimore

8:53-122 (Feb.) 1947

*Poison Oak Dermatitis: Studies on Hematologic, Urinary and Temperature Changes. H. J. Templeton, C. J. Lunsford and H. V. Allington.—p. 53.
Nature of Halogen Sensitivity in Dermatitis Herpetiformis and Pemphigus: Preliminary Report. Z. Felsher.—p. 55.
Modifications of Goldman Technic for Contact Testing of Buccal Mucosa. J. Farrington.—p. 59.
Antipruritic Qualities of Papaverine Hydrochloride. L. Wirth.—p. 63.
Steatocystoma Multiplex: Analysis of Their Contents. F. W. Lynch and I. Fisher.—p. 65.
Pyribenzamine in Experimental Nonallergic and Allergic Dermatitis. R. L. Mayer.—p. 67.
Spontaneous Cure of Tinea Capitis in Puberty. S. Rothman, A. Smiljanic, A. L. Shapiro and A. W. Weitkamp.—p. 81.
Cicatricial Alopecias: Historical and Clinical Review and Histologic Investigation. C. W. Laymon.—p. 99.

Poison Oak Dermatitis.—Templeton and his co-workers studied the effect of severe poison oak dermatitis on the temperatures and blood counts of 106 patients. Of 79 patients who could give an exact date of exposure the first lesions were noted within twenty-four hours by 54 patients. In 60 of the patients the dermatitis required three to five days from onset to reach its greatest intensity. Little systemic reaction takes place in severe poison oak dermatitis. About four fifths of the patients reacted with slight fever. About half had a mild leukocytosis and about half had a moderate *eosinophilia.* The urines of all patients were normal.

Journal of Nat. Cancer Inst., Washington, D. C.

7:103-182 (Dec.) 1946. Partial Index

Hypervolemia Secondary to Grafted Granulosa Cell Tumor. J. Furth and H. Sobel.—p. 103.

Blood Uric Acid and Proteose, Body Temperature and Glomerular Clearance of Rabbits Implanted with Brown-Pearce Carcinoma and Treated with Polysaccharide from Serratia Marcescens. B. B. Westfall and Thelma B. Dunn.—p. 115.

Avenues of Approach to Gastric Cancer Problem. M. K. Barrett. —p. 127.

*Effect of Prolonged Ingestion of Thiourea on Mammary Glands and Appearance of Mammary Tumors in Adult C3H Mice. H. P. Morris, Celia S. Dubnik and A. J. Dalton.—p. 159.

Cultivation of Tumors in Anterior Chambers of Eyes of Guinea Pigs. Helen M. Dyer and Margaret G. Kelly.—p. 177.

Effect of Prolonged Ingestion of Thiourea on Mammary Tumors in Mice.—Virgin strain C3H mice aged 11 months without palpable spontaneous mammary tumors were divided by Morris and his associates into two groups. One group was placed on a stock diet of natural foodstuffs to which was added thiourea. The animals ingested thiourea until mammary tumors developed, or from a minimum of two to a maximum of sixty-three weeks. The control group was maintained on the stock diet throughout. The incidence of spontaneous mammary tumors was essentially the same in the two groups. The appearance of the tumors was delayed in the thiourea treated group. The average time till tumors appeared was 16.2 weeks in the treated group and 8.7 in the control, a statistically significant difference.

Journal National Malaria Society, Tallahassee, Fla.

5:169-232 (Sept.) 1946. Partial Index

Study of Winter DDT House Spraying and Its Concomitant Effect on Anophelines and Malaria in Endemic Area. T. H. G. Aitken. —p. 169.

Review of Malaria Studies and Control in Tennessee Valley in 1945. R. B. Watson, C. C. Kiker and A. D. Hess.—p. 193.

Training Aids for Entomologic Phases of Malariology. M. H. Goodwin Jr., S. J. Carpenter and F. Fisk.—p. 205.

Studies on Serology of Malaria: II. Hemoglobin Precipitation with Lipid Antigen. A. H. Wheeler, Elizabeth B. McDermott, J. Adler and R. L. Kahn.—p. 209.

Inadequate House Screening as Factor in Malaria Transmission. M. Kenney.—p. 223.

5:233-284 (Dec.) 1946. Partial Index

Definition of Malaria Control. F. L. Knowles.—p. 233.

Malaria Control Activities During Construction of Advanced Tropical Naval Base. A. A. Weathersbee.—p. 263.

Planning for Malaria Prevention on Postwar Impoundments. N. H. Rector.—p. 277.

Journal of Neurosurgery, Springfield, Ill.

4:1-96 (Jan.) 1947

On Being a Literary Executor. J. F. Fulton.—p. 1.

Nutritional Study of Neurosurgical Patients, with Special Reference to Nitrogen Balance and Convalescence in Postoperative Period. J. H. Drew, C. E. Koop and R. P. Grigger.—p. 7.

Nerve End Separation Following Suture: Resection of Neck of Fibula in Suture of Peroneal Nerve. K. E. Livingston, W. K. Livingston and D. Andrus.—p. 16.

*Surgical Treatment of Angina Pectoris. I. Lindgren and H. Olivecrona. —p. 19.

Care and Rehabilitation of Patients with Injuries of Spinal Cord and Cauda Equina: Preliminary Report of 113 Cases. W. G. Kuhn Jr. —p. 40.

Observations on Use of Tantalum Foil in Peripheral Nerve Surgery. N. C. Norcross and J. T. Bakody.—p. 69.

Surgical Treatment of Angina Pectoris.—Lindgren and Olivecrona state that in 7 patients whom they treated by section of the five superior dorsal roots the results were not gratifying. Most patients had moderate relief from pain, but none were completely or permanently free from discomfort. In some patients attacks of angina pectoris returned; 1 patient had a constant feeling of oppression in the chest and another developed anesthesia dolorosa. Resection of the stellate ganglion according to Leriche was employed in 2 patients, in whom moderate improvement was obtained. Of a series of 250 patients with cardiac pain, 71 patients were selected for resection of the stellate and the four upper thoracic ganglions. Operative indication was severe angina pectoris resistant to medical treatment. Two cases of cardiovascular syphilis were included. Three patients died during the operation, 2 of them probably from myocardial infarction and 1 from valvular pneumothorax. In 8 other patients myocardial infarction occurred within one month after the operation. In 3 of them the infarct was fatal. The most common complication was painful neuritis, usually of short duration. Transient phrenic nerve paralysis was observed. The "migration of pain" phenomenon was observed. In 1 case in which the anginal pain had migrated to the jaws, bilateral tractotomy gave an excellent result. The results of the extensive cervicothoracic ganglionectomy were gratifying. The operation gave complete or nearly complete relief from pain in 44 per cent, and in 41 per cent it converted severe forms of angina pectoris into milder types. The sensation of fear connected with the pain disappeared in many patients. On emotion or exercise all patients postoperatively experienced a choking sensation or slight pain, which served them as a "warning signal."

Journal of Nutrition, Philadelphia

33:251-360 (March) 1947

Relationship of Nicotinic Acid, Tryptophan and Protein in Nutrition of the Pig. R. W. Luecke, W. N. McMillen, F. Thorp Jr. and Carolyn Tull.—p. 251.

Riboflavin Deficiency in Dairy Calf. A. C. Wiese, B. C. Johnson, H. H. Mitchell and W. B. Nevens.—p. 263.

Formation of Capillaries and Other Tissue Changes in Cornea of Methionine Deficient Rat J. L. Berg, E. R. Pund, V. P. Sydenstricker and others.—p. 271.

*Work Performance, Respiratory Exchange and Certain Blood Constituents After Isocaloric Meals of Low and High Carbohydrate Content. J. Haldi and W. Wynn.—p. 287.

*Improving Nutritive Value of Flour: I. Effect of Supplementing Enriched Flour with Other B Complex Vitamins. Beulah D. Westerman and Gertrude Hall.—p. 301.

Amino Acids Required to Supplement Linseed Protein for Chick Growth. F. H. Kratzer, D. Williams and Elizabeth F. Baker.—p. 313.

Inborn Characteristic Determining Response of Chickens to Diet Free of Animal Protein. H. R. Bird, M. Rubin and A. C. Groschke. —p. 319.

Surface Area and Metabolism of Growing Guinea Pigs. H. H. Kibler, S. Brody and D. Worstell.—p. 331.

Growth Promoting Factor for Rats Present in Summer Butter. J. Boer, B. C. P. Jansen and A. Kentie.—p. 339.

Growth Promoting Action of Vaccenic Acid. J. Boer, B. C. P. Jansen, A. Kentie and H. W. Knol.—p. 359.

Work After Carbohydrate Meals.—Haldi and Wynn describe studies which revealed that work output, muscular efficiency and percentage recovery (measured by a comparison of the work performance in the first and second exercise periods) were not diminished by a high carbohydrate intake two to three hours before exercise. After a meal rich in carbohydrate the blood sugar level immediately before exercise was higher than at the corresponding time after the low carbohydrate meal. The data of these experiments are offered as confirmatory evidence for the conclusion drawn from other observations that a hypoglycemic reaction is not the usual physiologic response to a high carbohydrate meal.

Improving Nutritive Value of Flour.—Westerman and Hall describe experiments carried out to determine the effect of supplementing enriched flour with other B complex vitamins. Evidence is presented to show that the addition of riboflavin, thiamine, calcium pantothenate and pyridoxine to enriched flour improves the nutritive value.

Kansas Medical Society Journal, Topeka

48:57-104 (Feb.) 1947

Physical Rehabilitation of the Severely Handicapped. E. C. Elkins. —p. 57.

Carcinoma of Rectum—Review of 215 Cases. T. M. Johnson.—p. 62.

Biopsy. C. A. Hellwig.—p. 66.

48:105-148 (March) 1947

*Obstructive Laryngitis in Children Caused by Hemophilus Influenzae Bacillus Type B. H. V. Davis.—p. 105.

Demerol as Preanesthetic Agent. C. A. Hunter Jr., R. Hale and P. H. Lorhan.—p. 109.

Appendix Epiploica Resembling Vermiform Appendix. H. B. Latimer and A. H. Hinshaw.—p. 111.

Obstructive Laryngitis Caused by Hemophilus Influenzae Bacillus Type B.—Davis thinks that the importance of laryngeal infections caused by Hemophilus influenzae bacillus type B in children is not generally recognized. Unless the clinical features of this rapidly developing infection are recognized, in many instances proper treatment will not be instituted in sufficient time to prevent death. The onset is abrupt. The child becomes fretful and complains of a sore throat accompanied with difficulty in swallowing. There develops in extremely rapid progression respiratory distress with inspiratory retraction of the sternum and soft tissues, cyanosis, hoarseness and a croupy cough. Prostration is out of proportion to the short duration of the illness. The children are frequently limp, in shock and moribund within eight to twelve hours after the onset of symptoms. The temperature ranges from 100 to 104 F. Examination of the oropharynx usually shows that it is intensely red and edematous. The epiglottis and glottis are swollen and fiery red. Membranes are notable by their absence. The principal laboratory findings are leukocytosis of 15,000 cells or more and a polymorphonuclear leukocytic count of 80 or 90 per cent. The diagnosis can be confirmed by recovering H. influenzae type B in cultures taken from the nasopharynx, the oropharynx, the larynx or the blood. The three cardinal therapeutic measures to be executed should include the performance of a tracheotomy for relief of respiratory obstruction, the administration of sulfadiazine and type B H. influenzae rabbit antiserum, and the administration of parenteral fluids to combat or prevent shock. Davis presents 3 illustrative cases.

Military Surgeon, Washington, D. C.

100:205-288 (March) 1947

Future Research in Aviation Medicine. M. C. Grow.—p. 205.
Program for the Deaf. R. T. McIntire.—p. 207.
Recent Experiences in Treatment of Kala-Azar. W. H. Hargreaves. —p. 212.
Dental Program of Veterans Administration. V. D. Irwin.—p. 215.
Medical Consultants Division of Surgeon General's Office. A. Freer. —p. 220.
Sanitary Corps Functions and Organization. W. A. Hardenbergh. —p. 222.
Amputations: Care of Amputee Patients. T. C. Ryan.—p. 224.
Enteric Protozoa and Helminth Finding as Influenced in War Years. J. W. Colvin, T. K. Ruebush, J. L. Avery and R. N. Lanier.—p. 229.
Neuropsychiatry at Separation Center. J. M. Schneck.—p. 232.
Health of the Army. N. T. Kirk.—p. 234.
*Environment and Fatal Heat Stroke: Analysis of 157 Cases Occurring in the Army in U. S. During World War II. Elizabeth Schickele. —p. 235.

Environment and Fatal Heat Stroke.—Schickele analyzes 198 cases of heat fatalities suffered by soldiers in training in the United States from 1942 to 1944 and made available by the Army Institute of Pathology. From these, 157 were selected in which no cardiac or other disease or other effect which would predispose to increase in body temperature could be found, and in which therefore death might be presumed to have been due only to the effects of exposure to heat. Heat deaths are found to be caused by the heat load, as determined by climate, activity and body build. These factors cannot be considered separately but must be treated as components of the total heat stress. A considerable amount of the variation of the weather conditions under which individuals became ill may be attributed to the interaction of all factors influencing heat stress. "Rapid acclimatization" of one week or ten days cannot be expected to confer complete immunity to heat injury for men who are working in the sun during the heat of the day, when weather conditions exceed those of the "heat death line." One third of the patients who died had spent a month or less in the heat before death occurred, with as many deaths after four weeks' exposure as after one week's exposure. Incidence fell off rapidly for longer acclimatization periods. Susceptibility to heat stroke appears to be particularly high among persons acclimated to an atmospheric cooling power above a certain level (about 600 calories hourly per square meter of body surface) when they are exposed to an atmospheric cooling power reduced below this level. A map is drawn showing three cooling power zones in the United States. In the most northerly, the heat stress on the average is apparently not sufficiently high to confer acclimatization for work in the sun when conditions are more severe than those of the "heat death line." Persons living in this zone will therefore be particularly susceptible to heat injury during unusual heat waves or excursions to hotter climates. Most fatalities associated with heavy exercise occur at relatively low temperatures, when the total heat stress is commonly underestimated.

New Jersey Medical Society Journal, Trenton

44:87-124 (March) 1947

The Physician and Social Responsibilities. E. W. Sprague.—p. 90.
Treatment of Meningococcic Meningitis. Emilie V. Rundlett and C. M. Leevy.—p. 95.
Scabies Among the Well Washed. S. Friedenberg.—p. 99.
Maternal Mortality—Some Aspects of Its Preventability. J. F. Norton and Edith K. Mangone.—p. 101.
Successful Financial Plan for Group Practice. M. G. Bensley and C. C. Carpenter.—p. 108.

New Orleans Medical and Surgical Journal

99:373-430 (Feb.) 1947

Saddle Block Anesthesia: Its Application to Obstetrics. R. T. Parmley and J. Adriani.—p. 373.
Prevention of Rh Isoimmunization Due to Blood Transfusion. J. W. Davenport.—p. 376.
Diverticulosis of Colon. F. A. Benitez.—p. 382.
Amniotome. W. D. Beacham.—p. 385.
Treatment of Gambian Trypanosomiasis. J. K. Miller.—p. 386.
Biotin. B. W. Alspach.—p. 397.

99:431-484 (March) 1947

Heart Disease in Charity Hospital in New Orleans: Survey of 8,313 Routine Autopsies. J. E. Holoubek, Alice Baker Holoubek and DeW. T. Baker.—p. 431.
Repair of Choledochus Defect by Hepaticoduodenostomy Over Vitallium Tube. M. L. Michel Jr.—p. 437.
Fever of Undetermined Origin. H. L. Wolf and S. Jacobs.—p. 441.
Cataract Surgery as Done in India Today. G. DeW. Rackley.—p. 448.
Pathologic Physiology of Diabetes Mellitus. D. L. Gordon.—p. 451.

Occupational Medicine, Chicago

3:1-108 (Jan.) 1947

Employment of Persons with Certain Physical and Neuropsychiatric Impairments: Aspects of Rehabilitation and Employment Related to Administration of Workmen's Compensation Laws. E. P. Luongo. —p. 1.
Analytic Methods in Diagnosis. L. T. Fairhall.—p. 13.
Rehabilitation of Limbless: A Joint Surgical and Psychologic Study. E. Wittkower.—p. 20.
Fitting the Service to the Plant. W. H. Seymour.—p. 45.
Industrial Injuries of the Back. F. Dickson.—p. 53.
Administrative Uses of Statistical Data in Development of Industrial Hygiene Programs. W. M. Gafafer.—p. 65.
Industrial Exposure to Lead. May R. Mayers.—p. 77.

Radiology, Syracuse, N. Y.

48:107-212 (Feb.) 1947

Observations on Etiology and Frequency of Spondylolisthesis and Its Precursors. W. Bailey.—p. 107.
Roentgen Features of Mucocele of Appendix. E. J. Euphrat.—p. 113.
Roentgen Treatment of Infections of Tonsils and Postpharyngeal Lymphoid Tissues in Children. A. F. Rossitto.—p. 118.
*Fractures Following Electroshock Therapy. J. R. Lingley and L. L. Robbins.—p. 124.
Cardiac Enlargement. H. E. Ungerleider.—p. 129.
Benign Ulceration Within Duodenal Diverticulum: Report of Case. C. G. Weig.—p. 143.
Reactions of Connective Tissues After Protracted Fractionated Irradiation of Laryngeal Carcinoma. F. Windholz.—p. 148.
Biologic Significance of Fibrinous Radiomucositis of Larynx. F. Windholz.—p. 157.
Latex Cap for Radon Ointment Treatment. C. S. Lipp and R. Smith. —p. 161.
Retroperitoneal Perforation of Duodenum: Report of Case.—p. 164.
Carcinoma of Transverse Colon in 15 Year Old Boy: Case Report with Short Summary of Literature. H. R. Fishback Jr.—p. 168.
Some Practical Aspects of Hip Nailing. H. W. Morgan.—p. 172.
Application of Inverse-Square Law to Oil-Immersed Tubes. R. S. Landauer.—p. 175.

Fractures Following Electroshock Therapy.—Lingley and Robbins report the results of a study on 230 patients who had received electroshock therapy varying from a single treatment to several series of treatments. The convulsions lasted about forty-five seconds, during which the patient was held by five attendants. The attendants were experienced and realized the importance of not holding the subject too rigidly. Fifty-three, or 23 per cent, sustained fracture, predominantly of the vertebrae. The incidence of fracture was greater in males than in females, and in the younger and older rather than in the middle age groups. It seems that whether the convulsion is due to tetanus, epilepsy, therapeutic metrazol and allied drugs or to electroshock the number of bones fractured and the areas involved are probably dependent to a great extent on the severity of the convulsion. Bone conditions that appear to contraindicate shock therapy include osteoporosis, malignant lesions, Otto's pelvis, possibly Paget's disease, and syphilitic lesions.

Southern Medical Journal, Birmingham, Ala.

40:115-196 (Feb.) 1947. Partial Index

Evaluation of Certain Types of Renal Pain. R. M. Bobbitt.—p. 115.
Convalescent Care of Weakened Shoulder, with Particular Reference to Use of Overhead Sling. R. L. Bennett.—p. 120.
Some Misleading Manifestations of Otolaryngologic Infections and Tumors and Their Interrelationship. V. K. Hart.—p. 127.
Early Recognition of Pericarditis. D. A. Nathan.—p. 138.
*Simple Laboratory Aids for Control of Streptomycin Therapy in General Practice. J. K. Aikawa, C. M. Gillikin, E. G. Herndon Jr. and G. T. Harrell.—p. 141.
Practical Handling of Hematology by Clinical Pathologist. W. H. Riser Jr.—p. 153.
Management of Bulbar Poliomyelitis. A. H. Weiland, C. R. Burbacher and R. P. Keiser.—p. 157.
Obstetric Hemorrhage, Incidence and Management. W. R. Payne. —p. 161.
Relation Between Graves' Disease and Liver Pathology: Importance in Use of Thiouracil. P. R. Rezek.—p. 166.
Nutritional Factors in Prevention and Treatment of Hepatic Injury Due to Industrial Poisons. J. H. Eddy Jr.—p. 171.
Antianemic Properties of Pteroylglutamyl Glutamic Acid. T. D. Spies, R. E. Stone and R. Lopez Toca.—p. 175.
Outbreak of Gastroenteritis Caused by Salmonella Typhimurium, Presumably Water Borne. A. Reaud.—p. 176.

Control of Streptomycin Therapy.—Aikawa and his associates point out that streptomycin is the most useful drug available at present for the treatment of tularemia, influenzal meningitis and urinary or blood stream infections due to gram-negative bacilli. In vitro testing for susceptibility is useful before therapy is begun and in cases in which cultures remain positive. Infections should be treated vigorously from the start, and therapy should be controlled by laboratory methods. The dose and mode of administration must be individualized for systemic infections. For urinary tract infections doses of 1 to 2 Gm. daily are usually effective. The drug should be continued at least three days; if the patient has not improved after five days, the organism has probably acquired resistance and further therapy may be ineffective. Streptomycin is more effective in an alkaline medium; therefore, in urinary tract infections, the p_H of the urine should be increased to 8, if possible. Resistance to the drug develops rapidly and, once developed, it is permanent. Because resistance develops frequently in urinary tract infections complicated by obstruction to urine flow or the presence of a foreign body, it may be advisable to use other chemotherapeutic agents first and to reserve streptomycin for postoperative use.

Surgery, Gynecology and Obstetrics, Chicago

84:257-384 (March) 1947

New Technic for Pulmonary Segmental Resection: Its Application in Treatment of Bronchiectasis. R. H. Overholt and L. Langer.—p. 257.
Clinical Experiences with Use of Penicillin Treatment of Infections Involving Bones and Joints. H. J. McCorkle, H. Silvani, W. E. Stern and Helen Warmer.—p. 269.
Carcinoma of Prostate: Review of 130 Cases Treated Between 1940 and 1946. C. P. Mathé and C. E. Ardila.—p. 276.
*Studies on Anuria: Effect of Infusion Fluids and Diuretics on Anuria Resulting from Severe Burns. W. H. Olson and H. Necheles.—p. 283.
Diverticula of Stomach and Duodenum: Treatment by Invagination and Suture. L. K. Ferguson and C. S. Cameron Jr.—p. 292.
Growth of Human Trophoblast in Eye of Rabbit: Its Relationship to Origin of Cancer—Preliminary Report. C. Gurchot, E. T. Krebs Jr. and E. T. Krebs.—p. 301.
Blood Supply of Kidney, Suprarenal Gland and Associated Structures. B. J. Anson, E. W. Cauldwell, J. W. Pick and L. E. Beaton.—p. 313.
Simplified Repair of Common Duct: Use of Umbrella Catheter to Produce Internal Biliary Fistula. J. G. Montgomery.—p. 321.
*Unilateral Exophthalmos, an Early Sign in Thyrotoxicosis. W. H. Kisner and H. Mahorner.—p. 326.
Thoracicoabdominal Approach to Upper Abdomen. F. R. Harper. —p. 331.
Histopathology of Anal Ducts. G. L. Kratzer and M. B. Dockerty. —p. 333.
Extra-Articular Repair for Ruptured Collateral and Cruciate Ligaments. E. D. W. Hauser.—p. 339.
Anatomic Disarticulation of Hip. H. B. Boyd.—p. 346.
*Advantages and Limitations of Thiouracil Therapy in Thyrotoxicosis. E. F. Fowler and W. H. Cole.—p. 350.
Observations on Use of G-11 in Surgical Scrub. C. V. Seastone.—p. 355.
Plasma Fractions—"Fibrin Foam," Thrombin and "Fraction No. 1" in General Surgery. J. Failon and W. F. Croskery.—p. 361.
Clinical Observations on Furacin Soluble Dressing in Treatment of Surface Infections. E. R. Shipley and M. C. Dodd.—p. 366.

Effect of Infusion Fluids and Diuretics on Anuria Resulting from Burns.—Olson and Necheles produced acute anuria in dogs. Plasma and saline solution were the least effective infusion fluids for combating the anuria. In increasing order of effectiveness were sodium lactate, 5 per cent dextrose in isotonic solution of three chlorides, 2 per cent urea in saline solution and 0.9 per cent saline solution with 0.87 per cent sodium bicarbonate. They were effective in instances in which kidney damage was not great. Isotonic solution of sodium sulfate was the most effective agent in combating burn anuria. The use of isotonic solution of sodium sulfate is recommended in the treatment of the anuria of burns and of related anurias.

Unilateral Exophthalmos in Thyrotoxicosis.—Kisner and Mahorner report 5 cases of unilateral exophthalmos due to toxic diffuse goiter. In all of these cases the unilateral exophthalmos was a prominent sign and in some it was the only one noticed by the patient. The cause of exophthalmos is not established, but from experimental studies it would appear that a factor in the anterior pituitary secretion has the property of producing exophthalmos, and the same or a different factor has the property of inducing hyperplasia of the thyroid gland. The erroneous impression exists that the exophthalmos immediately subsides following thyroidectomy, but even in cases with high basal metabolic rates the exophthalmos is frequently a little worse in the weeks immediately after the operation. Only after many weeks and months does the exophthalmos gradually subside. Because of the long time over which improvement in exophthalmos after thyroidectomy may occur, radical procedures such as the Naffziger operation should be deferred unless extreme proptosis greatly jeopardizes the sight of the eye.

The Advantages and Limitations of Thiouracil in Thyrotoxicosis.—According to Fowler and Cole, thiouracil reduces the basal metabolic rate to normal in at least 95 per cent of patients with hyperthyroidism. In a study of 1,543 cases collected from the literature, reactions were noted in 13.8 per cent of patients treated. The most serious reaction was agranulocytosis, which was encountered in 0.78 per cent of patients. Although much less serious, leukopenia was more common. Vomiting, dermatitis and pruritus also were encountered. Other reactions included purpura, localized edema, arthralgia and swelling of the salivary glands. The mortality rate of 0.45 per cent seems a serious disadvantage. In the 79 patients treated by the authors, reactions were slightly greater in number but less in severity than has been reported in the literature. The greatest advantage of thiouracil over iodine is in patients who are so toxic that bilateral thyroidectomy is unsafe under iodine therapy. The drug is particularly useful in patients with cardiac decompensation secondary to hyperthyroidism. Patients with mild toxicity and small glands are more apt to have permanent remissions than do other types. Patients with toxic diffuse goiter respond slightly better than do those with toxic nodular goiter. The most serious disadvantage is the toxicity and particularly the mortality rate.

Tennessee State Medical Assn. Journal, Nashville

40:33-66 (Feb.) 1947

Analysis of 107 Cesarean Sections. R. B. Austin.—p. 33.
Health Legislation Enacted by Seventy-Fifth General Assembly. C. B. Tucker and R. H. White.—p. 40.
Management of Traumatic Hemothorax. L. S. Whitaker.—p. 43.
Past Progress and Future Program of Tuberculosis Control. J. B. Naive.—p. 48.
Treatment of Benign and Malignant Neoplasms of Skin. C. G. Andrews.—p. 77.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

55:147-208 (March) 1947

Transthoracic Resection of Carcinoma of Upper Midthoracic Esophagus: Report of 4 Cases. R. D. Pinkham.—p. 147.
Treatment of Carcinoma of Uterine Cervix: Considerations on Fiftieth Anniversary of Wertheim Operation. F. Buschke and S. T. Cantril. —p. 152.
Internal Fixation of Fractures. L. H. Edmunds.—p. 162.
Enteric Cyst of Coccygeal Region: Report of Case. P. Teng.—p. 167.
Rh Factor: Its Present Status and Clinical Importance: Division I.—p. 170.
Clinical Trial of New Synthetic Heptanone Analgesic (Dolophine): I. Preliminary Report. A. C. Kirchhof and N. A. David.—p. 183.
Extreme Shock and Near Death Resulting from a Douche. A. L. Natenshon.—p. 187.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted

British Journal of Experimental Pathology, London

28:1-68 (Feb) 1947

Influence of Chemical Constitution on Toxicity General Survey of Acridine Series. S D. Rubbo.—p 1.
Precision of Plasma Volume Determinations by Evans Method K. Mather, R. C Bowler and A C. Crooke and C J O R. Morris —p. 12
Anticollagenase in Immunity to Clostridium Welchi Type A Infection D G Evans —p 24
Antibiotic from Penicillium Tardum N. Borodin, F J Philpot and H. W. Florey.—p 31.
Antibiotics from Stereum Hirsutum N G Heatley, M A Jennings and H W. Florey.—p 35.
*Experimental Goiter Studies. Thyroid Tumors in Rats Treated with Thiourea H. D. Purves and W. E Griesbach —p 46
Investigation into Production of Bacteriostatic Substances by Fungi. Preliminary Examination of the Sixth 100 Species, More Basidiomycetes of the Wood Destroying Type. W H Wilkins —p 53.
Role of Coagulase in Staphylococcal Infections W Smith, J H Hale and M. M Smith —p. 57

Thyroid Tumors in Rats Treated with Thiourea.—*Purves and Griesbach found that prolonged administration of* thiourea to rats caused formation of thyroid adenomas After months of treatment 7 out of 13 of these tumors showed the histologic appearance of adenocarcinomas Invasion of the blood vessel walls was visible in all 7 cases. In 2 of these cases lung metastases of thyroid tissue were found In 3 thyroid tumors, 2 of which were malignant, solid masses of cells were found which resembled human "fetal adenoma" It is considered that these growths were derived from the cancerous tissue The thyroid adenomas observed in these experiments retained in full their ability to respond to fluctuations in thyrotropic stimulation.

British Medical Journal, London

1:285-324 (March 8) 1947

Water and Salt Depletion H L Marriott —p 285
Medical Aspects of Penicillin Treatment B A Young —p 290
Place of Unilateral Renal Disease in Hypertension C Hardwick and A. W. Badenoch —p 293
*Arsenical Encephalopathy: Unusual Case Occurring in Treatment of Congenital Syphilis G Hipps and R Goldberg —p 296

Arsenical Encephalopathy.—Hipps and Goldberg observed the development of encephalopathy in a soldier aged 20 The patient had congenital syphilis with interstitial keratitis and iridocyclitis and was being treated with penicillin and neoarsphenamine. After a provisional diagnosis of arsenical encephalopathy was made, treatment on the lines suggested by Ransome and his associates in 1945 was instituted, but this did not save the patient's life

Journal of Hygiene, London

45:1-110 (Jan) 1947. **Partial Index**

Photometric Method for Comparative Evaluation of Disinfectants N. V. Needham.—p 1
Standardized Method of Disinfecting Infected Blood Clots A D. Gardner —p 12
Growth of Bacterial Colonies and Their Viable Population Anna Mayr Harting —p. 19
Mode of Origin of Sulfonamide Resistant Strains in B Dysenteriae Flexner. F H. Stewart —p 28
Bacteriology of Dehydrated Vegetables J Rishbeth —p 33
*Comparative Study of Phenolized and Alcoholized T A B Vaccines A Drysdale —p. 46
Agglutination and Complement Fixation in Human and Rabbit Typhoid and Dysentery Serums and Specificity of Complement R T Scholtens. —p 50
Digestibility of English and Canadian Wheats Special Reference to Digestibility of Wheat Protein by Man. R A McCance and E. M. Widdowson —p 59.
Vitamin A Reserve of the Population in Denmark and Norway During the War. T K With and K Ødegaard —p 88
Some Skin Manifestations in Hypoparathyroidism L Spira —p 93

Phenolized and Alcoholized T. A. B. Vaccines.—Drysdale says that in 1941 Felix described a new type of alcoholized T. A B. (typhoid, paratyphoid A and paratyphoid B) vaccine and since then it has been emphasized that its protective value is greater than that of the standard phenolized vaccine, also that the general reactions are *less severe. Drysdale describes* trials of the comparative value of the two vaccines in man and animals. He could detect no difference in the immunologic potency of the two vaccines, but the contentions of Felix and others that the reactions with alcoholized vaccine are less severe and "Vi" response greater than with phenolized vaccine are confirmed

Lancet, London

1:277-314 (March 8) 1947

*Spontaneous Compression of Both Median Nerves in Carpal Tunnel Six Cases Treated Surgically. W R. Brain, A D. Wright and Marcia Wilkinson.—p 277.
Purified Precipitated Diphtheria Toxoid of Constant Composition: (P. T. A P). L B Holt —p 282
Clinical Trials of Diphtheria Toxoid Aluminum Phosphate Precipitated to Determine Optimal Aluminum Phosphate Content. G. Bousfield —p 286
*Atelectasis After Partial Gastrectomy. P. Stringer.—p 289.
*Pain and Healing of Peptic Ulcers A. M. Gill.—p 291.

Compression of Median Nerves in Carpal Tunnel.—Brain and his associates describe 6 patients, all middle aged or elderly women, who had bilateral median neuritis due to compression of the nerves under the transverse carpal ligament at the wrist The symptoms were pain, paresthesia and cutaneous sensory loss within the distribution of the digital branches of *the median nerves, and partial thenar atrophy limited* to the abductor brevis and opponens pollicis muscles or even the abductor brevis alone. All were treated by surgical division of the transverse carpal ligament with immediate relief of pain and tingling and gradual improvement in power and diminution in sensory loss. The lesion found at operation was compression of the nerves in the carpal tunnel and edema for about 1 inch proximally. Extension of the wrist raises the pressure in the carpal tunnel Occupations involving this movement may in time lead to compression of the median nerves. In housework, particularly in scrubbing and polishing, the hand holding the brush or the cloth is usually extended at the wrist and the other hand often rests with the palm on the flat surface and the wrist also extended The authors stress the need of differentiating this syndrome of compression of the median nerve in the carpal tunnel from costoclavicular syndromes.

Atelectasis After Partial Gastrectomy.—Stringer investigated the incidence of atelectasis after partial gastrectomy by radiography of the chest immediately after, four hours after and twenty-four hours after operation in 55 cases Twenty-six showed abnormal postoperative radiologic signs, and 13 showed signs of lobular, partial or total atelectasis. Signs first appeared radiologically at four hours in 5 cases and at twenty-four hours in a further 6 cases. The other 2 cases of atelectasis did not develop until later. Besides signs of atelectasis there were increased vascular markings in some cases, and 3 other cases showed bronchopneumonia, bronchitis and collapse with effusion The film taken twenty-four hours after operation is the most valuable in determining whether or not atelectasis has occurred If the cause of atelectasis is bronchial occlusion by a mucous plug, bronchoscopy should be considered.

Pain and Healing of Peptic Ulcer.—Gill cites examples of the erratic nature of the pain in patients with peptic ulcer. Severe hemorrhage and the presence of a comparatively large crater may at times be unaccompanied with pain, whereas in other cases the ulcer may heal and the pain continue as it does in phantom limb The factors that cause an ulcer to heal are not easier to understand Ulcers are not healed by diet alone, by injections or by medicines but because the man with the ulcer comes under the care of a physician who is able to transmit some of his own confidence to his patient

Tubercle, London

28:41-62 (March) 1947

Tuberculin Surveys and the Tuberculin Test. B. Couts —p. 42.
*Treatment of Minimal Tuberculous Chest Lesions. Comparative Study. R Heller.—p 49.

Minimal Tuberculous Chest Lesions.—Heller thinks that, *owing to the detection of an increasing number of minimal chest* lesions by *mass x-ray surveys*, their treatment assumes great importance Patients were selected whose tuberculosis had been regarded as quiescent after having received institutional treat*ment for small,* active unilateral lesions. There were 55 such patients who had been under observation for over one year to eight years. Thirty-four patients had received only bed rest and routine sanatorium treatment. Of this group 17 patients relapsed, 2 of them twice. Twenty-nine patients received collapse treatment, 8 of these after having relapsed after a period of routine sanatorium treatment. None of the 29 patients in this group relapsed; all of them were well and working, and there were no complications. The policy of withholding collapse treatment in active minimal lesions because of a negative sputum and absence of cavitation appears unjustifiable. The duration of institutional treatment was longest for the collapse therapy group. The average time off work for the successfully treated patients was nearly twelve months. The patients who relapsed had only an average of eight months off work. The author believes that many relapses could have been avoided by earlier institution of collapse treatment.

Monatsschrift für Psychiatrie und Neurologie, Basel

113:1-64 (No. 1) 1947

Clinical Picture Produced by Bilateral Destruction of Cortex of Cornu Ammonis. E. Grünthal.—p. 1.
*Is There a Rheumatic Form of Facial Paralysis? P. Winternitz.—p. 17.
Syndrome of Anterior Spinal Artery. D. Louis-Bar.—p. 40.
Genetic Causes of Schizophrenic Symptoms. E. Slater.—p. 50.

Rheumatic Facial Paralysis?—Winternitz analyzed histories of patients admitted to the clinic in Leiden between 1934 and 1945. Among 233 patients with peripheral nontraumatic facial paralysis 24 had a history suggesting that rheumatism possibly had occurred beforehand, while among 136 parallel patients without peripheral facial paralysis 41 had rheumatism. Conversely, among 200 patients with rheumatism chosen at random, not 1 was found with a history of peripheral facial paralysis. The author concludes that most attacks of nontraumatic facial paralysis arise from unknown causes and that the rheumatic nature of the condition has not been demonstrated.

Schweizerische medizinische Wochenschrift, Basel

77:229-250 (Feb. 15) 1947

Function of Liver from Clinical Point of View. A. Vannotti.—p. 229.
Clinical Observations on Appearance of Atypical Sore Throat with Unusual Inflammation of Cervical Lymph Nodes. H. Iselin, E. Luscher and A. Weder.—p. 233.
*Experimental and Clinical Data on Employment of Artificial Radioactive Isotopes with Aim of Localized Radiotherapy. J. H. Muller.—p. 236.
Follicular Keratosis and Vitamin Deficiency. E. Pulay.—p. 239.

Radioactive Isotopes for Localized Radium Therapy.—Muller says that radioactivity diffused through the entire organism can be obtained by administering radio sodium (N^{24}) or radio phosphorus (P^{32}) by ingestion or by intravenous injection. He demonstrates a method permitting the application of the radioactive isotope radio zinc (Zn^{63}) in order to achieve a localized radiotherapeutic action. In order to avoid diffusion of the isotope outside the region of application, the radio zinc is suspended in a macrocellular medium with a pectin base. Interesting palliative results have been obtained with this method in a small number of cases with extensive peritoneal carcinosis. It is possible with this method to make intratumoral and peritumoral radioactive infiltrations without diffusion of the radioactivity outside the site of application. The method is still in the initial stage. Its employment on a larger scale depends on being able to obtain radioactive isotopes in sufficient quantities. It is also desirable to obtain isotopes with a more prolonged action than radio zinc.

Hoja Tisiologica, Montevideo

6:1-154 (March) 1946. **Partial Index**

*Intoxication by Hydrocarbons: Cases. A. Crisci, A. Rodriguez and J. J. Scandroglio.—p. 1.

Intoxication with Hydrocarbons.—Two adult patients with pulmonary tuberculosis and bilateral pneumothorax were given intravenous injections of 4.5 and 10 cc. respectively of kerosene from a flask labeled calcium chloride. The immediate symptoms were those of violent cough, suffocation and cyanosis followed by blackish expectoration, fever and mental confusion. The predominant symptoms were those of toxic pulmonary alveolitis. Roentgenograms of the chest showed fat miliary nodules in both lungs, especially in the normal lung. Decompression of pneumothorax was carried out in 1 patient and 120 cc. of serohemorrhagic pleural liquid was removed from the other. The toxic symptoms subsided in two weeks. Roentgenograms of the chest six and fifteen months later showed that the intoxication had neither a harmful nor a beneficial effect on the course of tuberculosis.

Prensa Médica Argentina, Buenos Aires

34:125-164 (Jan. 17) 1947

Pyloric Syndrome of Ulcer or Neoplasm of Small Curvature. N. Romano.—p. 125.
Plastic Repair of Nasal Defects. M. González Ulloa.—p. 133.
Pulmonary Heart. M R. Baila.—p. 138.
*Solubility of Various Preparations of Curare Added to 2.5 per Cent Solution of Sodium Pentothal. M. P. Collados Storni.—p. 145.
Blood Transfusion and Coagulation Time. A. S. Benchimol.—p. 154.

Solubility of Curare Preparations When Added to Sodium Pentothal.—Formation of a white precipitate when curare and pentothal come in contact is the chief obstacle to their simultaneous administration. Collados Storni believes that the formation of the precipitate depends on the concentration and purity of the curare solution. He found that the following four solutions of curare can be added to 10 cc. of a 2.5 per cent solution of sodium pentothal without producing a precipitate: 0.8 cc. of intocostrin, 0.6 cc. of curare extract (Lilly), 2.4 cc. of fraction 21 A of curare extract (Abbott) or 3 cc. of solution of d-tubo curarine. The d-tubo curarine equivalents of the curare content per cubic centimeter in these pentothal-curare mixtures are respectively 0.22, 0.17, 0.580 and 0.69 mg. When protected from air and kept at a temperature of 4 C. the compatible mixtures of these solutions of pentothal and curare remain liquid and retain their pharmacologic properties for longer than a week.

Revista Clinica Española, Madrid

24:81-142 (Jan. 31) 1947. **Partial Index**

*Pulmonary Tuberculosis and Syphilis. T. Cerviá and V. Gutiérrez.—p. 81.

Pulmonary Tuberculosis and Syphilis.—Syphilis in various stages was encountered in 20 of 389 patients with pulmonary tuberculosis. One patient had pulmonary syphilis alone and 2 had both syphilitic and tuberculous lesions. Syphilis exerts an unfavorable effect on the course of pulmonary tuberculosis. The treatment is that of arsenicals and bismuth for about six months. This therapy is not advisable for emaciated patients, patients with diffuse tuberculosis or patients with blood spitting. Serologic examination for syphilis is advised as a routine in antituberculosis centers.

Revista Médica de Chile, Santiago

74:799-854 (Dec.) 1946. **Partial Index**

Classification of Forms of Icterus. H. Ducci C.—p. 799.
Tetralogy of Fallot. G. Dussaillant G. and M. Guerrero.—p. 803.
*Revision of Results Obtained in 125 Subcutaneous Implantations of Testosterone Tablets. L. Vargas F. and A. Lucchini A.—p. 809.
Cerebral Atrophy. H. L. Plaza.—p. 816.

Subcutaneous Implantation of Testosterone.—Vargas and Lucchini review 78 cases in which 125 implantations of testosterone tablets were performed. In women with carcinoma of the breast, pains in the bones disappeared, there was an improvement in the general condition and the period of survival was lengthened. In patients with uterine fibromyoma there were suppression of metrorrhagia, reduction in the size of the tumor and temporary amenorrhea. The tablets effected considerable improvement in the general condition in the male climacteric. In patients with prostatic adenoma, dysuria and the size of the tumor decreased. Growth of the genitalia was observed in 1 patient with male hypogonadism, but of 6 patients with impotence only 1 noted improvement. In 2 patients with adrenal insufficiency weight and blood pressure improved and tachycardia and weakness decreased. Favorable results were obtained in functional menorrhagia in that either the menstrual cycle became regularized or transitory amenorrhea resulted. In patients with fibrocystic mastitis pain and the tumor disappeared and recurrences were prevented.

American Review of Soviet Medicine, New York

4:195-288 (Feb.) 1947

New Method of Osteoplastic Amputation and Reamputation of the Femur. Y. Y. Djanelidze.—p. 196.
Treatment of Contractures with Novocaine Block. N. A. Krysheva and S. M. Panyutina.—p. 198.
*Action of Prostigmine on Paralysis Following Cerebral Trauma. N. I. Grashchenkov.—p. 201.
Influence of Extracortical Factors on Function of Central Nervous System. L. Orbeli.—p. 206.
Study of Structure of Micro-Organisms with Aid of Electron Microscope. A. E. Kriss, E. A. Rukina and B. M. Isayev.—p. 212.
Spontaneous Rupture of Spleen. A. Lurye.—p. 223.
*Significance of Lymph and Other Elements of Lymphatic System in Antivirus Immunity: First Communication. S. Y. Gaidamovich and V. D. Soloviev.—p. 226.
*New Type of Vaccine from Typhus Lice. A. V. Pshenichnov and B. I. Raikher.—p. 231.
Fight Against Intestinal Infections. P. F. Bilikov.—p. 238.
*New Blood Albumin Substitute. N. A. Fedorov.—p. 243.
Treatment of Diabetes Mellitus Without Insulin. G. P. Sakharov and D. M. Rossiski.—p. 250.
Restoration of Heart Rhythm During Fibrillation by Condenser Discharge. N. L. Gurvich and G. S. Yuniev.—p. 252.
Stimulating Properties of Granulation Tissue. I. M. Neuman.—p. 257.

Neostigmine in Paralysis Following Cerebral Trauma.—Grashchenkov injected neostigmine one or more times in nearly 300 cases of cerebral trauma with paralysis. In most cases there was immediate and lasting motor and sensory improvement; in some this was striking, and in only 6 per cent was no improvement observed. The author concludes that neostigmine corrects functional asynapsis—the functional elimination of structural intact nervous elements exposed to the toxic autolytic products of adjacent destroyed tissue. It is presumed that neostigmine exerts a direct beneficial effect on the altered enzymatic processes in these poisoned tissues as well as an indirect effect via the vegetative nervous system.

Lymphatic System in Antivirus Immunity.—Comparative studies were made by Gaidamovich and Soloviev between the anti-influenzal titer in the lymph, lymphocytes and lymph nodes and the amount of antibody circulating in the blood. The studies which were made on rabbits revealed that the amount of anti-influenza antibody in the lymph of rabbits immunized with influenza virus is proportional to that in blood. The antibody titer in lymph is some 60 per cent of that in the blood. No antibody has been found in the cellular elements of lymph. When antigen is introduced into rabbits, the regional lymph nodes contain the corresponding (anti-influenza) antibody regularly, although in small quantities. In view of the fact that antibody is linked with the globulin fraction of protein, it is to be expected that the amount of antibody in the lymph is proportional to its content of globulin. This has been confirmed in experiments with bacterial agglutinins, hemolysins and antitoxins and by the described experiments on anti-influenza antibody. Similar results were obtained in preliminary investigations on the lymph antibody level in animals immunized with other viruses, such as virus of equine encephalomyelitis and of silver fox encephalitis. The negative results regarding the content of anti-influenza antibody in the cellular elements of lymph are at variance with the theory of antibody formation in lymphocytes.

New Type of Vaccine from Typhus Lice.—Pshenichnov and Raikher succeeded in developing a simple method of infecting lice with typhus by artificial feeding of the bloodsucking insects on epidermal membranes obtained from cadavers. The membrane is stretched over a feeding camera. Under the stretched membrane defibrinated blood is introduced, to which are added crushed lice containing the typhus virus. The larvae spread on the surface of the membrane speedily attach themselves and begin to feed. In the apparatus constructed by the authors, which contains twelve feeding cameras, 60,000 to 200,000 larvae can be fed simultaneously. The development of the virus and the appearance of enormous quantities of rickettsias both within and outside of the cells takes place on the eighth or ninth day. From the moment of infection to the moment of development of virus the larvae are fed twice daily on donor convalescents for twenty minutes at a time. After the fifth day of infection smears are prepared daily from each batch of larvae. The development of virus can be gaged by the staining of the rickettsias. The authors describe the preparation of the vaccine and discuss its antigenic properties. They stress that this new method of preparing typhus vaccine from lice is cheaper and simpler than the Weigl method and can be applied on a large scale. The vaccine when tested on human beings caused little reaction. It protected persons exposed to small doses of virus but not to massive doses. Typhus is mild in the vaccinated.

New Blood Albumin Substitute.—A protein substitute for blood was worked out by Fedorov with the introduction of nonanaphylactogenic foreign protein which was obtained from milk casein. This protein can be used for intravenous injections and for repeated introduction in large doses without harmful effects. The solution can be used for substitution or stimulation therapy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:297-352 (Feb. 8) 1947. Partial Index

Lempert's Operation for Otosclerosis. J. Venker.—p. 303.
*Prevesical Prostatectomy According to Terence Millin. N. J. Bakker.—p. 306.
Congenital Defects of Forearm: Bilateral Radioulnar Synostosis. A. Van Der Sar.—p. 313.
*Special Form of Hyperchromic Macrocellular Anemia. G. M. H. Veeneklaas.—p. 316.

Prevesical Prostatectomy According to Millin.—Bakker and van Gulik employed Millin's retropubic method in 32 cases with 1 fatality. The method is technically easier than the one of Young and McCarthy, its mortality rate is low, convalescence is less trying for the patient as well as for the nursing personnel and the time in which postoperative care is necessary is shorter. Millin's retropubic, prevesical method of prostatectomy is a valuable addition to the surgical methods for hypertrophy of the prostate.

Special Form of Hyperchromic Macrocytic Anemia in Nurslings.—Veeneklaas observed a hyperchromic macrocytic anemia in 2 children who were about 1 year old. The diet of both these children had contained neither greens nor fruit. There was also dystrophy, enlargement of liver and spleen, urobilinuria and an increased indirect Hijmans van den Bergh test. The addition of fresh vegetables and fruit to the diet of 1 patient was followed by a rise in reticulocytes in ten to fourteen days; in the second patient the addition of fresh endive had the same effect. Complete recovery resulted in six to eight weeks.

Nordisk Medicin, Gothenburg

32:2901-2986 (Dec. 20) 1946. Partial Index

Hospitalstidende

Folic Acid and Its Effect on Pernicious Anemia. M. Jersild and E. Meulengracht.—p. 2935.
Simple Suture of Perforated Gastric and Duodenal Ulcer: Survey of 53 Cases. Jørgen Ernst.—p. 2938.

Finska Läkaresällskapets Handlingar

*Functional Changes in Electrocardiogram in Neurocirculatory Asthenia. J. Burstein.—p. 2944.

Hygiea

Centenary of Ether Anesthesia. G. Lijestrand.—p. 2951.
High Stomach Resection in Ulcer and in Gastritis. H. Wahren.—p. 2958.

Functional Changes in Electrocardiogram in Neurocirculatory Asthenia.—Burstein studied the electrocardiograms of 136 patients with neurocirculatory asthenia. Psychic strain is an important immediate cause; exhaustion and other factors, especially acute infections, are also significant. In some cases defective coronary circulation may play a part. There is practically always a sympathicotonic influence affecting the whole heart; the heart rate is considered an indicator of its tone. On increasing heart rate the PQ interval shows a reduction in lead 1 and remains constant in leads 2 and 3. P_1 is not notably affected by the heart rate, but P_2 and P_3 rise continuously on increasing heart rate. The fairly common occurrence of P pulmonale is the electrocardiographic expression of increased influence of the sympathetic on the whole heart. The T waves become lower on the average as the rate increases, reduction of T_3 occurring only with the highest rate. Axis deviation, bodily structure, emphysematous changes and cor parvum have but little effect on the height of the P and T waves.

Book Notices

Heparin in the Treatment of Thrombosis: An Account of Its Chemistry, Physiology and Application in Medicine. By J. Erik Jorpes, M.D., Reader in Biochemistry, The Caroline Institute, Stockholm. With a foreword by J. R. Learmonth, C.B.E., Ch.M., F.R.C.S.E., Professor of Surgery, University of Edinburgh, Edinburgh. Oxford Medical Publications. Second edition. Cloth. Price, $6.50. Pp. 260, with 22 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4., 1946.

More than seven years have elapsed since the publication of the first edition. Seven years ago the author wrote sixteen pages on the clinical application of heparin, the rest of his treatise being devoted to the discovery and chemistry of heparin, to which he had made such notable contributions. This edition not only enlarges on the theoretical considerations but is a detailed statistical record of the clinical applications of heparin and its rival anticoagulant dicumarol. It appears from the figures of Swedish clinicians that not only has the mortality of thromboembolism been cut to a minimum by the use of heparin, not only has the prophylactic use of the anticoagulant prevented thrombosis to a very appreciable degree, but the proper and early use of heparin has throttled the appearance of the late sequelae of thrombosis, the indurations, ulcerations and disabilities, which are a serious economic drain on the patient and the community.

Perhaps the most striking virtue of the treatise is the way it fills the gap between the facts of pure chemical research and its clinical application. Because of the work of the Swedish group headed by Jorpes and Craafoord and the Toronto group of Best and Murray, the physician of today has been presented in heparin with a drug as specific for thrombosis as insulin is for diabetes. There is no field in medicine in which heparin and also dicumarol could not be used in saving lives, decreasing morbidity and eliminating long-lasting disabilities due to thromboembolism.

There is a great lesson to be learned from this book, which incidentally is beautifully printed and illustrated: the value of cooperative research of the Swedish institutions, which, in spite of a population of little over six million inhabitants, has furnished such a mass of statistics.

Jorpes finishes his book with an interesting comparison. Between 5,000 and 6,000 persons are injured every year by automobiles in Sweden. The same number of thromboses occur annually in that country, and one has every reason to believe that the sequelae in the thrombotic group were more severe. As a prophylactic and early therapeutic measure, heparin assumes increasing social and economic significance.

Der Rhesusfaktor: Seine theoretische und praktische Bedeutung. Von Prof. Dr. G. Fanconi, Direktor der Universitäts-Kinderklinik, Zürich, et al. Paper. Price, 10 Swiss francs. Pp. 160, with 23 illustrations. Benno Schwabe & Co., Klosterberg 27, Basel, 1946.

The Rh factor was discovered in this country by Landsteiner and Wiener in 1940. Soon afterward Wiener described its relation to blood transfusion reactions and Levine to fetal erythroblastosis. Only after the war have articles on this subject begun to appear in European continental literature. The monograph is made up of seven papers read at a meeting of the Zurich Pediatric Society on Nov. 30, 1945. The first chapter, by Fanconi, is a brief eight page review of the clinical significance of the Rh factor. The antigenic blood group structure of the human red cell is reviewed by Grumbach in the second chapter. The next chapter, by Zwingli, on experiences with the Rh factor in the Zurich Children's Hospital, deals mainly with the relation of icterus gravis to residual disturbances of the central nervous system (so-called kernicterus). E. Ziegler's 50 page chapter is a keen analysis of the pathogenesis of fetal erythroblastosis (the term "hemolytic disease of the newborn" is used in the monograph). The role of hemolized blood, of hepatic and capillary damage and of allergy is discussed in great detail. Liver therapy beginning early in pregnancy (second or third month) is recommended as a means of preventing the disease in the fetus. Specifically devoted to therapy of fetal erythroblastosis is Willi's contribution. He recommends continuous drip infusion of a fluid regrettably called by its trade name Tutofusin (possibly similar to isotonic solution of three chlorides). From 200 to 250 cc. is given daily for not more than three days. In connection with recent recommendations of replacement transfusions, reference to its use by de Lange in 1934 is worth noting. The final two chapters, by Zollinger, are no doubt the most important of the book. His well illustrated discussion of the gross and microscopic changes in fetal erythroblastosis is thorough, complete and lucid. Well presented is the correlation of biliary cirrhosis in the infant and child with hepatic damage in erythroblastosis based on a study of 30 cases. The Swiss writers are on the whole familiar with American and British publications, but some glaring errors have crept in: the discovery of the relation of the Rh factor to erythroblastosis is credited by Zollinger to Broman, who reviewed the subject in 1944, four years after Levine's publication. Similarly Foord and Fiske's observation that animal anti-Rh serums fail to distinguish between Rh-positive and Rh-negative erythrocytes of the newborn is also erroneously attributed to Broman by Ziegler.

The Theory of Human Culture. By James Feibleman. Cloth. Price, $5. Pp. 361. Duell, Sloan and Pearce, 270 Madison Ave., New York 16, 1946.

The science of medicine has become more and more related of late years to the social sciences. The concept of psychosomatic medicine demands of the physician a thorough knowledge of philosophy and psychology as well as sociology. This volume presents cultures of primitive peoples with a view to determining the evolution of present civilized customs and mores. Attention is given to the Maya and Pueblo Indian cultures and to a group known as the Baiga. Baiga culture emphasizes the essential freedom of the individual.

An interesting chapter deals with the mythology of modern science. The work concludes with an analysis of an advanced culture, that of England, and with a chapter devoted to preventive psychiatry. The author feels that the practical merit of the psychoanalytic procedure is undeniable even though the metaphysical claims that have been advanced for it by its founder and his loyal followers cannot be admitted. He concludes:

"Psychoanalysis through interview, free association, and the analysis of dreams analyzes those psyches in which falsity exceeds truth in action, where the criterion is social agreement. Common sense by comparison analyzes those psyches in which truth exceeds falsity in action, by the same criterion. Psychoanalysis is a method for treating the mentally sick. Common sense analysis is a method for improving the knowledge of those who are averagely well. The task of common sense analysis is numerically by far the greater. Since every one has an unacknowledged philosophy, it is always possible for this philosophy to be consciously known and steadily improved by raising to the level of consciousness what is held subconsciously in the depths of the psyche."

The aim of the author has been to develop studies in culture to the status of science. He is convinced that social studies can be made scientific and that the social scientists have thus far been misled in their understanding of the scientific method.

A Surgeon's Domain. By Bertram M. Bernheim, M.D., Associate Professor of Surgery, The Johns Hopkins Medical School, Baltimore. Cloth. Price, $3. Pp. 253. W. W. Norton & Co., Inc., 101 Fifth Ave., New York 3, 1947.

Dr. Bernheim has the certificate of competent writing for the public that acceptance by the *Saturday Evening Post* verifies. Two of the chapters in this book appeared in that periodical; the success of those chapters caused him to undertake the larger work. He feels the need of some change for better distribution of physicians and more adequate returns for the young men who undergo the long apprenticeship necessary for surgery. He accuses medicine of having a high concept of scientific needs with a low concept of social needs. Unfortunately for Dr. Bernheim, it does not appear that he has during his long career participated greatly in the activities of medical organizations, nor is he apparently aware of much of the available evidence on some of the points he discusses. Had he been less the arm chair philosopher and more the active participant in the agencies on which rests the responsibility for working out medicine's social relationships, he might be considered in a better position to criticize as he does.

Social Work Year Book 1947: A Description of Organized Activities in Social Work and in Related Fields. Editor: Russell H. Kurtz. Ninth issue. Cloth. Price, $3.50. Pp. 714. Russell Sage Foundation, 130 E. 22d St., New York 10, 1947.

This volume includes two parts. The first consists of 79 articles written by selected authors on various aspects of social work. Of special interest to the medical profession is the statement on medical care by Dean Clark, which is a considerable condensation of the subject largely reflecting the author's personal views. The article on public health comes from Dr. Wilson G. Smillie and is essentially a brief report on subjects of general interest in public health during the past year. Mr. Altmeyer himself contributes the article on social insurance. He is very much in favor of an overall insurance system, including protection against all common economic hazards from the cradle to the grave.

The second half of the book offers a directory of agencies of all types. One must go through the pages carefully to realize what a tremendous number of federal government agencies there are in the field of social welfare. Next come the voluntary agencies. According to the statement in the book, the National Tuberculosis Association has only a little over 3,000 members and yet there are 2,900 affiliated associations. It would be desirable to work out a questionnaire form for the national volunteer agencies which would reflect each of them more adequately in this directory.

Parenteral Alimentation in Surgery with Special Reference to Proteins and Amino Acids. By Robert Elman, M.D., Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Missouri. Cloth. Price, $4.50. Pp. 284, with 31 illustrations. Paul B. Hoeber, Inc., 49 E. Thirty-Third St., New York 16, 1947.

This treatise, written by one of the leading investigators in the field, was awarded the Samuel D. Gross Prize for 1945. In the first chapter, a historical survey, one finds many interesting facts. The first intravenous injection of fluids was carried out experimentally in a dog by Sir Christopher Wren. Rudolph Matas of New Orleans in 1891 described 20 cases in which he injected 500 to 1,500 cc. of saline solution intravenously when there was considerable loss of blood. The second chapter deals with general indications for parenteral administration of fluids. Then follow chapters devoted to water and electrolyte, energy, vitamin, protein needs, clinical manifestations of protein deficiency, methods of parenteral protein administration, i. e. plasma, amino acids, hydrolyzed protein, practical parenteral alimentation, clinical results with parenteral alimentation—eleven chapters in all. It is not possible in limited space to discuss in detail a book of this type. A number of positive statements are made concerning questions that are still controversial. Suffice it to state that the author, writing in a clear, concise manner has admirably reviewed the pertinent literature in the field, combines experimental and clinical aspects in his discussions and offers practical suggestions for the clinical application of parenteral nutrition in a wide variety of conditions where such support is indicated. It is a unique work combining a detailed review, authoritative information based on the extensive personal studies of the author and an excellent bibliography. The book should be in every hospital library as well as among the current additions to the personal libraries of clinicians, who will want to consult it frequently.

Aérosols médicamenteux: Technique—physiologie—thérapeutique. Par L. Dautrebande. Paper. Pp. 207, with 63 illustrations. J. Duculot Gembloux, Belgium; Masson & Cie, 120 Boulevard Saint-Germain, Paris 6ᵉ, 1946.

This monograph is interesting in view of the increasing use in this and other countries of the "aerosol technic" for treating certain acute and chronic infections of the respiratory tract with nebulized penicillin, streptomycin and sulfonamides. The author, however, refers only to a few studies covering this application of the "aerosol technic" but includes some twenty years' experience with (*a*) the development of apparatus for the production of aerosols, (*b*) the conditions which effect the concentration, settling and physical state of liquid aerosols, (*c*) the local and general action of certain drugs in animals and man when inhaled as aerosols and (*d*) the application of the "aerosol technic" in the treatment of asthmatic conditions with bronchodilator drugs. The author reviews the literature covering other studies in which the "aerosol technic" has been employed. These include (*a*) immunizing against certain respiratory tract pathogens, (*b*) giving of insulin, (*c*) producing experimental airborne infections and (*d*) controlling them with germicidal aerosols and vapors, and (*e*) as a means of studying the pharmacodynamic action of a wide variety of drugs, when inhaled in the nebulized form, on the respiratory tract and other body organs. A long bibliography is included.

Henry Sewall: Physiologist and Physician. By Gerald B. Webb and Desmond Powell. Cloth. Price, $2.75. Pp. 191, with 15 illustrations. Johns Hopkins Press, Baltimore 18, Maryland; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1946.

This book is an excellent account of the life and work of Henry Sewall. The first chapter, entitled "Inheritance," deals with his ancestry. This is followed by a chapter pertaining to his youth and another to his college days. His attendance and activities in medical school and studies abroad are described in chapters four and five. A full chapter is devoted to Dr. Sewall as a physiologist, from the time he became professor of physiology at the University of Michigan in 1882. Here he conducted the famous studies on rattlesnake venom.

Beginning in 1884 Dr. Sewall had at least annual attacks of bronchial or pulmonary illness. In the spring of 1886 he went to Denver to recuperate but returned to Michigan the next October. His health again failed, and he was granted a leave of absence, and the University of Michigan conferred on him the unusual degree of honorary Doctor of Medicine. He and Mrs. Sewall returned to Colorado in 1888, where they spent the remainder of their lives. Here Dr. Sewall became internationally known as a physician. He began practicing in Denver in 1891 and resided there until his death in 1936. His numerous scientific accomplishments are related in this book, and it is pointed out how he used his home as a laboratory until the National Jewish Sanatorium provided him space. Thereafter he was most appreciative of all the modern facilities made available for his investigations.

Dr. Sewall's complete bibliography is included. His first paper appeared in 1878. Every year thereafter he published one or more papers, except 1889, until his death in 1936.

Dr. Webb, who was a fellow practitioner with Dr. Sewall for many years, has demonstrated on many occasions his wide knowledge of the history of medicine. Into this volume he and Mr. Powell, while presenting Dr. Sewall's activities and accomplishments, have woven rare and interesting contemporaneous historical events. This book is written in such a delightful style that physicians will find it both entertaining and instructive.

Black Anger. By Wulf Sachs. Cloth. Price, $3. Pp. 324, with 1 illustration. Little, Brown & Co., 34 Beacon St., Boston 6, 1947.

The author is a South African psychoanalyst who has written many works in his field and who has been concerned particularly with psychoanalytic studies. He is a member of the British and International Psychoanalytic Societies and may therefore be considered fully qualified in his field. The present book should interest the general readers as well as those who are especially concerned with psychiatry. The book is the true story of a native African medicine man approached from the point of view of the psychoanalyst who presents not only the life experiences of the subject but also his inner conflicts. The primitive society from which the medicine man emanated had developed its own psychologic treatments. The volume gives an interesting picture of the life of South African natives and the difficulties in adjustment of their culture to that of the white civilization in which they live.

Devil by the Tail: A Novel. By Langston Moffett. Cloth. Price, $3. Pp. 431. J. B. Lippincott Company, 227 S. 6th St., Philadelphia 5, 1947.

This is another story about alcoholism, summarized also from both the medical and the psychiatric point of view by the words opposite the contents page: "The characters and situations in this work are wholly fictional and imaginary and are not intended to portray any actual persons or groups of persons."

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

RECURRENT PNEUMONIA

To the Editor:—A white woman aged 68 has had recurrent fever for eight weeks. Radical amputation of the right breast was performed three years ago for carcinoma. About eight weeks ago she began to have a fever which varied from normal in the morning to 102 F. in the evening. Physical examination disclosed that she was emaciated and pale. There were no other definite physical findings. X-ray examination of the chest showed an atypical pneumonia of the lower left lobe. Penicillin in adequate doses had no effect. The pneumonia gradually resolved, and the patient was afebrile for about one and one-half weeks. She again became febrile and another x-ray of the chest disclosed another atypical pneumonia in the same location. Penicillin, sulfadiazine and streptomycin were all tried without apparent benefit. Serial x-rays of the chest showed complete resolution of the pneumonic process. The patient has continued to have a recurrent fever since that time, the temperature remaining normal for eight to twelve days, then beginning to rise in the evenings to 101 to 102 F. for eight to twelve days. Since the beginning of the present illness the patient has had a moderately severe anemia, the average blood picture being hemoglobin 65 to 70 per cent, erythrocytes 3 to 3½ million, leukocytes 8 to 14 thousand; the differential count was normal. Bone marrow studies are negative. Liver function tests have been normal, including galactose tolerance, icterus index, van den Bergh, prothrombin time and urobilinogen. Urinalysis has been negative. The blood Wassermann reaction is negative. Agglutination tests for typhoid, paratyphoid and undulant fever have been negative. Blood culture has been sterile. Blood chemistry tests are also negative. Complete gastrointestinal series and gallbladder x-ray studies have given normal results, as well as x-rays of the long bones. In addition to the antibiotics the patient has received repeated blood transfusions, liver extract every two days parenterally, Lextron ferrous capsules and vitamin B complex. She has become progressively worse despite treatment.

A. J. Edelstein, M.D., Johnstown, Pa.

Answer.—Recurrent pneumonias, especially in the same area, in a patient of 68 suggests partial obstruction from a number of causes, the chief of which is a primary or metastatic neoplasm. Viral pneumonia may relapse but is seldom followed by febrile attacks for two months. Tuberculosis, foreign body, bronchial stenosis and other causes must also be considered. Mention is not made of cough or of sputum, which might suggest bronchiectasis with recurrent peripneumonitis. In the case described in the query, metastatic neoplasm seems most likely, particularly after a mastectomy for carcinoma. Metastasis to the lung or pleura is common. Unrelated primary bronchogenic carcinoma is also possible. Further attempts at diagnosis should include bronchoscopy and aspiration of exudate to search for tumor cells after the method of Herbut (*M. Clin. North America* November 1946, p. 1384) and/or bronchography with iodized oil. If a neoplasm is present, other treatment is not indicated except that of the supportive type already used.

ELECTROCAUTERY

To the Editor:—Please give the following information concerning the new Cameron Cauterodyne (Model M for ear, nose and throat use): 1. Can it be used in general ether anesthesia? 2. When used in tonsillectomy is the occurrence of secondary hemorrhages greatly reduced over the ordinary surgical removal? 3. What is the difference between the use of the dehydrating current and the desiccating current? 4. What is the consensus as to its use for daily office practice?

R. A. Quisling, M.D., Madison, Wis.

Answer.—1. There is a definite risk of explosion which does not permit the use of apparatus of this kind during the course of a general ether anesthesia. This is especially true if the operation is to be about the mouth, as in tonsillectomy.

2. Secondary hemorrhage is not reduced by comparison with its occurrence after ordinary surgical removal. It may not be any more frequent, but it is apt to come later and may be more stubborn than after surgical removal.

3. The difference between dehydrating and desiccating currents is more academic than practical. In the type of procedure under discussion, water is abstracted from the tissues. When the effect is superficial, one speaks of desiccation; when it is somewhat deeper, one can speak of a dehydrating effect, and the last and most destructive is the coagulating effect.

4. It is not easy to poll doctors who use this particular model. Its circuits have been accepted by the Council on Physical Medicine of the American Medical Association, and there is every reason to believe that it is a reliable piece of apparatus. For strictly office use, not involving more ambitious operations, the same company has smaller models which are adequate.

TREATMENT OF TRENCH FOOT

To the Editor:—What treatment is recommended for the residuals of trench feet? These patients, veterans of the European Theater of Operations, complain chiefly of increased sensitivity to cold, increased sweating, callous formation and occasional pain, tingling and numbness. Physical findings are usually minimal–mild color changes and slightly lowered skin temperature with little or no change in the peripheral pulse.

M.D., Iowa.

Answer.—The late changes in trench foot can be readily divided into two groups: In the first, one can demonstrate excessive sympathetic activity as manifested by coldness, cyanosis, hyperhidrosis with desquamation of the epithelium and bromidrosis. Sympathetic block with procaine hydrochloride relieves these symptoms, sometimes permanently, more often just for a few hours or days. If the result of procaine block is evanescent, lumbar sympathectomy is indicated and has been successful in eliminating the vasomotor symptoms and the excessive sweating, with its consecutive blistering and bad odor. Unfortunately only about a fourth of patients belong to this group. The majority show peripheral nerve involvement, mostly of the plantar nerves, which result in pain on weight bearing, numbness and burning of the sole of the foot and toes, and intolerance to heat or friction. While anesthesia is rarely present, the areas complained of are either hypoesthetic or hyperesthetic. In this group one may also see stiffness of the toes, hyperkeratosis and other trophic changes which signify the severity of exposure and which are fundamentally due to the clotting of the plasma in the extravascular spaces and to increased capillary permeability. Treatment in this group has not been too satisfactory. Walking, swimming or bicycle riding increase the patient's confidence. Massage and whirlpool baths may give some benefit. Rubber heels or thick pieces of leather placed in front of the heel to shift the pressure from the painful metatarsal heads are helpful. However, this dysesthesia of the foot may last a long time and has not disappeared for years after the initial exposure. Obviously many patients show a mixture of the two syndromes. In these the preponderance of one or the other variety should direct treatment. It must be stated, however, that sympathetic denervation not only does not relieve the peripheral neuropathy but may aggravate the symptoms. That some of these patients suffer from a psychoneurosis is an additional warning against surgical procedures except in the clearcut vasospastic group in mentally stable persons.

REACTIONS TO UROGRAPHIC MEDIUMS

To the Editor:—What is the incidence of reactions following the intravenous injection of opaque substances for urographic study? What is the incidence of fatalities? Is it current practice to do a preliminary sensitivity test with the radiopaque substance to be used? If not, should this be done?

M.D., New York.

Answer.—Several cases have been reported in which a severe reaction followed the intravenous injection of opaque mediums currently employed in urography. It would be difficult to obtain exact figures on the incidence of such reactions.

The mediums most frequently employed at present are Neo-Iopax (disodium methyl-diiodo-chelidamate) and Diodrast (diiodopyridone acetic acid diethanolamine). Mild reactions immediately following the injection of either of these mediums occur frequently. As a rule they consist only of a feeling of intense heat, pain localized to the area of injection or nausea, which usually pass away in a few seconds. In about 5 per cent of cases such reactions become quite severe and occasionally may be accompanied with temporary prostration. If the substance is injected into the tissues outside a vein, the pain may be severe and persistent. Venous thrombosis also has been reported, which usually is localized to the vein injected.

Although fatality following injection of these mediums is infrequent, a number of such cases have been described and they probably occur more frequently than has been reported. On the other hand, in a series of more than 25,000 excretory urograms made with Neo-Iopax in recent years at the Mayo Clinic, only one fatality has been reported. A postmortem examination was not obtained in this case, but judging from the symptoms, death apparently was due to acute toxemia. It was found later that there had been a severe reaction following a previous urogram.

A routine test for sensitivity to iodine before injecting urographic mediums has been recommended. However, the rarity of fatal accidents and the difficulty of knowing whether such a test necessarily indicates a toxic reaction would make one question the advisability of its routine employment. Needless to say, care should be taken in the selection of the patients. It is questionable whether excretory urography should be employed in patients who are greatly debilitated from any cause or in those who are known to be allergic to iodine preparations.

CYANIDE POISONING FROM INDUSTRIAL SOURCES

To the Editor:—A mining company uses cyanide in processing its ore. There is a possibility that at some time traces of cyanide may pass through the tailings and enter the stream below the camp. What concentration of cyanide (mostly as sodium salt) would render this water unsafe for drinking purposes and be apt to kill fish in this stream? The stream flows over several small waterfalls and over rock for nearly 10 miles before coming to the next settlement. It requires a minimum of four to five hours to reach this village. The rock is mostly limestone. Would much of the cyanide remain under these circumstances? What symptoms might be expected to develop from prolonged ingestion of minute quantities of cyanide?

Theodore Gallup, M.D., Holden, Wash.

ANSWER.—The frequency of poisoning from cyanides from industrial applications and waste products therefrom is surprisingly low in the light of the injurious properties of hydrocyanic acid and cyanides. Thousands of gallons of concentrated cyanide solutions from plating vats are dumped into the public sewers in every city without known subsequent damage to sewer workers or others. Spent materials from cyanide metal hardening furnaces are handled by the ton with almost complete disregard for potential injury. With the cyanide flotation method for metal concentration the average application of cyanide salts approximates 3 pounds per ton of water or ore. Since the average flotation mill concentrates approximately 100 tons of ore daily, the effluent water represents a content of some 300 pounds of cyanide. Slightly more than 53 per cent of sodium cyanide is made up of the cyanogen constituent; thus some large quantity such as 159 pounds of cyanogen daily may be brought in contact with the water effluent ultimately to be discharged into some stream. The rarity of poisoning from industrial application of cyanides (hydrocyanic fumigation excepted) is in part attributable to the facility with which cyanides are transformed to carbonates or other harmless compounds. In cyanide flotation work, even the fairly common dermatitis is more often attributable to commercially employed alkalis than to cyanides.

The maximum therapeutic dose of sodium cyanide is ½ grain (32 mg.) daily administered orally and intermittently. This represents approximately 16 mg. of cyanogen. Four times this quantity from a single intake has produced fatality in man. An atmosphere containing 0.2208 mg. of hydrocyanic acid per liter of air is tolerable for prolonged exposure. If a person breathes 6 cubic meters of air per day, the total intake of hydrocyanic acid would approximate 132 mg., although perhaps not more than one fourth, or 33 mg., might be retained in the body. It is probable that 10 mg. of cyanogen is near the daily maximum that can be tolerated by the body without demonstrable injury. In the instance described in the query it would be desirable to establish the fact that the daily intake of water does not provide a greater intake of cyanogen than 10 mg.

The situation may be different for fish life. It is not necessary to estimate the quantity of cyanogen that will destroy adult fish but only the quantity that will upset the normal piscatorial economy. Quantities of cyanogen possibly harmless to adult fish may inhibit the hatching of roe or kill off certain of the lower aquatic life forms essential to fish economy. Concentrations of cyanogen on the order of 0.0027 per cent may inhibit the hatching of certain aquatic life eggs and may kill protozoa. Therefore the peril to fish life may be greater than for human life.

It is almost certain that the usual content of cyanide from a flotation mill will have disappeared in any sizable stream after a flow of 10 miles with great water turbulence from waterfalls, and after an elapsed travel time of four or five hours. However, unusual circumstances such as the presence of agents that inhibit oxidation of cyanides or the fortuitous presence of acid may upset these calculations. Should actual damage arise, this will be shown in mild cases by vertigo, headaches, dyspnea, nausea, vomiting, salivation and tremors. In some instances in which cyanides from flotation mills have been suspected as a source of injury to human beings inquiry has established that arsenic derived from mineral acids or possibly from ores was the offender rather than cyanides.

References:

Bulmer, F. M. R.; Rothwell, H. E.; Polack, S. S., and Stewart, D. W.: Chronic Arsine Poisoning Among Workers Employed in the Cyanide Extraction of Gold, *J. Indust. Hyg. & Toxicol.* **22:** 111, 1940.

Permenter, D. C.: Observations on Mild Cyanide Poisoning, *J. Indust. Hyg.* **8:** 280, 1926.

Braddock, W. H., and Tingle, G. R.: So-Called Cyanide Rash in Gold Mine Mill Workers, *ibid.* **12:** 259, 1930.

Solis-Cohen, Solomon, and Githens, T. S.: Pharmacotherapeutics, Materia Medica and Drug Action, New York, D. Appleton & Co., 1928.

Department of Interior, Bureau of Mines, Report of Investigations, Ore Testing Studies, 1937-1938.

UNUSUAL DELAYED REACTION AFTER PENICILLIN IN PENDIL

To the Editor:—A patient developed acute bilateral mastitis ten days after delivery. She was given sulfathiazole and 100,000 units of penicillin in 3 cc. of Pendil twice daily intramuscularly in the deltoid muscles. The injections were discontinued after four days, as the inflammation had apparently disappeared. One week later the mastitis recurred in the left breast and two days later in the right breast, accompanied with high fever and chills. The patient was again given penicillin in the same dosage and in the same area. After five days the dosage was increased to 200,000 units per dose in 3 cc. of Pendil. More definite improvement followed, and at the end of ten days of treatment all signs of inflammation were gone. The penicillin was continued for four more days, making a total of fourteen days' treatment for the recurrent mastitis. There was no recurrence. About four weeks after completion of treatment the patient noticed large indurated areas over both deltoid areas. At times a large inflamed area would develop, last a few hours and then fade out. Several have remained red and at times become a dark purplish. The indurated areas have now gravitated downward in one place to a point about 2 inches below the elbow. They extend to all surfaces of the arm. In places a hard area 1 to 3 cm. in diameter and several inches long can be palpated. Considerable discomfort is present most of the time, especially at night. Hot saline applications and Benadryl 50 mg. four times daily have not had any appreciable effect. Has the Pendil (oil) not been absorbed and is this an allergic reaction? Any recommendations as to treatment will be appreciated. What is the prognosis?

M.D., Texas.

ANSWER.—This is a most unusual delayed type of reaction. It probably represents hypersensitivity to one of the agents injected into the areas. Such a delayed reaction is probably not caused by penicillin. Pendil, as then marketed, is a combination of peanut oil and a cholesterol derivative. There is a possibility that the inflammatory reaction with hemorrhage is associated with the retention of this mixture in the tissues, and the acquired sensitivity is due to peanut oil. Since the reaction is unusual, a definite statement concerning prognosis cannot be offered. It is quite likely that the sites of reaction will show fibrosis eventually. Treatment should be directed to alleviating any local discomfort.

STREPTOMYCIN FOR CHRONIC PYURIA

To the Editor:—Would you please venture an opinion, comment and give a prognosis or suggestion in the following hypothetical case? A man aged 50 had either a pyelitis or a pyelonephritis two years ago which apparently subsided after two weeks of bed rest and treatment with methenamine and sulfonamide drugs. However, in five months it was found that the urinary tract infection had not cleared up and it has persisted ever since. Two years ago cystoscopy was done and a retrograde pyelogram made by a competent urologist. Repeated urine cultures have shown Escherichia coli and Streptococcus fecalis. He has received extensive treatment with sulfonamide compounds and penicillin. He is now receiving mandelic acid therapy. About nine months ago the patient started to have anginal pains on effort. He later developed a coronary thrombosis and has been bedfast for the past six months. He is relieved by glycery trinitrate 1/100 grain (0.65 mg.) and erythrol tetranitrate 1/6 grain (11 mg.) after each meal. Streptomycin therapy is contemplated. Please suggest the dosage of streptomycin.

M.D., Kansas.

ANSWER.—Cystoscopy and retrograde pyelograms are indicated if the patient's condition will tolerate the procedure. This is important since streptomycin and other urinary antiseptics are ineffectual in the presence of urostasis or calculous disease. One or both of these states usually exists in the presence of persistent urinary infection. Recent literature suggests that susceptible bacteria rapidly lose their susceptibility to streptomycin. For this reason not less than 3 million units should be given during each of the first three days. This should be followed by 1 Gm. daily for an additional four days. Alkalization of the urine will enhance the effect of the streptomycin. Mandelic acid should be given consecutively with the urinary p_H established at 5.5 or lower because it is probably the best antiseptic for Streptococcus fecalis.

TREATMENT OF POSTPROSTATECTOMY PYURIA

To the Editor:—Please discuss the treatment of pyuria due to Bacillus coli infection after transurethral operations with special reference to sulfathiazole, sulfadiazine and sulfamid. What other methods are there to reduce pyuria?

Samuel Rosenstein, M.D., San Antonio, Texas.

ANSWER.—The consensus seems to be that sulfadiazine and sulfathiazole are more efficacious than sulfamid. However, streptomycin is superior to these three sulfonamides. The important point in any patient with a persistent pyuria is the recognition of an associated pathologic condition that may be present and be the underlying cause. For instance, after a transurethral resection, residual urine may still be present, or there may be an infection in the prostatic bed. A study of the upper urinary system also should be made. This might reveal a hydronephrosis, "silent" renal stones or other pathologic findings.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 134, No. 8 | Chicago, Illinois | June 21, 1947

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THE ETIOLOGY OF INFECTIOUS HEPATITIS

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The modern concept of the virus etiology of infectious hepatitis is a product of the investigations of recent war years both abroad and in this country. This theory is in accord with at least three facts: (1) the consistent failure to identify any causative bacteria with this disease;[1] (2) the production of hepatitis in human volunteers by the administration of a filtrable agent,[2] and (3) the development in patients in the early stages of this disease of leukopenia (with lymphopenia and subsequent neutropenia) similar to that found in several other virus infections.[3]

Historically, infectious hepatitis is an old disease and one which has been long known in civilian and military life. Epidemics of what may probably be regarded as this disease were recorded during Napoleon's campaign in Africa and in the Civil War in this country, the Boer War in South Africa and in World Wars I and II. During World War I considerable effort was made to demonstrate an etiologic association between various strains of salmonellae and infectious hepatitis. It is now apparent that such an association probably represented the simultaneous occurrence of two diseases whose manner of spread, namely, the intestinal-oral route, was the same.[1] In addition the recognition of spirochetal jaundice and of its causative agent Leptospira icterohemorrhagiae[4] caused confusion, in that for many years the investigations of outbreaks of infectious jaundice were carried out largely with the concept of leptospiral etiology. Blumer[5] was among the first in this country to indicate that infectious hepatitis probably represented the epidemic form of catarrhal jaundice. It is only recently that this idea has been more widely accepted.

Infectious hepatitis may appear either sporadically or in large or small epidemics. Family outbreaks are not uncommon. In civilian life it is said to be primarily a disease of childhood, although its capacity to attack the young adult is attested by the magnitude of military epidemics. Clinically the disease is similar, as it appears in children and adults, although its course on the average is much severer in the latter group.

During the late war tens of thousands of cases of this disease occurred among troops in various parts of the world, and excellent clinical descriptions have been recorded. In addition considerable knowledge has accumulated concerning treatment and the use of certain tests of liver function in diagnosis and prognosis.[6] In the accompanying chart is described the course of disease of an adult patient with infectious hepatitis.

ETIOLOGIC AGENT

Actually little is known in regard to the etiologic agent. The lack of susceptible laboratory animals or adequate serologic tests, as well as failure to propagate the agent in embryonating eggs or tissue culture have made the problems more difficult. Up to the present the best source of information has been in the use of human volunteers, to whom it is possible to transmit the disease readily. In this manner certain facts have become known about the etiologic agent, the possible manner of spread of virus and the prevention of the disease. A few strains of infectious hepatitis virus have been obtained from different parts of the world, and the patterns of their behavior in man have been compared.

Numerous attempts to transmit the virus of infectious hepatitis to the common laboratory animals, including many rodents, many species of monkeys and even chimpanzees have failed.[7] Successful transmission of virus to pigs,[8] canaries[9] and embryonating eggs[10] has been

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From the Section of Preventive Medicine, Yale University School of Medicine.

Representing work done for the Commission on Neurotropic Virus Diseases, Army Epidemiological Board, Preventive Medicine Service, Office of The Surgeon General, United States Army.

Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

Acknowledgment is made of the assistance and cooperation of the following agencies: Selective Service, Camp Operations Division: Civilian Public Service Units *68, 81 and 110;* the Connecticut State Hospital, Middletown, Conn.; the Norwich State Hospital, Norwich, Conn.; the Federal Correctional Institution, Danbury, Conn., and the United States Public Health Service.

This paper and the succeeding papers by Lieutenant Colonel Mallory, Drs. Kimball, Chapple and Sanes, Dr. Hoffbauer, Drs. Boles, Crew and Dunbar and Dr. Morrison are the concluding papers in a symposium on "Diseases of the Liver." The papers in this symposium by Dr. Weir, Dr. Osgood, Drs. Giansiracusa and Althausen, Dr. Capps, Captain Sborov and Dr. Barker, and Dr. Wilbur were published in The Journal last week.

1. Havens, W. P., Jr., and Wenner, H. A.: Infectious Hepatitis Complicated by Secondary Invasion with Salmonella, J. Clin. Investigation **25:** 45 (Jan.) 1946.

2. Havens, W. P., Jr.: Properties of the Etiologic Agent of Infectious Hepatitis, Proc. Soc. Exper. Biol. & Med. **58:** 203 (March) 1945.

3. Havens, W. P., Jr., and Marck, R. E.: The Leukocytic Response of Patients with Experimentally Induced Infectious Hepatitis, Am. J. M. Sc. **212:** 129 (Aug.) 1946.

4. Inada, R.; Ido, Y.; Hoki, R.; Kaweko, R., and Ito, H.: The Etiology, Mode of Infection and Specific Therapy of Weil's Disease (Spirochaetosis Icterohaemorrhagica), J. Exper. Med. **23:** 377 (March) 1916.

5. Blumer, G.: Infectious Jaundice in the United States, J. A. M. A. **81:** 353 (Aug. 4) 1923.

6. Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater, J. A. M. A. **128:** 997 (Aug. 4) 1945; Chronic Hepatitis in the Mediterranean Theater A New Clinical Syndrome ibid. **129:** 653 (Nov. 3) 1945. Hoagland, C. L., and Shank, R. E.: Infectious Hepatitis, ibid. **130:** 615 (March 9) 1946.

7. van Rooyen, C. E., and Gordon, I.: Some Experimental Work on Infective Hepatitis in M. E. F., J. Roy. Army M. Corps **79:** 213 (Nov.) 1942. Hoyle, L.: *A Note on Some Unsuccessful Attempts to Demonstrate* a Virus in Infective Hepatitis, Medical Research Council, Monthly Bulletin of the Ministry of Health and Emergency Public Health Laboratory Service, Oct. 5, 1943, vol. 2, p. 99; abstracted, Bull. Hyg. **19:** 12 (Jan.) 1944. Havens, W. P., Jr., and Ward, R.: Failure to Infect Chimpanzees with the Virus of Infectious Hepatitis, Proc. Soc. Exper. Biol. & Med. **60:** 102 (Oct.) 1945.

8. Andersen, T. T., and Tulinius, S.: Etiology of Hepatitis Epidemica (Epidemic Jaundice), Acta med. Scandinav. **95:** 497, 1938.

9. Dresel, E. G.; Meding, G., and Weineck, E.: Ueber das Virus der Hepatitis epidemica, Ztschr. f. *Immunitätsforsch. u. exper. Therap.* **103:** 129 (June 10) 1943.

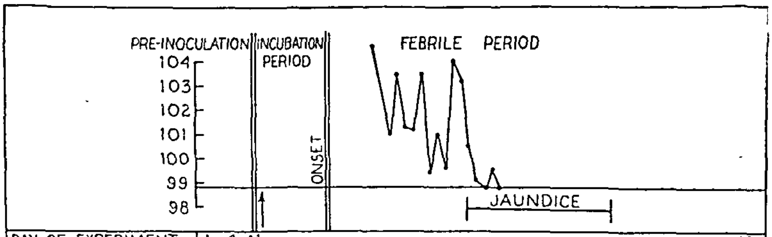
10. Siede, W., and Luz, K.: Zur Ätiologie der Hepatitis epidemica weitere Untersuchungen zum Virusnachweis, Klin. Wchnschr. **22:** 70 (Jan. 23) 1943.

reported but not confirmed. More recently MacCallum and Miles[11] have described the transmission to rats of a filtrable icterogenic agent, following the administration of material derived from patients with infectious hepatitis. It is impossible as yet to know whether this agent originated in the patients or represents a spontaneously occurring infection in the rat. The spontaneous appearance of a filtrable agent causing hepatitis has already been observed in colonies of supposedly healthy mice.[12]

German workers[13] have recently reported the virus of infectious hepatitis as being a polyhedral body with a diameter of the order of 180 millimicrons when visualized by means of the electron microscope. Neither this agent nor the rodent agent have been described as having reproduced the disease in human volunteers.

TRANSMISSION EXPERIMENTS IN HUMAN VOLUNTEERS

A large part of the available information about hepatitis has been obtained through the use of human volunteers in the experimental transmission of this disease. Such experiments of necessity employ a relatively small number of subjects, thereby limiting the statistical value of results. It is evident that positive results are of value and the negative ones less so, requiring considerable caution in their interpretation.



DAY OF EXPERIMENT	1	4	11																				124
DAY AFTER INOCULATION			1	15	24	26																	114
DAY OF DISEASE						1	2	3	4	5	6	7	8	15	17	23	27	29	34	36	40	61	68	89
SERUM BILIRUBIN MG/100ml	.96	1 6		1 6	1.8				.76		.69			6.6			2.5		1.7		2.0	1.5	1.6	.89
BROMSULPHALEIN % RETAINED	4	4		8	4				13		36								5		12	10		2
CEPHALIN FLOCCULATION	0	0		0	0				0		0			+++			+++		++		+++	0		0
BILIRUBINURIA			0			+			0				+++		++	±		0		0	0	0		0
SEDIMENTATION RATE		1			2				4												4	3		2
LEUKOCYTE COUNT X1000	6.0								4.4				4.1	5.6	7.6			4.9						

Clinical course of volunteer with experimentally induced infectious hepatitis. The arrow indicates the time of inoculation. Rectal temperatures are recorded. Five milligrams of sulfobromophthalein sodium ("bromsulphalein") per kilogram of body weight was injected intravenously, and the percentage retained in the blood was measured after thirty minutes.

It is pertinent to call attention at this time to the arbitrary distinction which has been made between the naturally occurring disease, infectious hepatitis, and homologous serum jaundice. This latter term has been reserved for the form of hepatitis produced in persons who have been artificially infected through the parenteral inoculation of human blood products in the form of vaccines, convalescent serums or transfusions of blood or plasma.[14] Although the exact relationship between these two artificially separate forms of hepatitis is not clearly understood, it would seem likely that they belong to the same general group. The question has naturally been raised whether all serum jaundice is not the artificial production of infectious hepatitis. The solution of this problem is not yet known, although experiments in the transmission of both forms of hepatitis to human volunteers have elicited certain information. In the accompanying table is recorded a comparison of two strains of virus, that of infectious hepatitis[15] and that of homologous serum jaundice,[16] employed in such experiments in the laboratory of the Neurotropic Virus Disease Commission during the past two years. It is not yet determined whether the differences in route of inoculation, length of incubation period, distribution of virus, period of infectivity and lack of cross immunity are representative of the activities of actually different viruses or of antigenic differences of various strains of one virus.

The etiologic agent of infectious hepatitis is known to be filtrable through bacteria-tight filters, resistant to a temperature of 56 C. for at least thirty minutes and able to withstand chlorination (1 part chlorine residual per million).[17] It is readily recovered from the blood or feces of patients in the acute, preicteric or early icteric phases of disease. Several attempts to detect virus in the urine or nasopharyngeal washings of patients at similar periods have had contradictory results, although in general they have been unsuccessful.[18] The period of infectivity[19] of patients with this disease has been investigated to determine when virus appears in the blood and feces and how long it remains there. A single attempt to recover it from the blood midway through the incubation period of 1 experimentally infected human volunteer was unsuccessful, but it has been found in the blood three days before the onset of disease.[17c] Attempts to recover virus from the blood and feces in the convalescent period as early as one month after onset of disease have been unsuccessful. The possibility of a carrier state or whether patients with relapse have virus in their blood or feces has not been determined.

The natural manner of transmission of infectious hepatitis is not completely known, although epidemics carried by water,[17b] food[20] and milk[21] have been described. Experimentally, there is evidence that the intestinal-oral route may be of importance. This is based on the fact that the disease may be transmitted to human volunteers by feeding them infectious feces or serum.[22] Some support for this concept is also furnished by the observation that infectious hepatitis often flourishes in places where sanitation is poor and where other diseases spread by the intestinal-oral route (bacilliary dysentery and salmonellosis) are prevalent.

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[11] MacCallum, F. O., and Miles, J. A. R.: A Transmissible Disease in Rats Inoculated with Material from Cases of Infective Hepatitis, Lancet **1:** 3 (Jan. 5) 1946.

[12] Nicolau, S.; Porticala, R., and Motoc, A.: The Presence of Inclusions in Epidemic Icterogenic Hepatitis (Preliminary Communication), Ann. Victor Babes Inst. **14:** 266, 1944. Olitsky, P. K., and Casals, J.: Certain Affections of the Liver That Arise Spontaneously in So-Called Normal Stock Albino Mice, Proc. Soc. Exper. Biol. & Med. **60:** 48 (Oct.) 1945.

[13] Essen, K. W., and Lembke, A.: Zur Aetiologie der Hepatitis epidemica, Med. Ztschr. **1:** 99 (Dec.) 1944; abstracted, Bull. War Med. **6:** 143 (Nov.) 1945.

[14] Homologous Serum Jaundice: Memorandum Prepared by Medical Officers of Ministry of Health, Lancet **1:** 83 (Jan. 16) 1943.

[15] Havens, W. P., Jr.: The Period of Infectivity of Patients with Experimentally Induced Infectious Hepatitis, J. Exper. Med. **83:** 251 (March) 1946.

[16] Havens, W. P., Jr.: The Period of Infectivity of Patients with Homologous Serum Jaundice and Routes of Infection in This Disease, J. Exper. Med. **83:** 441 (June) 1946.

[17] (*a*) Findlay, G. M., and Wilcox, R. R.: Transmission of Infective Hepatitis by Faeces and Urine, Lancet **1:** 212 (Feb. 17) 1945. (*b*) Neefe, J. R., and Stokes, J., Jr.: An Epidemic of Infectious Hepatitis Apparently Due to a Water Borne Agent, J. A. M. A. **128:** 1063 (Aug. 11) 1945. (*c*) Francis, T., Jr.; Frisch, A. W., and Quilligan, J. J., Jr.: Demonstration of Infectious Hepatitis Virus in Presymptomatic Period After Transfer by Transfusion, Proc. Soc. Exper. Biol. & Med. **61:** 276 (March) 1946. (*d*) Neefe, J. R.; Stokes, J., Jr.; Baty, J. B., and Reinhold, J. G.: Disinfection of Water Containing Causative Agent of Infectious (Epidemic) Hepatitis, J. A. M. A. **128:** 1076 (Aug. 11) 1945. Havens.[2]

[18] Havens.[15] Neefe and Stokes.[17b]

[19] Neefe, J. R.; Stokes, J., Jr., and Reinhold, J. G.: Oral Administration to Volunteers of Feces from Patients with Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis, Am. J. M. Sc. **210:** 29 (July) 1945. Havens.[15]

[20] Read, M. R.; Bancroft, H.; Doull, J. A., and Parker, R. F.: Infectious Hepatitis, Presumably Food-Borne Outbreak, Am. J. Pub. Health **36:** 387 (April) 1946.

[21] Murphy, W. J.; Petrie, L. M., and Work, S. D.: Outbreak of Infectious Hepatitis, Apparently Milk-Borne, Am. J. Pub. Health **36:** 169 (Feb.) 1946.

It is difficult to evaluate the immune response elicited by the virus of infectious hepatitis, but there are certain epidemiologic and experimental data which suggest that protective substances may be elaborated in man following infection. Second attacks of infectious hepatitis are said to be uncommon. Experimentally, immunity has been demonstrated in human volunteers convalescent from hepatitis caused by two different strains of virus when challenged with the homologous strain six to nine months after their initial infection.[23] Partial cross immunity between these two strains of virus has also been shown in that volunteers who were convalescent from infection caused by a strain of virus obtained from children with the disease in Pennsylvania [24] were immune when inoculated with a strain of virus derived from a soldier who contracted infectious hepatitis in Sicily.[22b] Further evidence has also been furnished by the demonstration of the prophylactic value of human gamma globulin when administered in the incubation period of infectious hepatitis.[25] This implies the presence of specific antibodies in the blood of the healthy human adult population of this country, possibly elicited by previous clinical or subclinical infection.

Comparison of Behavior of Viruses of Infectious Hepatitis and Homologous Serum Jaundice in Experimentally Infected Human Volunteers

	Virus	Infectious Hepatitis [15]	Homologous Serum Jaundice [16]
1	Filtrable	Seitz EK	Seitz EK
2	Resistance to heat	56 C, 30 minutes	56 C 60 minutes
3	Susceptible animal	Man only	Man only
4	Incubation period (days)	15 to 34	56 to 134
5	Route of infection (experimental)	Parenteral or oral inoculation	Parenteral inoculation
6	Virus in stool	Acute phase	Not demonstrated
7	Virus in serum	Acute phase	Incubation period and acute phase
8	Immunity		
	A. Homologous	Present	Not tested
	B Heterologous	Not tested	None apparent

SUMMARY

It is evident that a better concept of infectious hepatitis as a disease entity has been established as a result of clinical and experimental data accumulated during recent war years. In addition to the clarification of certain clinical aspects this disease has been classified as one of virus etiology, which may be spread by the intestinal-oral route and prevented by passive immunization. Although the exact relationship of this disease to another form of hepatitis arbitrarily designated as homologous serum jaundice is not defined, it would seem likely that the two are closely related although not identical, and belong in the same general group.

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22. (a) MacCallum, F. O., and Bradley, W. H.. Transmission of Infective Hepatitis to Human Volunteers, Lancet **2:** 228 (Aug. 12) 1944. (b) Havens, W. P., Jr.; Ward, R.; *Drill, V. A*, and *Paul, J. R.:* Experimental Production of Hepatitis by Feeding Icterogenic Materials, Proc. Soc. Exper. Biol. & Med. **57:** 206 (Nov) 1944.

23. Neefe, J. R.; Stokes, J, Jr., and Gellis, S. S.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis, Experimental Study of Immunity and Cross Immunity in Volunteers, Am J. M. Sc. **210:** 561 (Nov) 1945. Havens, W. P., Jr.: Immunity in Experimentally Induced Infectious Hepatitis, J. Exper. Med. **84:** 403 (Nov) 1946.

24. Neefe, J. R., and Stokes, J., Jr.: Personal communication to the author

25. Stokes, J., Jr., and Neefe, J. R: The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin, J. A. M. A **127:** 144 (Jan. 20) 1945 Gellis, S S.; Stokes, J, Jr.; Brother, G M.; Hall, W. M., Gilmore, H. R.; Beyer, E., and Morrissey, R. A.· The Use of Human Immune Serum Globulin (Gamma Globulin) in Infectious (Epidemic) Hepatitis in the Mediterranean Theatre of Operations: I. Studies on Prophylaxis in Two Epidemics of Infectious Hepatitis, ibid. **128:** 1062 (Aug. 11) 1945 Havens, W. P., Jr., and Paul, J. R · Prevention of Infectious Hepatitis with Gamma Globulin, ibid. **129:** 270 (Sept. 22) 1945.

THE PATHOLOGY OF EPIDEMIC HEPATITIS

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In the present state of knowledge of epidemic hepatitis, this disease can be defined only in descriptive terms, since the infectious agent has not yet been isolated and identified. The disease is transmissible to human beings by oral or parenteral inoculation with a filter-passing agent, presumably a virus,[1] but in contrast to spirochetal jaundice and yellow fever experimental infection of animals has never been accomplished. It is characterized clinically by evidence of hepatic dysfunction and pathologically by inflammatory and degenerative changes in the hepatic parenchyma. It ordinarily runs a benign, self-limited course of two to three weeks' duration, but symptoms may persist for months, with or without acute recrudescences. Although the mortality is low, death may occur at any stage. On clinical and pathologic grounds it is indistinguishable from the endemic, sporadic disease known for many years as catarrhal jaundice, from homologous serum jaundice and from at least certain cases of hepatitis attributed to arsphenamine therapy.

HISTORICAL DATA

The literature of epidemic hepatitis has recently been reviewed by Lucké,[2] and nothing would be gained by extensive repetition at this time, but a brief historical résumé will serve to explain why the pathology of the disease was comparatively unknown until the outbreak of the second world war. Jaundice due to massive necrosis of the liver was recognized as early as 1842 by Rokitansky,[3] who first described and named acute yellow atrophy.[4] It was, however, regarded as a uniformly fatal disease. Twenty-three years later Virchow [5] suggested that the benign, transient form of jaundice usually seen in young persons was due to a catarrhal inflammation, which occluded the papilla of Vater with a mucous plug. He proposed the term "Icterus catarrhalis," which quickly won worldwide acceptance and dominated medical thought for three

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This paper is based on and summarizes certain *features of* collaborative studies carried out at the Army Institute of Pathology with Col Balduin Lucké and at the 15th Medical General Laboratory with Major T. H. Horan and Capt L S. Jolliffe.

Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, *July 5, 1946.*

1. (a) Findlay, G. M, and Willcox, R. R. Infective Hepatitis Transmission by Faeces and Urine, Lancet **2:** 594, 1945. (b) Paul, J. R.; Havens, W. P., *Jr.;* Sabin, A. B., and Philip, C. B.: Transmission Experiments in Serum Jaundice and Infectious Hepatitis, J. A M A. **128:** 911 (July 28) 1945. (c) Neefe, J. R.; Stokes, J., and Gellis, S. S.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis: Experimental Study *of Immunity* and Cross Immunity in Volunteers, a Preliminary Report, Am. J. M. Sc. **210:** 561, 1945.

2. Lucké, B.: The Pathology of Fatal Epidemic Hepatitis, Am. J Path. **20:** 471, 1944.

3. Rokitansky, C.: Lehrbuch der pathologischen Anatomie, Vienna, W. Braumuller, 1861, vol. 3, p. 269.

4. It should be emphasized that the term "acute yellow atrophy" has no specific connotation but merely means any acute massive form of hepatic necrosis, which may be caused by a variety of factors. The acute yellow atrophy found in epidemic hepatitis corresponds to the kind formerly known as idiopathic.

5. Virchow, R.: Ueber das Vorkommen und den Nachweiss des hepatogenen, insbesondere des katarrhalischen Icterus, Virchows Arch. f. path. Anat. **32:** 117, 1865.

generations. Few people considered the possibility that the two diseases might be related. Probably the first to do so was Flindt,[6] who as early as 1890 assembled epidemiologic *evidence linking the sporadic and epidemic* forms of the disease and showing that both could terminate in an acute form of atrophy of the liver. He concluded that the essential lesion was a degeneration of the hepatic parenchyma rather than a disease of the extrahepatic biliary ducts. Unfortunately his work was published in an obscure Danish journal and was quickly forgotten even by his compatriots. In 1912 Cockayne[7] independently reached the same conclusion and abundant confirmation followed, particularly from the Scandinavians, Linstedt,[8] Ehrstrom[9] and Wallgren,[10] all of whom pointed out the parallelism between the incidence of hepatitis and deaths from atrophy of the liver. Despite this steadily increasing volume of evidence general medical opinion remained comparatively uninfluenced, and as late as 1930 Bergstrand[11] reported from Stockholm an epidemic of "yellow atrophy of the liver," paying scant attention to the concurrent epidemic of hepatitis in southern Sweden.

Though the evidence was by now clear that patients dying of hepatitis regularly showed massive necrosis of the liver the possibility remained that this was a superimposed, merely terminal complication. The first *evidence of hepatocellular degeneration in early stages* of the disease was provided by Eppinger.[12] During the first world war he observed 4 cases of hepatitis in wounded soldiers who died of tetanus rather than of hepatic insufficiency. In all these cases the major biliary ducts were unobstructed and free of inflammation, though such extensive degenerative changes in the liver cells were present that he likened them to a *miniature form of acute yellow atrophy.* Convincing evidence of hepatic involvement in all stages of the *disease could only be provided by biopsy material.* Such reports were at first sporadic and concerned individual and clinically atypical cases in which doubt in regard to diagnosis had led to surgical exploration of the patient (Klemperer, Killian and Heyd[13] and Schrumpf[14]). The development in 1939 by Roholm and Iversen[15] of a technic for aspiration biopsy of the liver permitted for the first time systematic studies of groups of patients. Their method was quickly adopted in other countries, and Dible, McMichael and Sherlock[16] in England and Axenfeld and Brass[17] in Germany utilized it with equal success. All these groups of investigators demonstrated a combination of inflammatory and degenerative changes in the liver throughout the icteric period of the disease.

MATERIAL

The epidemic of hepatitis in the American Army during the recent war has furnished abundant opportunity for further studies of its pathologic aspects. These have been or will be published in detail in other places.[18] Since I had the privilege of collaborating in several phases of the work I will quote liberally from these observations in this article. From the spring of 1942 to April 1945 material from 296 fatal cases of the disease was submitted to the Army Institute of Pathology. The first 118 of these were reported by Lucké[2] in 1943. The succeeding 178 were reviewed by Lucké and Mallory.[18b] During the autumn of 1944 and the winter and spring of 1945 a series of 160 peritoneoscopic biopsies of the liver were collected by Horan, Jolliffe and Mallory[18c] from 137 volunteers exemplifying various stages of the disease. All were procured in Italy at a time when hepatitis was epidemic in the area. There were no untoward complications of the procedure, and the patients either returned to duty or were sent back as convalescents to the United States. Consequently they may be regarded as rep*resentative of the nonfatal form of the disease.* Since the observations differ significantly it will be best to *consider the pathologic data of the fatal and nonfatal* cases separately.

FATAL HEPATITIS

Most cases of fatal hepatitis can readily be classified *into one of two types, subacute and fulminant, which* show corresponding variations in clinical and pathologic *observations. The first, or subacute, type is exemplified* by the Swedish epidemic of 1927 reported by Bergstrand[11] *and by the series of cases from the American* Army during 1942 and early 1943 which have been reported by Lucké. None of the patients in the latter group died in less than ten days A few survived one hundred days or more, and in 59 per cent the duration ranged from twenty to fifty days. In these cases the livers showed extensive but irregularly distributed necrosis and numerous foci of regeneration. In the material studied by Lucké and myself at the Army Institute of Pathology since August 1943 the *majority (53 per cent) of the patients died in less than* ten days, many in as short a period as three or four days and a few even before the onset of jaundice. In this type of case necrosis is diffuse and massive and no evidence of regeneration is seen.[18b] Cases of this type have recently been reported by Wood[19] in material derived from personnel of the United States Navy. Despite the difference in the two types, enough points of similarity and enough transitional forms are observed *to make it certain that one is dealing not with two* diseases but with a wide range of reaction to the same fundamental disorder.

The significant pathologic process of the disease is centered in the liver. In the subacute form of the disease the organ is grossly deformed. It is usually smaller than normal, commonly weighing 1,000 to 1,400 Gm., but may be as small as 600 Gm. or may even be enlarged, depending on the relative proportions of necrosis and regeneration. The external surface is irregular. Depressed, wrinkled, usually reddish patches alternate with projecting yellow-green nodules or bosses. The fulminant cases, in contrast, show a diffuse and uniform alteration throughout the liver. Frequently the organ is but slightly shrunken; it may be tense but is usually soft and may be so flabby that it tends to flatten when laid on the table. The capsule is often wrinkled. The color is extremely variable, yellow, red or even purple, and often mottled. On cross section the markings may be exaggerated, resembling an extreme form of nutmeg liver or may be totally obscured. In some the congestion is so intense that the cut surface resembles spleen more than it does liver. In most cases one would not suspect from the gross appearance of the organ the massive necrosis of parenchyma which the microscopic sections reveal.

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[6] Flindt, N · Bemaerkninger med Hensyn til den saakaldte katarralske Ikterus's Aetiologi og Genese, Biblioth f læger **1:** 420, 1890

[7] Cockayne, E A Catarrhal Jaundice, Sporadic and Epidemic, and *Its Relation to Acute* Yellow *Atrophy of the Liver,* Quart J. Med **6:** 1, 1912.

[8] Linstedt, F Beitrag zur Kenntnis des Ikterus catarrhalis mit besondere Rucksicht auf die Inkubationszeit dessen epidemischen Formen, Nord med ark **2:** 583, 1919.

[9] Ehrstrom, R . Icterus catarrhalis, akute gelbe Leberatrophie und chronische Hepatitis als Aeusserungen derselben Krankheit, Hepatitis epidemica, Acta med Scandinav **65:** *573, 1927.*

[10] Wallgren, A Erfahrungen uber epidemischen Icterus (sog Icterus catarrhalis), Acta pædiat (supp 2) **9:** 1, 1930

[11] Bergstrand, H Ueber die akute und chronische gelbe Leberatrophie, Leipzig, G Thieme, 1930

[12] Eppinger, H Die pathogenese des Ikterus, Verhandl d deutsch *Gesellsch f. inn* Med **34:** *15, 1922*

[13] Klemperer, P , Killian, J A , and Heyd, C G The Pathology of "Icterus Catarrhalis," Arch Path **2:** 631 (Nov.) 1926

[14] Schrumpf, A Un cas d'ictere "catarrhal" avec biopsie, Ann d'anat path **9:** *17, 1932*

[15] Roholm, K , and Iversen, P Changes in the Liver in Acute Epidemic Hepatitis (Catarrhal Jaundice) Based on Thirty Eight Aspiration Biopsies, Acta path et microbiol Scandinav. **16:** *427, 1939.*

[16] Dible, J H , McMichael, J , and Sherlock, S P V Pathology of Acute Hepatitis Aspiration Biopsy Studies of Epidemic, Arsenotherapy and Serum Jaundice, *Lancet* **2:** *402, 1943*

[17] (*a*) Axenfeld, H , and Brass, K . Klinische und *bioptische Unter*suchungen uber den sogenannten Icterus catarrhalis, Frankfurt. Ztschr. f. Path **57:** 147, 1942, (*b*) Weitere Beitrage zur Morphologie und Pathogenese der Hepatitis epidemica insbesondere zur Frage der Hepatitis epidemica sine iktero. Frankfurt Ztschr f Path **58:** 221, 1944.

[18] (*a*) Lucke, B The Structure of the Liver After Recovery from Epidemic Hepatitis, Am J. Path **20:** 595, 1944 (*b*) Lucke, B., and Mallory, T. B : The Fulminant Form of Hepatitis, Am J. Path. **22:** *867, 1946.* (*c*) *Horan,* T. H.; Jolliffe, L S , and Mallory, T. B · Peritoneoscopic Biopsies in Nonfatal Epidemic Hepatitis, to be published (*d*) Lucke[2]

[19] Wood, D. A.· Pathologic Aspects of Acute Epidemic Hepatitis, with Especial Reference to Early Stages: Report of a Series of Ten Cases, Including a Case in Which There Was Spontaneous Rupture of the Spleen and Six Cases of Fulminating Disease in Patients Who Had Been Wounded Several Months Previously, Arch. Path. **41:** *345* (April) 1946.

The microscopic appearances of the liver in the two types of the disease differ less than the gross observations would lead one to expect. Common to both, though the proportions vary, are two main features: necrosis of hepatic cells and inflammatory reaction. In neither is there any involvement of the reticulum other than shrinkage in areas where parenchymatous cells have disappeared.

The necrosis is almost invariably central. In the subacute type it is irregular in distribution. It affects some lobules in their entirety, others only partially. In the fulminant type the distribution is more uniform, and only narrow rims of viable liver cells persist at the extreme periphery of the lobules. In both types the necrosis always appears to be of the autolytic rather than the coagulative type, and even in the most acute cases with clinical histories indicating durations of less than three days the affected cells have usually completely disappeared.

The inflammatory reaction is found chiefly in the stroma of the portal areas and at the interlobular boundaries. It is composed predominantly of histiocytes, lymphocytes and plasma cells, but neutrophils and eosinophils are always present in small numbers. Inflammatory reaction within the lobule is inconstant. It is predominantly histiocytic in character, though neutrophilic leukocytes may be present in varying proportions. Sometimes the histiocytes are numerous enough to almost seem to replace the missing liver cells; in other cases they are present in small numbers only. A final evidence of inflammation is endophlebitis of the central and other efferent veins. The periportal and intralobular inflammatory reactions are usually more pronounced in the fulminant than in the subacute cases. The central endophlebitis in contrast is more conspicuous in the cases of longer duration.

Regenerative changes occur both in hepatic cells and in biliary duct epithelium. Changes in the latter are the first to appear, and proliferation of the biliary ducts may already be evident in the most acute cases, even with apparent durations of only two to three days. Conspicuous regeneration of liver cells in contrast appears only after a latent period of several days. It is the lack of significant hepatic cell regeneration which serves to distinguish anatomically the fulminant from the subacute type. When regeneration finally begins it invariably starts from persisting cells at the periphery of the lobule. The newly formed cells are often abnormally large and multinucleate and seldom succeed in reconstituting normal lobules with orientation of the cords about a central vein. In areas in which lobular destruction has been complete regeneration does not occur, accounting for the large depressed foci of "red atrophy" which separate the regenerative nodules of the subacute type.

EXTRAHEPATIC PATHOLOGY

In contrast to the dramatic changes in the liver, little that is noteworthy is found in the remainder of the body and most of what is seen can be explained as secondary to destruction of hepatic parenchyma. The extrahepatic biliary ducts so infrequently show any evidence of occlusion that the occasional presence of a small plug of inspissated material in the common duct or papilla of Vater can be considered coincidental. Lymphoid hyperplasia is frequent, especially in acute cases, and may be generalized or restricted to the abdominal nodes. The spleen is commonly slightly enlarged, from 200 to 300 Gm., and only occasionally reaches the 500 to 600 Gm. range. In the acute cases the enlargement is dependent on congestion and hyperplasia; in those of longer duration it gradually assumes the character seen with portal hypertension. The phlegmonous enteritis frequently noted as a terminal complication of the subacute cases was not observed in the fulminant type. Ascites is common and increases in frequency with chronicity. The kidney in acute cases shows fat storage in the proximal convoluted tubules and in the subacute ones may show a bile nephrosis of moderate severity. Despite the prominence of cerebral symptoms acute cases show only a mild nonspecific encephalopathy. Those of longer duration occasionally show slight lymphocytic infiltration of the meninges and lymphocytic cuffing of small vessels in the basal ganglions. The lesions do not suggest direct virus infection of the central nervous system.

Table 1.—*Histologic Observation in Acute Phase of Hepatitis*

		Histopathologic Changes		
Group	Number	Positive	Doubtful	Negative
Icteric ...	20	20	0	0
Preicteric	7 (9)	7	(1)	(1)
Subicteric	7	5	1	1
Nonicteric . . .	18	5	5	8

NONFATAL HEPATITIS

Epidemic hepatitis is characteristically a benign disease, since at least 99.6 per cent of all patients recover. The fatal case is atypical, so it is only by means of biopsies that the hepatic lesion of the usual form of the malady can be observed. Moreover, the biopsy method permits one to compare one stage of the disease with another and to observe the progress and regression of the changes. It will be convenient to describe first the lesions of the acute preicteric and icteric stages and then those observed in the posticteric stage.

I. *Acute Stage.*—Fifty-four biopsies were obtained from patients believed to be in the acute or progressive phase of the disease. These cases fell readily into four groups, whose distribution is shown in table 1.

Twenty characteristic cases were selected to illustrate various stages of the icteric phase. These provided control material for comparison with nonicteric stages of the disease and with atypical cases in which clinical jaundice never developed. Thirty-four patients were chosen who manifested the usual prodromes of the preicteric stage. Nine of these subsequently became jaundiced and are classified as preicteric. Seven never developed clinical jaundice but within the expected period a transient rise of serum bilirubin to levels below 2.5 mg. per cent was observed. We have called these subicteric cases. Eighteen other cases never showed either clinical or chemical evidence of bilirubin retention and are classified as nonicteric. A description of the microscopic observations in the various groups follows:

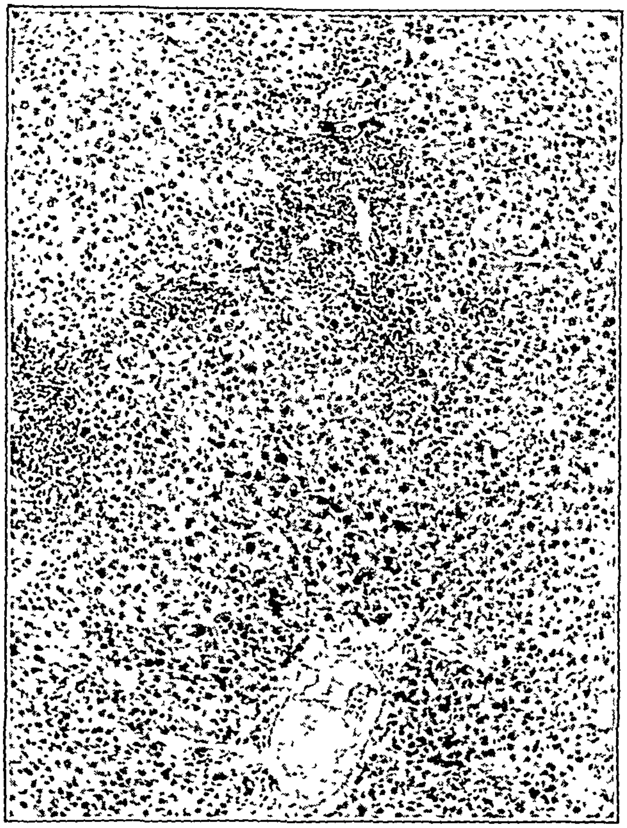

Fig. 1.—Preicteric case: Biopsy on the seventh day of illness, jaundice appeared on the eighth day. It shows perilobular infiltration, extension into the lobule, prominence of reticuloendothelial cells and lobular disarray.

A. The Icteric Stage: Six features were found to be constantly present in the icteric stage, though the severity of any one change and of the total syndrome varied over wide limits.

1. Periportal inflammatory infiltration: This does not differ significantly from that observed in the fatal cases. It is always predominantly mononuclear. Histiocytes and lymphocytes are most numerous, but plasma cells are usually present. Neutrophils and eosinophils can always be found, and the latter are occasionally numerous. The cells show no evidence of degeneration or necrosis. In many instances a tendency for the inflammatory cells to infiltrate the periphery of the lobule is apparent.

2. Intralobular inflammation. Within the lobule itself the reticuloendothelial cells are everywhere conspicuous due to swelling and hyperchromatism. They frequently contain both biliary pigment and droplets of fat. There are also many focal collections of histiocytes, some of of which may be formed locally, perhaps from Kupffer cells, since mitoses are occasionally seen. They may lie either within the sinusoidal lumens or in the space of Desse. Frequently they are clumped about the remnant of a necrotic liver cell which has been extruded from the column.

3. Lobular disarray: The normal radial arrangement of the hepatic cords is commonly obscured. They vary in width as the result of shrinkage of some cells and swelling of others. They seem to twist and kink, and their continuity is frequently interrupted. The reticular pattern is distorted, and foci of condensation may be apparent.

4. Liver cell degeneration and necrosis: In the biopsy material studied by Horan, Jolliffe and myself[18c] acute central necrosis of the autolytic type characteristic of the fatal form of the disease was not observed. In contrast all cases showed another form of necrosis mentioned by Roholm and Iversen[15] and Dible and associates,[16] but first fully described by Axenfeld and Brass.[17a] This consists of acidophilic degeneration of individual cells at any point in the lobule. The stippled cytoplasm of the normal cell becomes homogeneous and intensely eosinophilic. The nucleus becomes first pyknotic, then fragmented and finally disappears. The cell separates from its neighbors and from the sinusoidal membrane, loses its polygonal shape and shrinks into a hyaline spherical body somewhat resembling the Councilman body of yellow fever. This is extruded from the cell column and passes into the space of Desse or sometimes into the sinusoidal lumen. In either location it may form the focus for a collection of monocytes.

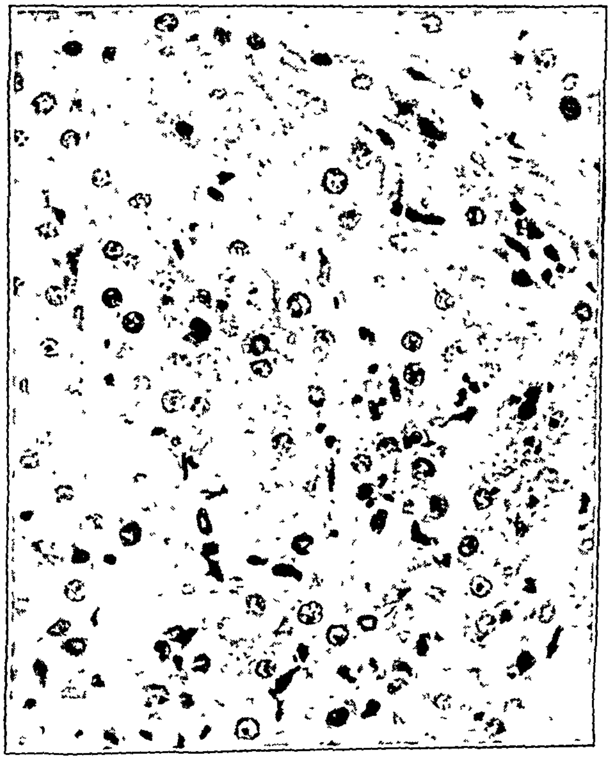

Fig 2.—Subicteric case. Biopsy on ninth day of illness. The patient was never clinically jaundiced. The serum bilirubin level rose to a maximum of 1.52 mg per hundred cubic centimeters. The hepatic cords appear disorganized Various stages of acidophilic necrosis of liver cells are apparent. There is an increase in the number and prominence of endothelial nuclei

Another but much less frequent evidence of hepatic cell degeneration is a ballooning of the cytoplasm. The cell may increase to four or five times the normal diameter; the cytoplasm becomes extremely pale and appears to consist of widely separated granules, but fat is not demonstrable. The nucleus may become atypical, and the cells are frequently multinucleate. This type of change is usually restricted to the central portion of the lobule.

5. Regeneration: Throughout the active phase of the disease mitotic figures are readily found in liver cells. They are particularly numerous in the acute stages and often seem disproportionate to the amount of visible necrosis. Five or more mitoses are frequently present in a single field, and multipolar mitoses are by no means infrequent. It is possible that the numerous multinucleate cells represent abortive, unsuccessful attempts at cellular multiplication.

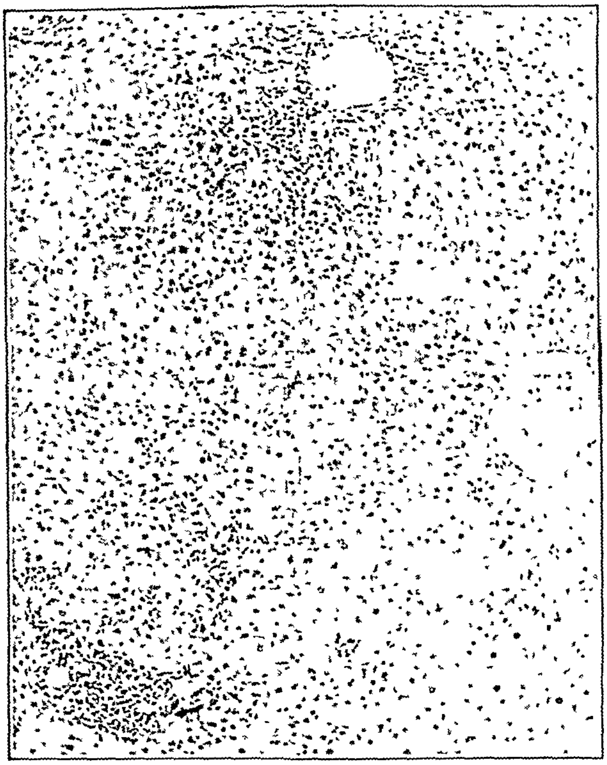

Fig 3—Acute nonicteric case· Biopsy on fifth day of illness The maximum serum bilirubin was 0.25 mg. per hundred cubic centimeters The icteric index was 4 The cephalin flocculation readings were 3/4 and 4/4 plus. Low power magnification shows mild periportal inflammatory infiltration but many foci of inflammatory cells within the lobule.

Mitoses in biliary duct epithelium are much less frequent. Elongation and convolution of the ducts, however, indicate proliferative activity in the majority of cases.

6. Biliary Stasis: In icteric cases the biliary canaliculi are slightly dilated, and biliary thrombi can regularly be found if they are not dissolved in the process of paraffin imbedding. Small droplets of bile are also present in the cytoplasm of the liver cells. Both of these processes are most apparent and usually restricted to the central portion of the lobule.

B. Preicteric Cases: In 7 of the 9 patients in this group overt jaundice developed within one to seven days of the time of biopsy. The biopsies were taken from the fifth to the fourteenth day of illness. In all 7 specimens periportal and intralobular inflammation, lobular disarray, focal necrosis and mitotic activity were apparent in a severity equal to or surpassing many of the icteric cases (fig. 1). Biliary stasis was present in only 1 case in which a biopsy specimen had been taken twenty-four hours before the appearance of jaundice.

In the 2 remaining cases jaundice developed thirty and thirty-one days following biopsy. Since this is well beyond the usual duration of the preicteric period, it is impossible to be certain whether or not the patients were infected at the time of biopsy. The biopsy from 1 was entirely negative and from the other showed only questionable changes.

C. Subicteric Cases: In 5 of the 7 subicteric cases the observations were qualitatively indistinguishable from those of the preceding (preicteric) group. No case showed biliary stasis, and the intensity of inflammatory, degenerative and regenerative phenomena was not much below that observed in the preceding group (fig. 2). In 1 case biopsied on the fourth day of disease the changes were minimal and in 1 taken on the seventh day no abnormality was observed.

D. Nonicteric Cases: Eighteen suspected cases never showed either clinical or chemical evidence of bilirubin retention despite close study. In 5 of these all the usual changes except biliary stasis were present in mild to moderate degree (figs. 3 and 4). In 5 others, one or more criteria were positive but the remainder were absent, and the observations were considered equivocal. In 8 cases the biopsy specimen was completely normal.

II. *Posticteric Stage.*—Abundant clinical evidence such as the persistence of symptoms, physical signs or abnormal results of laboratory tests suggests that the disease may not terminate coincidentally with the disappearance of clinical jaundice. Many cases in the recovery phase were therefore selected for study, including examples of apparently normal convalescence and of delayed recovery. The distribution of these cases by

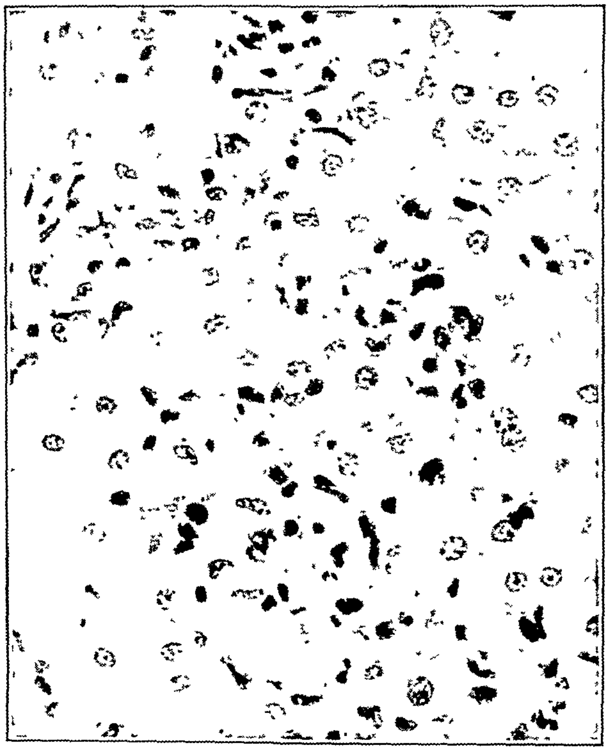

Fig 4.—Same case as figure 3 Detail from midzone of lobule to show pronounced disorganization of hepatic columns, prominent Kupffer cells and foci of histiocytes. Many of the last mentioned are collected about necrotic liver cells which have been extruded from the hepatic columns

clinical groups and the incidence of positive histologic observations is shown in table 2.

A. Normal Recovery Group: Of the 20 convalescent patients constituting this group 2 had not had biopsy specimens taken in the acute stage of the disease. The remaining 18 had had previous biopsies, and all but 2, a subicteric and a nonicteric case, respectively, had proved histologically positive. The dates of rebiopsy ranged from the thirty-fourth to the one hundred and thirty-first day from onset, twenty-five to one hundred and ten days after the appearance of jaundice. Seven of the repeat biopsies, including the 2 previously negative, showed no significant abnormalities. Five cases showed minimal changes which were regarded as of doubtful significance. In the remaining 8, definite evidences of persistent hepatitis were present. Most constant of these changes was continued periportal inflammatory infiltration (fig. 5). Frequent also were intralobular inflammatory foci and hyaline necrosis of occasional hepatic cells. The lobular disarray had usually though not invariably cleared, and mitoses had entirely disappeared. Only 1 case showed slight persistent biliary stasis. Multinucleate cells had frequently increased in number. A new phenomenon, seldom seen in the acute stage, was the development of fat vacuoles in many of the liver cells.

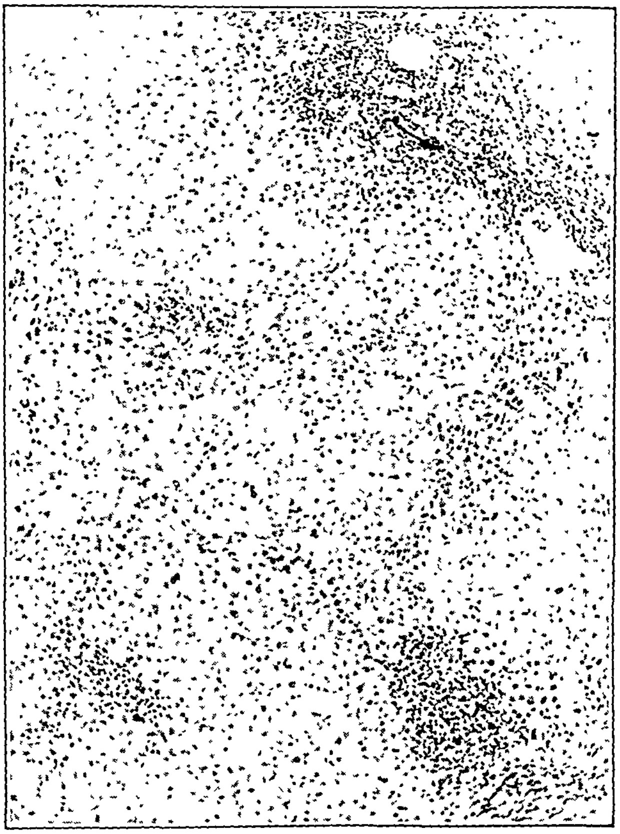

Fig. 5.—Normal convalescence. A biopsy taken on the eighth day of illness, the fifth of jaundice, had shown moderately severe hepatitis. This biopsy was taken forty-nine days later. It shows persistent periportal infiltration. The intralobular lesions have almost but not quite resolved.

The rate of recovery from hepatitis even in the clinical group of normal convalescents evidently varies over wide limits. In 2 cases examined on the thirty-second and thirty-third days the hepatitis had almost cleared, and 4 cases observed between the forty-fifth and fifty-third days revealed entirely normal conditions. Only 2 of the latter had shown severe lesions on the first biopsy. At the other end of the scale, 1 case studied on the eighty-third day from onset, the seventy-third from the appearance of jaundice, still showed moderately severe activity.

B. Recrudescences: One of the most obvious reasons for delayed recovery was a recrudescence of the acute symptoms of the disease during convalescence. Such episodes commonly occurred from the thirtieth to fiftieth day of the disease and were often of clinical severity equal to or even greater than the original attack. Three of the examples studied were at the peak of the recrudescence, the others at intervals from twenty-four to one hundred and thirty days after the second appearance of jaundice. The changes differed in no way from those observed in biopsies taken at equivalent time intervals during or succeeding an initial attack.

C. Recurrent Attacks: Recurrence of hepatitis after a prolonged interval of normal health is by no means rare. Biopsy specimens were obtained from 3 patients with such attacks. The recurrence developed 300, 360 and 390 days after the original attack, and the biopsies were made 3, 48 and 97 days after the onset of the second episode. The first was indistinguishable from the acute stage of an initial attack, the second was entirely normal and the third showed only equivocal evidence of abnormality. No trace of permanent hepatic damage attributable to the first attack was found in any case.

Table 2.—*Posticteric Stage of Hepatitis*

Group	Number	Hepatitis Positive	Hepatitis Doubtful	Hepatitis Negative
Normal recovery	20	8	5	7
Recrudescence	16	10	6	0
Recurrent attacks	3	1	1	1
Delayed recovery	40	15	10	15
Chronic nonicteric	10	1	2	7

D. Delayed Recovery: Forty cases were classified clinically as instances of delayed recovery because of the persistence of symptoms, signs or abnormal laboratory observations or some combination of these factors. Biopsies were obtained over a wide range of time from one hundred to five hundred days after the onset of the acute attack. In 15 the livers were normal, in 10 the observations were minimal and were recorded as doubtful and in 15 they were clearly positive. In the last 15 the changes were essentially similar to those in the normal convalescent group; periportal and intralobular inflammation and focal hyaline necrosis persisted, but biliary stasis and lobular disarray had cleared and mitoses were seldom found.

E. Chronic Nonicteric Group: One final group of 10 clinically debatable cases remains. They had been clinically diagnosed as chronic hepatitis without jaundice. These patients gave no history of an acute icteric episode. In 3 an abrupt onset with symptoms characteristic of the prodromal period suggested an attack of subicteric or nonicteric hepatitis. In 3 others the history of acute onset was questionable, and in the remaining 6 none could be obtained. These patients were clinically indistinguishable from the delayed recovery group. For periods ranging from eighty to three hundred days they had complained of symptoms such as easy fatigue, anorexia and fat intolerance. The livers were palpable and frequently tender, and a scattering of laboratory tests was positive. In only 1 case from the group with abrupt onset were the results of the functional tests consistently abnormal: a cephalin cholesterol flocculation test of 4 plus in both tubes at the end of twenty-four hours, sulfobromophthalein sodium retention of 40 per cent and a bilirubin level of 1.7 mg. per hundred cubic centimeters. This case alone in the group showed positive histologic evidence of active hepatitis. Two other cases which showed occasional foci of acidophilic necrosis but no inflammatory changes were classed as doubtful. Two of the remaining 7 specimens were entirely normal. The other 5 showed nonspecific changes, such as fat vacuolization or slightly enlarged hydropic cells, which could not be regarded as evidence of hepatitis.

COMMENT

Comparison of Epidemiologic and Clinicoanatomic Classifications of Hepatitis.—In the introduction four epidemiologic types of hepatitis were mentioned, the sporadic and the epidemic forms of the naturally acquired disease, homologous serum jaundice and hepatitis due to arsphenamine. Are there corresponding anatomic variations? The verdict of all groups working with the biopsy technic is unanimously negative. Roholm and Iversen's material included both sporadic and arsphenamine-treated cases, and they could distinguish no differences. Axenfeld and Brass compared sporadic and epidemic cases and found them identical. Dible, McMichael and Sherlock compared epidemic hepatitis, arsenotherapy jaundice and homologous serum jaundice and likewise concluded that the pictures were indistinguishable. My own biopsy studies of epidemic cases are in close agreement with all these three series.

Lucké and Mallory showed that most cases of fatal hepatitis fell into two types, the subacute and the fulminant form. A large proportion of the cases in the latter group occurred in severely traumatized or wounded men who had received plasma or whole blood as a resuscitative measure. The interval between injury (and, by implication, transfusion) and the development of jaundice ranged from thirty to one hundred and twenty days with 60 per cent of the cases falling in the fifty to ninety day interval. This range is well within the known incubation period of homologous serum jaundice, and it seems fair to assume that most of the cases may be so classified. The relative distribution of the two types of disease in wounded and nonwounded patients is shown in table 3.

It is evident that the spontaneous disease can run either a subacute or a fulminant course and that in this series of severely wounded men the homologous serum type was overwhelmingly of the fulminant variety. These observations are balanced, however, by Lucké's 1942 series of cases, which were all of the subacute variety, despite the fact that the majority were homologous serum jaundice secondary to vaccination against yellow fever. The method of infection is evidently not the explanation of variations in clinicoanatomic type, and if different viruses are involved [1c] they produce identical effects.

Types of Degeneration and Necrosis of Liver Cells.—In fatal cases of hepatitis massive central necrosis of the autolytic type has been invariably found. In biopsy material from nonfatal disease it may be present [20] but is exceptional. The only patient of Roholm and Iversen to show it died shortly after biopsy. It was present in none of my cases at the time of biopsy, but its former presence could be inferred in 1 instance from condensation of the reticulum about the central vein.

Another feature frequently recorded in biopsy studies of hepatitis has been variously described as hydropic [20a] or granular [13] degeneration of liver cells. This also is inconstant and is usually seen in the severer cases. It was present in 9 acute cases in this study but was extensive in only 3. It is most definite in the center of the lobule, is frequently associated with central necrosis and may well be its precursor, as Roholm and Iversen suggested.

In contrast to these inconstant phenomena the acidophilic, hyaline necrosis of individual cells was invariably found in all progressive stages of the disease. This also was the experience of Axenfeld and Brass. They described it as most frequent in the center of the lobule, but in my material it appeared to be scattered indiscriminately without lobular orientation. It is necrosis of this type which appears to be primarily responsible for the disorganization of the hepatic columns which is such a conspicuous feature of the acute stage.

Central necrosis, which is so constant a feature of autopsy material, has not in my experience proved characteristic of the typical and therefore nonfatal case of hepatitis. It is so different in character and distribution from the acidophilic, coagulative necrosis of individual cells that an entirely different mechanism probably is involved.

Table 3.—*Duration of Disease in One Hundred and Seventy-Eight Cases of Fatal Hepatitis*

Duration, Days	Wounded (Inoculation Jaundice)	Not Wounded (Epidemic and Sporadic)
Less than 10	58	34
10 to 19	16	23
20 and over	3	44
Total	77	101

Nonicteric Hepatitis.—The material in this study provides abundant evidence that active hepatitis may exist without clinical jaundice. All cases of hepatitis have their nonicteric stages. The liver already shows severe degenerative, regenerative and inflammatory changes in the earliest biopsies, which were obtained from one to seven days before the development of clinical jaundice. Active hepatitis furthermore persists several to many weeks after the disappearance of clinical jaundice, even in cases which appear to be making a normal clinical recovery.

The existence of nonicteric hepatitis has repeatedly been inferred to explain certain epidemiologic features of the disease.[10] A single case with histologic verification was reported by Axenfeld and Brass. My associates and I have found numerous examples in our own material. They fall into two types on the basis of the serum bilirubin levels. In one, elevations of serum bilirubin to levels from 0.7 to 2.0 mg. per hundred cubic centimeters were observed, in the second repeated checks failed to demonstrate any rise above the normal level. The histologic observations in both these groups exhibited all the criteria of hepatitis except biliary stasis. Though the average intensity of inflammatory and degenerative change was slightly below that manifested in the icteric group, there was much overlapping; in several instances nonicteric cases showed severer lesions than did the frankly icteric ones. We were unable to recognize any consistent anatomic basis for the development of icterus.

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[20] (*a*) Roholm and Iversen.[15] Axenfeld and Brass.[11a] (*b*) Dible, McMichael and Sherlock.[1c]

SUMMARY

The pathology of fatal and nonfatal hepatitis has been compared on the basis of a survey of 296 autopsy reports and 160 biopsies from 137 cases of nonfatal disease.

Epidemic hepatitis, in either fatal or nonfatal form, is characterized pathologically by the simultaneous occurrence of inflammatory and degenerative changes in the hepatic parenchyma. In fatal cases the degeneration takes the form of massive autolytic necrosis, which in some areas may be followed by extensive regeneration. In benign cases massive necrosis is seen only exceptionally, whereas acidophilic coagulative necrosis of individual cells is constantly present. Other changes found in the progressive stage of the disease are disorganization of the lobular pattern, focal intralobular collections of inflammatory cells and active regeneration of the liver cells. All these factors are present in the prodromal period of the disease before jaundice becomes apparent, and many of them may persist for weeks after it has disappeared. Evidence has been presented that acute epidemic hepatitis with histologically characteristic involvement of the liver may run its course without the development of clinical jaundice.

JAUNDICE IN RELATION TO CIRRHOSIS OF THE LIVER

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In the course of a recent analysis of the effect of treatment of patients with decompensated Laennec's cirrhosis,[1] we were impressed with the increasing incidence of jaundice in recent years. We are reporting our observations in order to propose some questions concerning the part that this jaundice plays in the life cycle of cirrhosis, especially of Laennec's cirrhosis.

Rolleston and McNee (1929) say: "Jaundice is not a prominent feature in portal cirrhosis, but it is met with at some time in the course of the disease in more than one third of the cases. Thus in 293 cases, obtained by combining the statistics of Fagge, Yeld and Sears and Lord, jaundice was recorded in 107, or 36.5 per cent. Eppinger estimated that it occurred in half the cases. The jaundice is usually slight and often transient. It may be merely an incident in the course of the disease, and have passed away before the patient comes under observation with indubitable cirrhosis. . . . Functional failure of the liver cells probably plays a more important part than biliary obstruction in the production of the jaundice."[2] Ratnoff and Patek[3] found jaundice in 65 per cent of patients in their series and placed emphasis on its frequency. Since this time a number of writers have confirmed this observation.

Features to be emphasized in the report herewith presented are (*a*) the frequency of the jaundice (four fifths of cases) in the 1941 to 1945 period and (*b*) the increase in the incidence of jaundice, which doubled between the 1936 to 1940 period and the 1941 to 1945 period.

The patients on whom this report is based fall into two groups seen during two periods of five years, 1936 to 1940 and 1941 to 1945. The 1936 to 1940 group we have labeled A, the 1941 to 1945 group, B. The patients in group A were treated symptomatically with a house diet, mersalyl, paracentesis and withdrawal of alcohol. The patients in group B were treated in addition with a high protein (150 to 250 Gm.), high carbohydrate (350 Gm.), low fat (60 Gm.) and high vitamin diet, according to the concept introduced by Patek in 1937.[4] The incidence of visible jaundice in group B was double that in group A. Despite this fact the death rate in group B was three-fourths that of group A and the survival time of patients in group B was two to four times that of those in group A.[1]

In an effort to minimize error we have excluded from our study all cases except those in which the clinical diagnosis of Laennec's cirrhosis appeared unquestioned. All the cases analyzed showed signs of hepatic decompensation. As evidence of decompensated cirrhosis we accepted the following: ascites, edema of the ankles, obvious splenomegaly, esophageal varices as demonstrated roentgenologically or by gross hematemesis or melena. Jaundice was not included as an evidence of hepatic decompensation. To avoid confusion concerning the nature of edema of the ankles and ascites, and despite the fact that Laennec's cirrhosis and cardiac decompensation may often coexist, we have excluded all cases which show evidence of cardiac decompensation. Since this is a study of clinically evident cirrhosis, we have not included in the present analysis cases in which Laennec's cirrhosis was demonstrated at autopsy but either was not suspected clinically or did not give clinical evidence of hepatic decompensation.

In selecting the cases for analysis we attempted to study all the charts filed in the record room under the diagnosis of cirrhosis of the liver. This was impossible in the earlier group, since the charts were being microfilmed and were not all available for study. From the earlier period, A, 160 successive unselected charts were studied and compared with 200 successive unselected charts from the later five year period, B. In the first five year period, A, our information was obtained entirely from the charts. One of us, Dr. William H. C. Chapple, has seen most of the patients in the second five year period, B, and has done most of the work for this paper. The histologic slides were reviewed by Dr. Samuel Sanes.

Table 1 shows the diagnosis noted in this group of 360 cases. It will be seen that of 160 patients in the first five year period, A, 57 who demonstrated clinically decompensated cirrhosis have been included for analysis and of 200 patients in the second five year period, B, 86 have been included for analysis.

Our patients were seen in the general ward service of a city hospital required by law to admit all who apply, including the persons with chronic and recurrent

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[1] Kimball, S., and Chapple, W. A. C.: Laennec's Cirrhosis: A Disease with an Improving Prognosis, Gastroenterology 8: 185, 1947.

[2] Rolleston, H., and McNee, G. W.: Diseases of the Liver, Gall Bladder and Bile Ducts, London, The Macmillan Company, 1929, p. 258.

[3] Ratnoff, O. D., and Patek, A. J., Jr.: The Natural History of Laennec's Cirrhosis of the Liver, Medicine 21: 207, 1942.

[4] Patek, A. J., Jr.: Treatment of Alcoholic Cirrhosis of the Liver with High Vitamin Therapy, Proc. Soc. Exper. Biol. & Med. 37: 329, 1937.

alcoholism. The conditions for clinical study and control of treatment were good. The interest of the members of the staff in vitamin deficiencies was strong. Opportunities for outpatient follow-up after discharge of the patients were excellent, but the chronic alcoholic addicts seldom availed themselves of this opportunity. At home they occupied themselves more consistently with drinking than with eating. When they again required hospitalization they generally returned to the same service, since other hospitals in the city do not welcome persons with chronic alcoholism. This presented an excellent opportunity for follow-up studies.

The percentage of patients who were confirmed and chronic alcoholic addicts and the percentage of those who showed clearcut evidence of vitamin deficiency are shown in table 2. It is probable that the difference in occurrence of vitamin deficiency represents a difference in observation and recording rather than a true difference in incidence. The deficiencies noted include: bleeding tendencies such as purpura or bleeding gums; cheilosis; atrophic, red or purple tongue; pellagra; peripheral neuritis, and combinations of the foregoing.

Table 1.—*Comparative Study of Five Year Periods*

	A	B
Alcoholic addicts with large livers	42	67
Other alcoholic addicts, cardiac cirrhosis	42	22
Autopsy only	19	25
Decompensated cirrhosis	57	86
	160	200

Table 2.—*Etiologic Classification*

Group	Total Cases	Chronic Alcoholism	Clearcut Vitamin Deficiences
A	57	36	5
B	86	79	35

The physical observations are listed in table 3. It will be noted that the reported incidence of palpable livers is high. How many of these livers were enlarged is open to question. There was at times actual enlargement; but even when a liver is reduced in size, as proved at autopsy, it is so increased in firmness that on deep inspiration its edge is often felt below the costal margin. The incidence of spider angiomas noted on the tables is certainly below the actual incidence. The same is true of the reported occurrence of signs of vitamin deficiency, especially as seen in the tongue.

It is evident that whatever may be the etiologically significant factors in Laennec's cirrhosis, alcoholism is a dominant factor and nutritional deficiency a significant factor in the life history of the patients in this series. We are raising this question: How far may intrahepatic damage associated with attacks of acute jaundice play a part in the progress and terminal picture of Laennec's cirrhosis?

The incidence of jaundice (table 3) doubled in the second as compared with the first five year period. This was jaundice which was clinically, not merely serologically, evident. The history of jaundice is summarized in table 4. In all but 3 cases, 1 in group A and 2 in group B, the jaundice was present at the time of admission or developed while the patient was in the hospital for treatment of his cirrhosis. These 3 patients had had jaundice in the past but did not manifest it while they were in the hospital. Four patients in group A and 21 in group B had had one or more attacks of jaundice preceding the attack present during this hospitalization. In 2 instances in each group these earlier attacks had been more than five years before. In the remaining 2 in group A and 19 in group B the previous attacks had been within a five year period, the majority during the year preceding hospitalization. On the other hand, in one third of the patients in group A and in over one half of the patients in group B the initial attack of jaundice was either a part of the illness which brought the patient to the hospital or developed after he entered the hospital.

Table 3.—*Physical Observations*

	A	B
Total	57	86
Liver palpable	18	75
Spleen palpable .	7	16
Spider angiomas . ..	1	33
Ascites	47	67
Esophageal Varices	13	25
(Deaths in group with varices)	(11)	(9)
Jaundice	23	69
(Terminal only)..	(16)	(23)

Most striking is the increased incidence of jaundice in the second five year period (*B*) as contrasted with the first five year (*A*) group. This contrast in incidence applies both to the patients who had had earlier attacks and to those in whom jaundice developed for the first time as part of the hospitalizing illness. The recovery rate in the presence of jaundice was far greater in the second than in the first five year period. Of 18 patients in group A in whom jaundice appeared for the first time as part of the hospitalizing illness, 16 died—that is, the jaundice was part of the terminal picture. Of 46 patients in group B whose initial jaundice coincided with hospitalization only 23 died and 23 recovered. This suggests an incidence of recovery from active hepatic disease considerably greater in the second period of five years than in the first.

Table 4.—*Jaundice*

	A 1936 to 1940	B 1941 to 1944
Jaundice		
Preceding; without attack during admission	1	2
Jaundice on or during admission		
+ 1 attack more than 5 years ago.... . ..	1	1
+ several attacks more than 5 years ago ..	1	1
+ 1 attack within 5 years..	1	14
+ several attacks within 5 years	1	5
Transitory (no previous attacks)....	2	23
Terminal (no previous attacks)	16	23
Total	23	69

What is the significance of this increasing frequency of jaundice? And why does it now appear to be a less ominous sign in cirrhosis than it was in former years?

The fourth patient likewise gave no history of alcoholism. She also denied dietary deficiency, but in the light of the low serum protein (5 mg. per hundred cubic centimeters) the reliability of her history is questionable. Figures 1 and 2, low and high power views of the liver (case 5), show the fatty changes, the hepatic cell degeneration and the periportal connective tissue found in these patients. The degree of cirrhosis in the fourth case was the least of the 3, although the degree of fatty change and acute cellular damage resembled that in the other 2 cases. In case 5 the patient was an alcoholic addict under observation for twenty years who was originally admitted in 1925 with a diagnosis and clinical picture of acute catarrhal jaundice or acute hepatitis, with recurrence of jaundice the following year. After this he was free of evidence of hepatic disease for fifteen years. During these years he was observed twice as the result of hospitalization for fractures. At the end of this period there developed the characteristic signs of decompensated cirrhosis, and he died. Laennec's cirrhosis and acute hepatic cellular damage were found at autopsy.

SUMMARY

An analysis of 143 cases of decompensated Laennec's cirrhosis, chiefly in persons with chronic alcoholism, is presented. Of these, 57 were seen in the first five year period, 1936 to 1940, and 86 in the second five year period, 1941 to 1945. During the 1941 to 1945 period a high protein, high vitamin, low fat diet was employed. The mortality in the latter period was three-fourths that of the former, and the survival time of patients in the latter group was two to four times that of patients in the former group.

The incidence of clinical jaundice in the earlier group was half that observed in the later group. In all but 3 instances the jaundice was a part of the illness for which the patient was hospitalized. There was a history of one or more attacks of jaundice preceding the attack associated with hospitalization in 4 patients in the first and in 21 patients in the second five year period.

All the patients who came to autopsy or were biopsied (22 and 26 in groups A and B, respectively) showed portal cirrhosis, save 1 who manifested a toxic cirrhosis. The cases of several patients who showed in addition decided fatty and degenerative changes in the liver cells are reported. One of these had been followed for twenty years between the attack of "catarrhal jaundice" and the appearance of the terminal decompensated cirrhosis.

That jaundice may be a manifestation of damage to liver cells is suggested by the fact that approximately one fourth of the jaundiced cirrhotic livers studied histologically showed excess fat and acute damage to hepatic cells.

In consideration of these fatty and regressive changes, of the increased frequency of jaundice and of the improved response to therapy, two questions have been raised:

1. Can acute epidemic hepatitis or recurring attacks of hepatitis play any etiologic role in the development of Laennec's cirrhosis?
2. How much does recurring jaundice on the basis of liver cell damage in an already established cirrhosis influence the clinical course of the disease and the pathologic condition of the liver?

NEEDLE BIOPSY OF THE LIVER

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Needle biopsy of the liver is a means of securing a strip of hepatic tissue for histologic examination by a relatively simple procedure that can be performed at the patient's bedside. The idea is not new. It was first suggested in 1895.[1] Although a few investigators in Europe employed the method, it received little attention until 1939. Since then there have been many reports on its application. Table 1 lists the references to the literature that have been examined.

In addition to the references listed, other series of cases as yet unpublished have been made known to me. Iversen[2] in Copenhagen, Denmark, states that over 600 biopsies have now been performed in his clinic. Davis[2] in New Orleans has recently completed a series of 96 cases; Schiff[2] and his co-workers in Cincinnati have performed 60 such examinations, and Ducci[2] in Santiago, Chile, has done 62.

TABLE 1.—*Needle Biopsy of the Liver: References in the Literature*

Author	Country	Year	No. of Biopsies
Lucatello[1]	Italy	1895	Not stated
Schupfer, F.: Semaine méd. **27**: 229 (May 15)	Italy	1907	40
Bingel, A.: Verhandl. d. deutsch. Gesellsch. f. inn. Med. **35**: 210	Austria	1923	100
Olivet, J.: Med. Klin. **22**: 1440 (Sept.)	Austria	1926	140
Waldenström, H.: Acta chir. Scandinav. **63**: 479	Sweden	1928	30
Frola, E.: Il puntato epatico nella diagnosi delle malattie del fegato, Rome, Luigi Pozzi	Italy	1935	66
Huard, P.; May, J., and Joyeaux, B.: Ann. d'anat. path. **12**: 1118	France	1935	163
Iversen and Roholm[3]	Denmark	1939	160
Baron[9]	United States	1939	47
Kofler, W.: Wien. Arch. f. inn. Med. **34**: 332	Austria	1940	100
Tripoli and Fader[10]	United States	1941	14
Chiray, Fiessinger and Roux[21]	France	1941	41
Roholm, Krarup and Iversen[8a]	Denmark	1942	297
Axenfeld and Brass[8b]	Germany	1943	45
Hatieganu, Spârchez, Radu and Macavei[8c]	Austria	1943	45
Van Beek and Haex[8d]	Holland	1943	200
Dible, McMichael and Sherlock[5]	England	1943	61
Sherlock[8e]	England	1945	264
Hoffbauer[14]	United States	1945	65
Gillman and Gillman[15]	South Africa	1945	500
Bierwaltes and Mallery[16]	United States	1946	30
Total			1,120

The method first described by Iversen and Roholm[3] in Copenhagen has been widely employed. The information gained by application of this method has been noteworthy. The reports of Roholm and Iversen[4] and of Dible, McMichael and Sherlock[5] on the pathology of infectious hepatitis are examples. These remarkable studies have furnished a basis for better understanding of this disease. Krarup and Roholm[6] have demon-

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

[1] Lucatello, L.: Sulla puncture del fegato a scopo diagnostico, in Lavori del congressi di medicina interna, Rome, 1895, p. 327.

[2] Personal communication to the author.

[3] Iversen, P., and Roholm, K.: On Aspiration Biopsy of the Liver, with Remarks on Its Diagnostic Significance, Acta med. Scandinav. **102**: 1, 1939.

[4] Roholm, K., and Iversen, P.: Changes in the Liver in Acute Epidemic Hepatitis (Catarrhal Jaundice) Based on 38 Aspiration Biopsies, Acta path. et microbiol. Scandinav. **16**: 427, 1939.

[5] Dible, J. H.; McMichael, J., and Sherlock, S. P. V.: Pathology of Acute Hepatitis, Aspiration Biopsy Studies of Epidemic, Arsenotherapy, and Serum Jaundice, Lancet **2**: 402 (Oct. 2) 1943.

[6] Krarup, N., and Roholm, K.: Development of Cirrhosis of the Liver After Acute Hepatitis, Elucidated by Aspiration Biopsy, Acta med. Scandinav. **108**: 306, 1945.

strated the transition of hepatitis to cirrhosis by means of serial biopsies.

Biopsy of the liver has afforded my associates and me an opportunity to correlate functional changes with the histologic changes in some instances.[7] Increased interest in the study of hepatic disease has been aroused, and more accurate diagnoses have been made possible by the addition of biopsy methods to laboratory studies.

METHODS OF NEEDLE BIOPSY

Various methods have been suggested for this procedure. All employ local infiltration of procaine hydrochloride as the anesthetic agent. A hypodermic injection of morphine is usually given thirty minutes before the puncture. It is not always necessary. A fairly large bore needle is inserted into the liver, and a small plug of tissue is obtained. The specimen is usually from 1 to 3 cm. in length and approximately 1 to 2 mm. in width. The strip of tissue is immediately fixed in a suitable agent and later imbedded in paraffin and sectioned. The strip of tissue is admittedly small; figure 1 shows the average size obtained. By careful handling, however, one can apply several types of stains. A remarkable amount of information can often be obtained. The strip may contain anywhere from eight to fifteen lobules of the liver cut at various angles. This is sufficient for diagnostic purposes, especially in diffuse disorders such as hepatitis and cirrhosis.

Intercostal approach to the liver

Iversen and Roholm[8] described an aspiration method for needle biopsy of the liver that has been used by many investigators.[8] The patient is placed in the supine position. The site of insertion of the needle is the ninth intercostal space in the posterior axillary line on the right side. After preliminary procaine hydrochloride infiltration a small cut is made in the skin at this site. The patient is instructed to exhale completely and then refrain from inhaling. A special needle containing a sharp stylet is employed. It is advanced through the pleural space and diaphragm and into the substance of the liver for a distance of several centimeters. The stylet is removed and a syringe is attached to the needle; suction is then applied. By advancing the needle with a slight rotary motion for a distance of 2 cm. a plug of tissue is cut and aspirated. The needle is removed and a small dressing is applied. Since the needle is passed between the ribs, it is necessary to work rapidly; the patient should fix his chest in complete expiration during the procedure. The instrument used is a needle 18 cm. in length and 2 mm. in width. The cutting edge of the needle is not the usual hypodermic bevel type but has, rather, a sharp serrated edge designed to cut out a small cylinder of tissue as it is pushed forward with a rotary motion. Sherlock,[8e] who has had an extensive experience with this method, employs a needle 1 mm. in diameter and 15 cm. in length.

Subcostal approach to the liver

Baron[9] in 1939 reported aspiration biopsy of the liver and suggested that the liver be entered through the anterior abdominal wall, passing below the costal margin on the right side. When the liver is enlarged the needle can be inserted at the right midclavicular line. Baron stated that "in the absence of hepatomegaly, aspiration can be done safely to the right of the epigastrium, immediately below the costal margin and in the general direction of the lower portion of the right axilla." Because of the potential danger, Baron cautioned against the insertion of a biopsy needle between the ribs. He pointed out that the movement of the liver during respiration might result in a tear of the parenchyma of this vascular organ. While the hemorrhage that results from a straight needle puncture wound in the liver has in my experience been slight, I would agree that appreciable bleeding might occur from a linear tear.

In 1941 Tripoli and Fader[10] reported needle biopsy of the liver by subcostal approach. Instead of aspiration they employed the "Vim"-Silverman[11] needle. This ingenious device was described by Silverman[12] in 1938 for use in tumor biopsy. Mention of its application for liver biopsy is made in the report of Tenophyr and Silverman.[13]

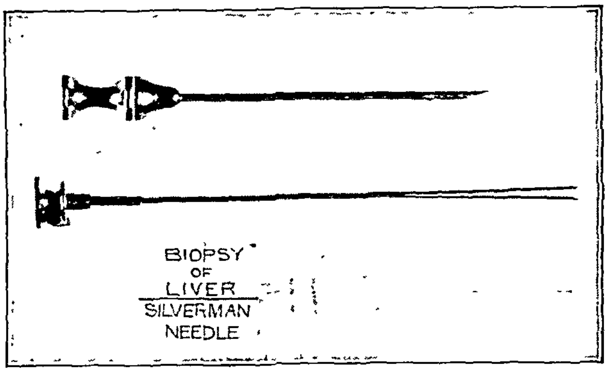

Fig. 1.—The "Vim"-Silverman needle and a microscopic slide showing the usual size of the liver biopsy obtained.

I have employed the Silverman needle (fig. 1) for biopsy of the liver.[14] I limited its employment to patients with hepatomegaly. The usual site of entrance has been the right midclavicular line just below the costal margin. The needle is a 14 gage needle having a hypodermic bevel tip. The biopsy is secured by a smaller needle that is inserted through the 14 gage needle. The inner needle is split longitudinally down the hub. This cuts a small cylinder approximately 2 mm. in width and from 2 to 3 cm. in length. The plug of tissue is trapped between the two prongs and is cut off from its point of attachment by advancing the outer needle over the inner one, the latter being held stationary (fig. 2). Both needles are simultaneously withdrawn. This needle has proved satisfactory for the purpose of biopsy of the liver. Initially, failures occurred in 15 of the 65 cases [14] in which the method was used. These were mainly due to unfamiliarity with the technic and hesitancy to insert the needle a second time if the first attempt failed. Originally the outer needle was introduced with a snug-fitting stylet. When this had penetrated the liver, as noted by movement coincident with respiration, the stylet was removed and the inner needle inserted. This caused some delay and increased the length of time that the needle remained in the liver. At present the stylet is not used. The instrument is first assembled with the inner needle retracted back of the tip. The skin at the point of introduction is incised with a size 11 Bard-Parker blade. Both needles are then introduced, and the biopsy specimen is secured. If one is careful to infiltrate procaine down to the peritoneal surface and to allow a few moments for the anesthesia to take effect, the procedure is relatively painless.

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[7] Hoffbauer, F. W.; Evans, G. T., and Watson, C. J.: Cirrhosis of the Liver with Particular Reference to Correlation of Composite Liver Function Studies with Liver Biopsy, M. Clin. North America **29:** 363 (March) 1945.

[8] (*a*) Roholm, K.; Krarup, N., and Iversen, P.: Aspiration-biopsie der Leber mit einer Uebersicht über die Ergebnisse bei 297 Biopsien, Ergebn. d. inn. Med. u. Kinderh. **61:** 635, 1942. (*b*) Axenfeld, H., and Brass, H.: Klinische und bioptische Untersuchungen über den sogenannten Icterus catarrhalis, Frankfurt. Ztschr. f. Path. **57:** 147, 1942. (*c*) Hatieganu, I.; Spârchez, T.; Radu, P., and Macavei, I.: Value of Liver Puncture in Diagnosis of Various Diseases of the Liver, Wien. klin. Wchnschr. **56:** 21 (Jan. 15) 1943. (*d*) Van Beek, C., and Haex, A.: Aspiration-Biopsy of the Liver in Mononucleosis Infectiosa and in Besnier-Boeck-Schaumann's Disease, Acta med. Scandinav. **113:** 124, 1943. (*e*) Sherlock, S.: Aspiration Liver Biopsy: Technique and Diagnostic Application, Lancet **2:** 397 (Sept. 29) 1945. (*f*) Dible, McMichael and Sherlock.[5]

[9] Baron, E.: Aspiration for Removal of Biopsy Material from the Liver, Arch. Int. Med. **63:** 276 (Feb.) 1939.

[10] Tripoli, C., and Fader, D.: The Differential Diagnosis of Certain Diseases of the Liver by Means of Punch Biopsy, Am. J. Clin. Path. **11:** 516 (June) 1941.

[11] MacGregor Instrument Company, Needham 92, Mass.

[12] Silverman, I.: A New Biopsy Needle, Am. J. Surg. **40:** 671 (June) 1938.

[13] Tenophyr, J., and Silverman, I.: The Importance of Biopsy in Tumor Diagnosis, Radiology **36:** 57 (Jan.) 1941.

[14] Hoffbauer, F. W.: Needle Biopsy of the Liver, Journal-Lancet **65:** 246 (July) 1945.

In 1945 Gillman and Gillman [15] reported a large series of aspiration needle biopsies of the liver. They devised a special piece of apparatus for the purpose, one which reduces the manipulations to a minimum. This needle is inserted "in the apex of the angle between the xiphisternum and the right costal margin." According to these authors, the needle is directed slightly upward and to the left until the surface of the liver is reached. Gillman and Gillman have reported a number of valuable observations [16] relative to nutritional changes in the liver. The needle employed by Gillman and Gillman is designed to obviate the removal of the stylet and the attachment of the syringe after the substance of the liver has been entered. The stylet has a spiral groove; it is attached to the plunger of the syringe. The instrument is so constructed that the needle with the stylet in position can be pushed through the tissues; as the needle is directed into the liver, the stylet is withdrawn and suction is applied in a single movement. They found that it was desirable to have the end of the needle beveled like a hypodermic needle rather than with the tip, as used by Iversen and Roholm.

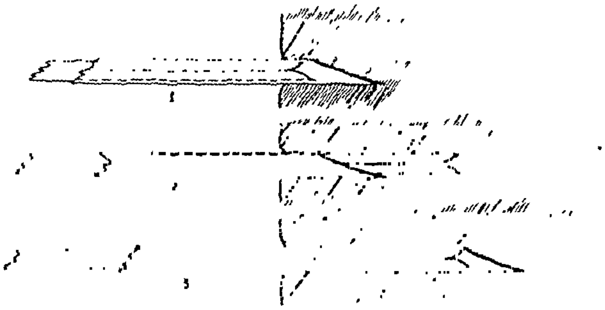

Fig. 2.—Technic of obtaining a biopsy specimen by use of the Silverman needle: (1) the inner needle is retracted until the liver is entered; (2) it is then advanced and a strip of tissue cut; (3) the outer needle is then advanced over the inner, and the tissue fragment is trapped.

The Roth-Turkel needle [17] has been successfully employed by Davis [2] and by Bierwaltes and Mallery.[18] This needle is widely used in this country for biopsy purposes. It has a serrated cutting edge. The prime feature of this instrument is that the cutting needle is contained within another needle which has a long bevel. This facilitates the introduction of the needle into the liver. The biopsy is taken by advancing the longer inner needle through and beyond the tip of the outer one. Davis states that in his experience this needle is more satisfactory than the Silverman needle because the specimen obtained is larger. Suction is usually employed when the Roth-Turkel needle is used.

DANGERS AND COMPLICATIONS

Raby [19] has recently discussed the complications of liver biopsy by the needle method. He described 2 fatalities, both in elderly patients. The danger of needle biopsy was the subject of a recent editorial comment in THE JOURNAL.[20] Roholm, Krarup and Iversen [8a] prepared an extensive review of the subject in their report of 297 biopsies. As complications they listed the following: (1) pain, (2) damage to neighboring organs, (3) implantation of tumor cells in the needle track, (4) air embolus, (5) infection, (6) bile peritonitis and (7) hemorrhage.

Pain following the biopsy is said to occur in about 5 per cent of cases in which the Iversen and Roholm technic is employed. The discomfort does not persist for more than a day. In my experience, pain after the biopsy has not been a prominent feature. In a few instances signs of local peritoneal irritation have been observed. This has been attributed to the presence of a small amount of blood that escaped from the puncture site.

Damage to neighboring organs is a potential danger, especially when the subcostal or anterior approach is employed. I have heard of 1 death in this country from peritonitis after an attempted needle biopsy of the liver. Autopsy disclosed a perforation of the colon. In this case, which was not reported, the mistake lay in the attempt to obtain the biopsy in a situation in which the liver was not easily palpable below the costal margin. Baron [9] contended that needle biopsy could be performed safely by the anterior subcostal approach in the absence of hepatic enlargement. Chiray, Fiessinger and Roux [21] limited their attempts to patients with palpable liver. Davis [2] also selects his cases on this basis.

The complications of implantation of tumor cells in the needle track, air embolus and infection can largely be avoided by careful technic. Needless to say, the entire procedure must be performed with strict aseptic technic. In diseases such as cholangitis, in which one suspects intrahepatic suppuration, needle biopsy is, of course, hazardous and should not be attempted.

Leakage of bile into the peritoneal cavity is a potential danger, especially in the presence of obstruction of the biliary tract. In those instances of cancer of the biliary tract in which my associates and I have performed biopsies no such complication has occurred. The danger of perforation of the gallbladder must be considered.

The chief danger of any biopsy of the liver is hemorrhage. This has been the cause of most of the reported fatalities. The procedure should not be attempted unless one has at hand facilities for blood transfusion. The patient should be kept at rest in bed for twenty-four hours, and the pulse rate and blood pressure levels should be followed at intervals as advocated by Sherlock.[8e] Needle biopsy of the liver should, therefore, be limited to hospitalized patients. The bleeding and clotting and prothrombin time are routinely checked before the method is employed. The amount of blood that escapes from the puncture wound of the liver is not great. In instances in which the puncture was made during peritoneoscopy there was opportunity to observe the bleeding. It seldom lasted for more than thirty to sixty seconds and consisted of a slow trickle of blood down the surface of the liver. In a few instances of chronic passive congestion of the liver bleeding from the site of the puncture was more profuse but not alarming. It might be argued that the tense pneumoperitoneum used during peritoneoscopy has an inhibiting influence on the bleeding.

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[15] Gillman, T., and Gillman, J.: A Modified Liver Aspiration Biopsy Apparatus and Technique, with Special Reference to Its Clinical Applications as Assessed by 500 Biopsies, South African J. M. Sc. **10:** 53, 1945.

[16] Gillman, T., and Gillman, J.: Hepatic Damage in Infant Pellagra, J. A. M. A. **129:** 12 (Sept. 1) 1945.

[17] Roth, A., and Turkel, H.: Technique of Prostatic Biopsy, J. Urol. **51:** 66 (Jan.) 1944.

[18] Beirwaltes, W. H., and Mallery, O. T.: Clinical Experience with a Trephine Needle, Univ. Hosp. Bull., Univ. Michigan **12:** 13, 1946.

[19] Raby, K.: Complications and Dangers of Liver Biopsy, Nord. med. (Hospitalstid.) **24:** 2161 (Dec. 8) 1944.

[20] Hemorrhage from Puncture Biopsy of the Liver, editorial, J. A. M. A. **129:** 681 (Nov. 3) 1945.

[21] Chiray, M.; Fiessinger, N., and Roux, M.: La punction biopsie du foie, Presse méd. **49:** 785 (July 22) 1941.

One serious episode of intraperitoneal bleeding occurred among the cases in which direct needle biopsy was performed at the bedside of the patient. This has been previously reported.[14] The bleeding was found at operation to be coming from a damaged artery beneath the left lobe of the liver and not from the liver itself. The operator passed the needle completely through the thin edge of the left lobe.

There have been a total of 12 deaths ascribed to needle biopsy of the liver in the literature reviewed (table 2). Sherlock [8e] stated the fatality rate as 0.67 per cent. Iversen [2] places the figure as somewhat below 0.5 per cent. It is obvious, then, that needle biopsy entails some risk. It should not be performed indiscriminately. It can furnish so much valuable information, however, that its continued use is believed to be justified in selected cases.

TABLE 2.—*Needle Biopsy of the Liver: Reported Deaths Following the Procedure*

Author	Year	Deaths	No. of Biopsies
Bingel	1923	2	100
Olivet	1926	2	140
Baron	1939	1	49
Roholm, Krarup and Iversen	1943	2	297
Sherlock	1945	2	264
Raby	1945	2	Not stated
Gillman and Gillman	1946	1	500
Total		12	

COMMENT

On the medical service of the University of Minnesota Hospitals, needle biopsy of the liver has been attempted in 80 cases since October 1942. These biopsies have been performed at the bedside, using the 3¾ inch (9.5 cm.) "Vim"-Silverman needs as previously described. The procedure has now been restricted to cases in which the liver is definitely enlarged and readily palpable below the costal margin. The method has been of great value in the clinical study of hepatic disease. It has often been of diagnostic aid, especially in parenchymal disorders, such as cirrhosis, hemochromatosis and amyloid disease.

The value of the procedure in the differential diagnosis of the jaundiced patient is an important consideration. The amount of tissue secured is small. The pathologist can usually differentiate obstructive jaundice from hepatitis, a situation in which the clinician often requires assistance. It must be admitted that there are times when such a differentiation will be difficult. This is particularly true if the jaundice is of long standing. Iversen [2] believes that the differentiation can be made with complete accuracy if the biopsy is secured in the first two weeks of jaundice.

In the presence of metastatic carcinoma in the liver the biopsy, performed at the bedside, is of value only if the needle happens to strike a metastatic nodule. This is a situation in which use of the peritoneoscope as an aid in securing the biopsy specimen offers a distinct advantage, since visualization of the surface of the liver is permitted.

NEEDLE BIOPSY OF THE LIVER DURING PERITONEOSCOPY

Some of my earlier experiences with needle biopsy of the liver combined with peritoneoscopy have been described.[7] Kalk, Brühl and Sieke [22] have employed a similar method using the Iversen-Roholm needle. Needle biopsy has now been performed in 50 cases of suspected hepatic disease that have been subjected to peritoneoscopic examination. Initially these were instances in which the liver was not enlarged and direct needle biopsy was therefore deemed unwise. Recently in nearly all instances in which a specimen of the liver for biopsy was desired, the patients have been examined with the peritoneoscope. This was done for purposes of evaluating the two methods.

One of the virtues of the direct needle biopsy has been its simplicity and the relative lack of discomfort which it produces. Peritoneoscopic examination is a much more formidable procedure. It must be done in an operating room. It requires the creation of a tense pneumoperitoneum. Patients usually have much more discomfort following this than they do after the simpler procedure. However, the advantages are great. One can visualize the surface of the liver. Often that alone is sufficient for diagnostic purposes, as for example when there are carcinomatous implants of the surface or when the liver is visibly cirrhotic.

One may well ask, why perform needle biopsy of the liver at the time of peritoneoscopic study when the Ruddock [23] instrument contains a biopsy forceps that may be employed without an additional puncture wound in the abdominal wall? There are two reasons. In my experience it has been difficult to secure biopsies with the forceps. Only when the lower edge of the liver was thin and sharp so that the biting jaws could cut the tissue at the inferior edge have I been able to get a satisfactory specimen. In most instances, particularly those in which the capsule appeared thickened, I have found it impossible to cut through the tissue. A more serious objection to the biopsy taken with a forceps has been the fact that the tissue is obtained from just beneath the capsule. The histologic structure close to the capsule is not always representative of the entire organ. The needle, on the other hand, secures a strip of tissue from a deeper level 3 to 5 cm. below the capsule and affords the pathologist a better opportunity for interpretation.

When the peritoneal cavity is distended with air for the peritoneoscopic examination, the liver falls away from the anterior abdominal wall (fig. 3). The "Vim"-Silverman needle is not long enough to reach the surface of the liver if it is inserted through the anterior abdominal wall just below the costal margin in the right midclavicular line. A longer needle has therefore been used and equipped with a spring guard, as shown in figure 4. The principle, that is, the longer inner split needle, is the same as that devised originally by Silverman. The spring guard has been added to check the progress of the outer needle over the inner, once the tissue plug has been cut. Without the guard, there is a tendency for the outer needle to advance too far beyond the inner one. There is a slight resistance to the passage of the outer needle over the two prongs of the instrument when the tissue plug is trapped within. The operator is apt to push too hard, and the needle then advances farther than is necessary. Deep penetration into the liver is dangerous. On the other hand, if the operator is too cautious and fails to advance the outer needle far enough, the plug of tissue may not be cut off. This has been responsible for some of the failures of this technic. The little spring guard, therefore, allows one to advance the outer needle just the required distance once the cylinder of tissue has been cut.

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[22] Kalk, H.; Brühl, W., and Sieke, W.: Die gezielte Leberpunktion, Deutsche med. Wchnschr. **69**: 693 (Oct. 1) 1943.

[23] Ruddock, J. C.: Peritoneoscopy, South. Surgeon **8**: 113 (April) 1939.

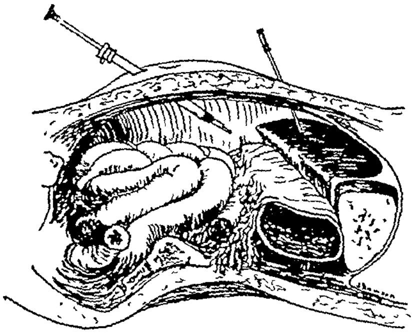

Fig. 3.—The needle biopsy performed in conjunction with peritoneoscopy: The insertion of a modified Silverman needle through a separately anesthetized site during peritoneoscopic examination permits the operator to visualize the entrance of the needle into the liver.

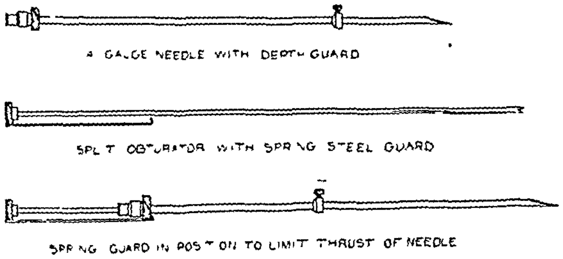
A GAUGE NEEDLE WITH DEPTH GUARD
SPLIT OBTURATOR WITH SPRING STEEL GUARD
SPRING GUARD IN POSITION TO LIMIT THRUST OF NEEDLE

Fig. 4.—A needle 18 cm. in length and equipped with two guards is used in conjunction with peritoneoscopic examination for needle biopsy of the liver.

SUMMARY AND CONCLUSIONS

The literature pertaining to needle biopsy of the liver has been briefly reviewed. The methods employed by various investigators are discussed. The addition of the biopsy to the clinical study of hepatic disease has aroused new interest in the subject. Much valuable information on the histologic changes in the liver in such nonfatal conditions as hepatitis has been made available. The transition of infectious hepatitis to cirrhosis has been elucidated by this means.

The method is not without risk; the chief danger is hemorrhage. Needle biopsy of the liver should not be attempted unless one has adequate facilities for coping with the possible complications that may arise.

On the basis of personal experience, the anterior subcostal approach is considered to be a satisfactory one if the liver is definitely enlarged and easily palpable. In the absence of hepatomegaly, peritoneoscopic examination has been made and biopsy secured by means of a needle inserted through the anterior abdominal wall and guided into place while the liver is visualized. Under these circumstances the needle biopsy is believed to have some virtue over the customary forceps method.

"ALCOHOLIC CIRRHOSIS"

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The term "alcoholic cirrhosis" is at once misleading. It implies that alcohol produces a certain characteristic type of cirrhosis. This, of course, is not true. There is no gross pathologic or histologic type of cirrhosis that can be identified as alcoholic in origin. Alcoholic cirrhosis is generally accepted as being synonymous with portal cirrhosis, although the latter condition is frequently found in children and adults who have not even remotely had anything to do with alcohol, and despite the fact that in the great majority of alcoholic addicts, as far as is known, cirrhosis does not develop.

It is just a hundred years since Rokitansky stated that "granular liver is one of the most important, though in many respects and especially in reference to its pathogeny, one of the most enigmatical affections of the liver." While some progress has been made in recent years in the study of the pathogenesis of cirrhosis, its cause and mode of development continue to remain part of the mysteries of medicine.

Lest one become too enthusiastic about any of the currently suggested causes of cirrhosis, the status of the numerous theories that have been suggested from time to time in the past should be considered.

One of the earliest and most persistent theories is that concerning alcohol, which will be alluded to presently. Another deals with the intestinal bacteria, which were thought by Adami many years ago to be an important factor in causing cirrhosis because they could be cultured from cirrhotic livers and from the resulting ascitic fluid. Adami did not believe that bacteria were a constant factor in all cases, and he stipulated that before their invasion there must be intestinal irritation from alcohol, acid fermentation or some other agent. Some twenty years ago Longcope showed that lesions resembling those found in cirrhosis could be produced by anaphylactic shock, the result of repeated injection of egg white or other protein. This indicated that protein sensitization and intoxication might originate the disease. Opie and others showed that cirrhosis could be produced by bacterial infections combined with poisons such as chloroform that are toxic to the liver. At the moment it is being assumed that alcohol, in league with diets deficient in protein and certain vitamins, especially of the B group, and diets of low carbohydrate and high fat content are responsible for cirrhosis. Unfortunately, reference cannot be made at this time to all the excellent experimental and clinical studies on this phase of the subject. Of especial interest, however, is the work of Moon,[1] György and

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[1] Moon, V. H.: Histogenesis of Atrophic Cirrhosis, Arch. Path. **13**: 691-706 (May) 1932; Experimental Cirrhosis in Relation to Human Cirrhosis, ibid. **18**: 381-424 (Sept.) 1934.

Goldblatt,[2] Connor and Chaikoff,[3] Patek and Post,[4] Jolliffe and Jellinek,[5] Fleming and Snell[6] and others.

In a number of cases attacks of acute and subacute hepatitis, be their causes of a virus, toxic or infectious nature, are thought to be forerunners of portal cirrhosis.

Finally, it is the belief of some students of the subject that disturbances of metabolism are at fault and that cirrhosis is the result of direct toxic affects combined with an allergic reaction (Jaffe[7]).

Ten years ago, on May 13, 1936, to be exact, Boles and Clark[8] presented before this section the results of an analysis of 4,000 autopsies studied at the Philadelphia General Hospital in an attempt to throw some light on the relationship of alcohol to cirrhosis of the liver. At that time we said regarding the role of alcohol, study of which was the primary purpose of the investigation: "It is quite evident from our observations that, contrary to prevailing opinion, alcohol cannot seriously be regarded as a specific cause of cirrhosis of the liver . . ." Furthermore, "As the lesion defined as portal cirrhosis occurs under influences unassociated with alcohol, we would suggest abandonment of the term alcoholic cirrhosis." In 1939 Connor[9] suggested that alcohol did not cause cirrhosis but that the combination of alcohol and a deficient diet which produced fatty changes in the liver eventually led to the disease. In 1940 Boles and Crew[10] reported the results of an investigation of 4,000 autopsies performed at the Philadelphia General Hospital and reached conclusions which were practically identical to those arrived at in the former study made at the same hospital in 1936.

Table 1.—*One Hundred and Forty-Two Cases of Portal Cirrhosis*

Year	Autopsies	Portal Cirrhosis	%
1942-1943	2,000	73	3.6
1945-1946	1,637	69	4.2
Total	3,637	142	3.9

Table 2.—*One Hundred and Forty-Two Cases of Portal Cirrhosis, Age and Sex Incidence*

Age	Male	Female	Total
20 to 29	1	1	2
30 to 39	6	5	11
40 to 49	15	15	30
50 to 59	20	11	31
60 to 69	21	12	33
70 to 79	12	15	27
80 to 89	4	3	7
90 to 99	0	1	1
Total	79	63	142
Ratio	1.25	to 1	

The present analysis is based on the survey of 3,637 autopsies. Two thousand of them were performed in the period from Nov. 15, 1942 to Nov. 15, 1943, and 1,637 were performed during the period from Jan. 1, 1945 to Jan. 1, 1946. Only cases of portal cirrhosis were considered.

Table 3.—*One Hundred and Forty-Two Cases of Portal Cirrhosis, Race and Sex Ratio*

	Male	Female	Total
White	62	51	113
Negro	17	12	29
			142

Ratio: White to Negro, 3.89 to 1

In the 3,637 autopsies studied, 142 cases of portal cirrhosis based on histologic diagnosis were found—or 3.9 per cent (table 1). This is almost identically the same percentage as was found by Boles and Clark in a series of 4,000 autopsies, which was 3.75 per cent.

A study of the age distribution (table 2) shows that the greater number of cases of cirrhosis occur between 40 and 80 years of age, the peak being reached in those between 60 and 69 years of age. It is of interest that almost the same number of cases were observed in the fourth and fifth decades, in as much as ten years ago there were considerable fewer cases noted in these decades. This indicates that while the total number of cases of cirrhosis proved at autopsy has not appreciably increased in the past ten years, a significantly greater number of younger persons are showing evidence of the disease.

The ratio of males to females for all ages in the present group was 79 to 63, or 1.25 to 1. The ratio of males to females between 60 and 69 years of age was 1.7 to 1, whereas in those between 40 and 49 years of age it was 1 to 1. Previous sampling of the total number of persons autopsied at the hospital showed a ratio of males to females of 5 to 4 or 1.25 to 1.

Table 4.—*Accurate History of Alcoholism in Sixty-Four of One Hundred and Forty-Two Cases of Portal Cirrhosis*

Positive	50
Negative	14
	64
Unreliable	78
	142

Cirrhosis is still much commoner in the white race than in the Negro race, the ratio being 113 to 39, or 3.89 to 1 (table 3). The ratio of males to females is approximately the same for the two races. Previous samplings of the total number of persons autopsied at the hospital shows a ratio of total whites to Negroes of 1.6 to 1.

In 64 of 142 cases of cirrhosis, an accurate history concerning the use of alcohol was obtained (table 4).

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[2] György, P., and Goldblatt, H.: Observations on Conditions of Dietary Hepatic Injury (Necrosis, Cirrhosis) in Rats, J. Exper. Med. **75:** 355-368 (April) 1942.

[3] Connor, C. L., and Chaikoff, I. L.: Development of Cirrhosis in Fatty Livers, Arch. Path **25:** 761-762, 1938, abstracted from Proc. Soc. Exper. Biol. & Med **39:** 356-359 (Nov.) 1938.

[4] Patek, A. J., Jr., and Post, J.: Treatment of Cirrhosis of Liver by Nutritious Diet and Supplements in Vitamin B Complex, J. Clin. Investigation **20:** 481-505 (Sept.) 1941.

[5] Jolliffe, N., and Jellinek, E. M.: Vitamin Deficiencies and Liver Cirrhosis in Alcoholism: Cirrhosis of Liver, Quart. J. Stud. on Alcohol **2:** 544-583 (Dec.) 1941.

[6] Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites: Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment, Am. J. Digest. Dis. **9:** 115-120 (April) 1942.

[7] Jaffe, R.: General Considerations on Pathogenesis: Syphilitic Aortitis, Myocarditis, Hepatic Cirrhosis, J. Lab. & Clin. Med. **29:** 139-149 (Feb.) 1944.

[8] Boles, R. S., and Clark, J. H.: Role of Alcohol in Cirrhosis of Liver, Clinical and Pathologic Study Based on 4,000 Autopsies, J. A. M. A. **107:** 1200-1203 (Oct. 10) 1936.

[9] Connor, C. L.: Fatty Infiltration of the Liver and Development of Cirrhosis in Diabetes and Chronic Alcoholism, Am. J. Path. **14:** 347-364 (May) 1938.

[10] Boles, R. S., and Crew, R. S.: Observations on Chronic Alcoholism and Cirrhosis of Liver, Quart. J. Stud. on Alcohol **1:** 464-471 (Dec.) 1940.

In 50 cases it was definitely positive. Total abstinence was claimed by 14 persons. In the remaining 78 cases there was either no record of indulgence in alcohol, or the history concerning its use was questionable. It is significant that in younger persons with cirrhosis, namely those under 40 years of age, 9 of 13 admitted heavy drinking. In 3 the history was questionable, and in 1 abstinence was recorded.

A clinical diagnosis of cirrhosis of the liver was made in 50 of the 142 cases proved at autopsy (table 5). That a greater number of cases had not been diagnosed clinically was obviously due to the fact that the disease was in its earlier stages, when there was nothing definite to betray its presence. In 46 of the 50 cases clinically diagnosed, cirrhosis was recorded as the primary cause of death. In 33 of the 50 a positive history of alcoholism was obtained; in 3 others it was negative, and in 14 it was unreliable. Such figures tend to prove that alcohol cannot be absolved from contributing its part to the causation of cirrhosis in an indeterminate number of persons.

TABLE 5.—*Proved Clinical Diagnosis and Accurate History in Fifty Cases of Portal Cirrhosis*

Positive history of alcoholism...........................	33
Negative history of alcoholism...........................	3
Unreliable history of alcoholism.........................	14
	50

TABLE 6.—*Jaundice and Ascites in One Hundred and Forty-Two Cases of Portal Cirrhosis*

			1946	1936
Jaundice.................	40	or	28.0%	30%
Ascites..................	54	or	38.0%	35%
Combined.................	24	or	16.9%	17%

As alcoholism is of such moment at the present time, it is unfortunate that a more careful history concerning its use in all patients, regardless of their disease, is not secured. If cirrhosis is suspected, inquiry is usually made concerning the use of alcohol. If alcoholism is suspected, one may be certain that a diligent search for cirrhosis will be made. Aside from this, relatively little if any attention is given to the matter.

Jaundice was observed in 40 of the 142 cases, or 28 per cent. Ascites occurred in 54 cases, or 38 per cent. Both jaundice and ascites occurred in 24 cases, or 16.9 per cent (table 6). The incidence of jaundice, ascites and the two together was strikingly close to that observed ten years ago. Jaundice at that time was noted in 30 per cent of cases; ascites in 35 per cent of cases and the two combined in 17 per cent of cases. Ruptured varices were noted in 15 cases, or 10.5 per cent.

In recent years the treatment of cirrhosis has been based on the deduction that nutritional deficiencies play a large part in its production. Considerable relief of symptoms, prolongation of life and even apparent cures, though the disease had reached the stage of decompensation and irreversibility, have been claimed by various proponents of such treatment. The results attained are not disputed, but the presumption that the disease is primarily a nutritional disorder can hardly be borne out by the facts. It is assumed that the diet of the chronic alcoholic is deficient in protein, carbohydrate and vitamins, that the storage of glycogen is diminished and that there occurs a fatty replacement of the liver cells. All this may be true, but, except that the liver of the person with alcoholism exhibits various degrees of fatty dystrophy, proof that such is the case is not available. The various studies that have been made concerning the diet of the alcoholic addict are far from convincing, principally because of the small number of persons examined and the relatively short period over which the dietetic survey was conducted.

When one tries to appraise this whole subject of cirrhosis in an unbiased manner, he gives ear to the statements of Karsner,[11] who expressed his opinion in an excellent monograph on the morphology and pathogenesis of the condition that a review of the morbid anatomy of cirrhosis is profitable because it serves to furnish anatomic criteria of recognition and diagnosis. Without such criteria experimental observations may be misleading and may even result in fallacious deductions. The significance of morphologic studies of disease in man may sometimes be overlooked in the fascination afforded by physiologic, chemical and other approaches to the problems of pathology. The principle of the positive identification of the disease in the experimental animal should apply to the investigation of any disease, be it hepatic cirrhosis or any other disorder.

With this in mind one may inquire, after all, how different is this chronic fibrosing disease of the liver, call it chronic hepatitis, atrophic cirrhosis or what you will, from chronic nephritis and other diseases whose pathogenesis is similar, whose eventual pathologic patterns are comparable and whose symptoms are subject to the same variations and environmental influences, and which follow through to the same inexorable termination?

Consider the parallel to nephritis, for example. An attack of acute nephritis may entirely subside or it may smolder, to be reactivated by an infection or some other aggravating influence. On the other hand, it may progress to chronic nephritis. In the case of nephritis, the same difficulty is encountered in nomenclature and classification of types, chiefly because the etiology is unknown. Furthermore, consider the striking similarity in the pathologic process of the two diseases—the early stages of nephritis with inflammatory changes; the later stages with parenchymal degeneration associated with proliferation and the deposit of fatty substances within the epithelial cells, and finally the stage of atrophy and scar formation.

When two such common disorders as nephritis and portal cirrhosis are so comparable in their course, one must ponder whether there are not common etiologic factors. In both diseases alcohol and nutritional deficiencies may play an important part in individual cases, but in the one no more than the other does the time seem ripe to attach specific etiologic significance to either of these influences.

In the case of portal cirrhosis, alcohol as well as chronic infection, toxemia, disturbances of metabolism, tissue susceptibility and, no doubt, central nervous system influences, such as seem to occur in hepatolenticular degeneration, all play their role in the causation of the disease. In the light of our present knowledge, the disease might well be regarded as not essentially due to alcohol or any other known specific factor.

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[11] Karsner, H. T.: Morphology and Pathogenesis of Hepatic Cirrhosis, Am. J. Clin. Path. **13:** 569-606 (Nov.) 1943.

It would be unfortunate for the lay person to gain the impression that alcohol is blameless in the development of cirrhosis. Certainly it must be much to blame in given subjects. This being the case, it would behoove the members of the medical profession to discourage recent attempts to minimize the importance of alcohol as, if not a specific factor, at least a contributing or predisposing factor in the development of cirrhosis of the liver.

Finally, considering the nonspecific status of alcohol, the suggestion is made again, in the interest of scientific accuracy, that all reference to any type of cirrhosis as "alcoholic cirrhosis" be abandoned.

Rittenhouse Plaza

NEW METHODS OF THERAPY IN CIRRHOSIS OF THE LIVER

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Cirrhosis of the liver is no longer a hopeless, incurable disease destined to progress until death intervenes. Recent reports[1] are rapidly accumulating evidence which shows that many patients with hepatic cirrhosis can improve, or recover as judged by clinical observations and laboratory tests, after treatment by the Patek regimen,[1a, b] with choline or with choline and cystine.[1i] I have reported elsewhere a detailed analysis of the results of treatment in cirrhosis of the liver in a series of 62 patients studied at two year intervals[1j] over an eight year period of time. In this present paper the results and basis for the treatment of choice in cirrhosis are described and offered for trial by others.

METHODS OF TREATMENT

The treatment which I have adopted consists in the administration of methionine, 2 Gm. daily; choline chloride, 2 Gm. daily, a special liver extract prepared by the filtration and concentration of an aqueous liver solution containing vitamin B complex; a high protein (higher than heretofore advocated), low fat, moderate carbohydrate diet and frequent feedings of skimmed milk. To my knowledge this identical combination has not previously been reported for human cirrhosis of the liver, and its adoption is based on experimental and clinical evidence.[2]

This therapeutic regimen was adopted for two reasons: first, as is now well known, the experimental evidence obtained in animals indicates conclusively that choline and methionine are proven lipotropic agents in the prevention and alleviation of fatty cirrhosis of the liver in the experimental animal. The experimental evidence that has been amassed in cirrhosis of the liver and in cirrhosis due to alcoholism in human subjects indicates that cirrhosis is a form of nutritional deficiency disease, or, more specifically, a labile methyl-group deficiency disease.[3] It is also possible that cirrhosis of the liver may be due to a specific vitamin deficiency, just as the macrocytic anemia of pernicious anemia and sprue appears now to respond specifically to folic acid therapy.[4]

Conflicting results were obtained with synthetic cystine, some investigators reporting lipotropic activity of cystine[5] and others reporting its cirrhosis-producing effect.[6] For this reason, synthetic cystine was not employed in this series of cases.

It has been suggested that the lipotropic agent methionine could enhance in a synergistic way the lipotropic (or fatty-cirrhosis-preventing) activity of choline.[7] Animal experiments revealed further that in hepatic damage choline would largely prevent the cirrhosis but not the necrosis and hemorrhage. Methionine was found to effectively prevent both types of damage to the liver. Experimental studies also showed that the cirrhotic symptoms due to choline deficiency result from lack of a methyl-containing essential other than choline and that methionine can directly supply this lack.[8] It is now apparent that although diets may contain an adequate supply of choline, an imbalance or deficiency of other dietary constituents can nullify the lipotropic action of the choline.[9]

Experimental studies demonstrated that an inadequate level of methionine cannot be compensated for

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From the Department of Internal Medicine, College of Medical Evangelists

Studies arising in part from grant 421, American Medical Association, Council on Pharmacy and Chemistry, Committee on Therapeutic Research

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Read in a symposium on "Diseases of the Liver" before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Pathology and Physiology at the Ninety Fifth Annual Session of the American Medical Association, San Francisco, July 5, 1946.

[1] (*a*) Patek, A. J., Jr.: Treatment of Alcoholic Cirrhosis of the Liver with High Vitamin Therapy, Proc Soc Exper Biol & Med **37:** 329, 1937. (*b*) Patek, A. J, Jr, and Post, J Treatment of Cirrhosis of the Liver by a Nutritious Diet and Supplements Rich in Vitamin B Complex, J. Clin Investigation **20:** 481, 1941. (*c*) Hoagland, C L Conferences on Therapy The Modern Treatment of Cirrhosis of the Liver and Hepatic Insufficiency, New York State J Med **143:** 1041, 1943 (*d*) Fleming, R G, and Snell, A M Portal Cirrhosis with Ascites An Analysis of Two Hundred Cases with Special Reference to Prognosis and Treatment, Am J Digest. Dis **9:** 115, 1942. (*e*) Etiology and Treatment of Cirrhosis, editorial, Ann Int Med **22:** 615, 1945 (*f*) Barker, W H The Modern Treatment of Cirrhosis of the Liver, M Clin North America **29:** 273, 1945 (*g*) Ralli, E P.; Robson, J S, Clarke, D, and Hoagland, C. L. Factors Influencing Ascites in Patients with Cirrhosis of the Liver, J. Clin Investigation **24:** 316, 1945 (*h*) Hoagland, C. L The Therapy of Liver Diseases, Bull New York Acad Med **21:** 537, 1945 (*i*) Beams, A. J: The Treatment of Cirrhosis of the Liver with Choline and Cystine, J. A. M. A **130:** 190 (Jan. 26) 1946 (*j*) Morrison, L M: The Response of Cirrhosis of the Liver to an Intensive Combined Therapy, Ann. Int Med **24:** 465, 1946

[2] (*a*) Gyorgy, P, and Goldblatt, H Experimental Production of Dietary Liver Injury in Rats, Proc Soc Exper Biol & Med **46:** 492, 1941. (*b*) Broun, G O, and Muether, R O Treatment of Hepatic Cirrhosis with Choline and Diet Low in Fat and Cholesterol, J A M. A. **118:** 1403 (April 18) 1942 (*c*) Russakoff, A H, and Blumberg, H: Choline as an Adjuvant to the Dietary Therapy of Cirrhosis of the Liver, Ann Int Med **21:** 848, 1944 Blumberg, H, MacKenzie, C G, and Seligson, D: The Prevention by Choline, Methionine, or Casein, of Dietary Cirrhosis of the Liver in Rats and Rabbits, Federation Proc **1:** 187, 1942. Post[1a]

[3] (a) White, A Choline Metabolism, in Wohl,[6a] p 267. (*b*) Simmonds, S, and du Vigneaud, V Transmethylation as a Metabolic Process in Man, J Biol Chem **146:** 685, 1942 Hoagland[1h]

[4] Spies, T. D; Vilter, C F; Koch, M B, and Caldwell, M. H: Observation on the Anti Anemic Properties of Synthetic Folic Acid, South M. J **38:** 707, 1945 Spies, T D Folic Acid for Macrocytic Anemia in Relapse, J A M A **130:** 474 (Feb 23) 1946

[5] Daft, F. S; Sebrell, W. H, and Lillie, R D Prevention by Cystine or Methionine of Hemorrhage and Necrosis of the Liver in Rats, Proc Soc Exper Biol & Med **50:** 1, 1942 Tucker, H F, and Eckstein, H C The Effect of Supplementary Methionine and Cystine on the Production of Fatty Livers by Diet, J Biol Chem. **121:** 479, 1937. Beams[1i]

[6] (*a*) Earle, D P, Jr, and Victor, J Cirrhosis of the Liver Caused by Excess Dietary Cystine, J Exper Med **73:** 161, 1941 Gyorgy, P Experimental Hepatic Injury, Am J Clin Path **14:** 67, 1944 Wohl, M. G: Dietotherapy, Philadelphia, W B Saunders Company, 1945, p 592 (*b*) Griffith, W H Choline Metabolism IV The Relationship of the Age, Weight and Sex of Young Rats to the Occurrence of Hemorrhagic Degeneration on a Low Choline Diet, J. Nutrition **19:** 437, 1940

[7] Morrison[1j] Griffith[6b]

[8] (*a*) White,[3a] p 271. (*b*) Jacobi, H P, and Bauman, C. A: The Biochemical Defect in Choline-Deficient Rats, J. Biol Chem **142:** 65, 1942.

[9] White,[3a] p. 274.

by excessive levels of choline and cystine.[10] It was further demonstrated that when methionine was added to choline in experimental hepatic damage and growth, a 50 per cent improvement in therapeutic results occurred.[10b] The damaged liver thus appears to have lost its transmethylation ability and requires both synthetic methionine and choline until normal transmethylation can take place from the ingested food.

Second, in a controlled series of 62 patients over an eight year period,[1j] therapeutic results suggested that the combination of methionine and choline resulted in a better therapeutic response than did various other combinations of amino acids, diet, liver and vitamin supplements in the treatment of hepatic cirrhosis. Methionine was taken orally in capsule form, the dosage being 2 Gm. daily. Similarly, choline chloride was administered orally in a daily dosage of 2 Gm.[10d]

A special liver extract was used by me because of experimental evidence that indicated its importance, when used with choline derivatives, as an aid in the prevention of hepatic damage.[11] In addition, clinical evidence showed that a crude liver extract has definite therapeutic value in the treatment of human cirrhosis of the liver.[1a, h] I used a specially filtered liver extract [11a] fortified with vitamin B complex, the administration of which was relatively painless, thus allowing large quantities (3 to 5 cc.) to be injected intramuscularly daily, or every other day, for periods varying from several weeks to several months; injections were tapered off to twice or once a week depending on clinical and laboratory progress in each case. Total vitamin supplements in the diet were often used for the same reasons, which demonstrated their experimental and clinical value in cirrhosis.[12] Each cubic centimeter of the vitamin B complex incorporated in the liver extract contained 10 mg. of thiamine chloride, 10 mg. of nicotinamide and 0.3 mg. of riboflavin. It is possible that the liver extract or the vitamin B complex contains a catalytic agent, which permits transmethylation and utilization by the liver of methionine and choline. In support of this suggestion is the experimental evidence that although the choline and methionine content in the cirrhotic liver may be normal or actually higher than normal,[8a] these factors are not available for utilization.

The high protein diet which I prescribed consisted not only of a high casein source of proteins by the use of skimmed milk feedings and cottage cheese but also of servings of meat three times a day wherever possible. The importance of a high protein diet in cirrhosis of the liver is now thoroughly established [13] and takes precedence over dietary carbohydrate in therapeutic importance. The maximum use of meat in this diet appeared to be advisable because of the necessity for providing the essential amino acids which contain the basic methyl groups, with and without the sulfur radical. These methyl groups are required by the liver for the transmethylation function which institutes regeneration and healing in cirrhosis. As has previously been stated, cirrhosis of the liver when produced experimentally is now regarded as a methyl-group deficiency disease.

In all possible ways, in cases in which the patient could tolerate it, the patient's diet was stepped up to the limits of tolerance by forced feedings, or any other device, in the attempt to ingest the ideal maximum intake of 200 to 300 Gm. of protein, 300 Gm. of carbohydrate and 50 Gm. of fat.

CLINICAL MATERIAL

A group of 20 patients with proved cirrhosis of the liver were treated and diagnostically divided into (*a*) 9 patients with ascites and (*b*) 11 patients apparently free of ascites. All 20 patients revealed characteristic physical signs of cirrhosis of the liver, such as palpable enlargement of the liver, increased venous circulation in the skin over the anterior part of the abdomen and upper portion of the chest, ascites, edema of the legs, glossitis and decided loss of weight. In addition characteristic symptoms were present, such as weakness, malaise, inability to engage in normal mental or physical activities, anorexia or nausea, abdominal distress, gas, belching and constipation.

There were 16 men and 4 women in this group. Nine patients gave an antecedent history of alcoholism. The ages ranged from 36 to 64 years, with a group average of 50 years. The average duration of symptoms on presentation for treatment in the group was 1.6 years, with a range of from one month to five years.

For comparison a control group of 23 patients with cirrhosis of the liver was analyzed. This group of patients was treated from 1938 to 1940 by the therapeutic regimen then in current use; a high carbohydrate diet, palliatives, dextrose given intravenously, sedatives and diuretics. The average duration of symptoms before treatment was 1.8 years, with a range of from one month to 5 years. Twelve of these patients were chronic alcoholic addicts, and their average age was 46 years.

Improvement was measured both in clinical terms, such as decrease in the size of the liver, increase in strength and appetite and amelioration of preexisting symptoms, together with improvement toward normal values in liver function tests. The liver function tests routinely used in almost every case were the intravenous sulfobromophthalein sodium excretion test (thirty and sixty minute samples), the urobilinogen test in twenty-four hour specimens of urine, the icterus index and quantitative van den Bergh tests from the blood and bile salt concentration tests of the bile and urine devised by me.[14] Many additional tests were performed, such as the cholesterol ester partition value and the hippuric acid synthesis test. The tests were carried out immediately prior to treatment, and frequent periodic checks were made, usually at monthly intervals.

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[10] (*a*) Womack, M., and Rose, W. C.: The Partial Replacement of Dietary Methionine by Cystine for Purposes of Growth, J. Biol. Chem. **141:** 3775, 1942. (*b*) Almquist, H. J., and Grau, C. R.: Further Studies on Cystine, Methionine and Choline in Chick Diets, J. Nutrition **29:** 219, 1945. (*c*) Grau, C. R.: The Utilization of the Sulfur Amino Acids by the Chick, ibid. **26:** 631, 1944. Almquist, H. J., and Grau, C. R.: Interrelation of Methionine, Choline, Betaine and Arsenocholine in the Chick, ibid. **27:** 263, 1944. (*d*) For the past year I have prescribed choline chloride, which is much better tolerated.

[11] Fouts, D. J. Vitamin B Complex Studies in Dogs: Production of Cirrhosis of the Liver, J. Nutrition **25:** 217, 1943.

[11a] This liver extract is similar to that used by other investigators (footnote 1c, g and h) and is not standardized for pernicious anemia by U. S. P. units.

[12] Patek.[1a] Patek and Post.[1b] Fouts.[11]

[13] Ravdin, I. S.; Thorogood, E.; Riegel, C.; Peters, R., and Rhoads, F. E.: The Prevention of Liver Damage and the Facilitation of Repair in the Liver by Diet, J. A. M. A. **121:** 322 (Jan. 30) 1943.

[14] Morrison, L. M.: IV. A New Test of Liver Function Determined from the Concentration of Bile Salts in Bile and Urine, Am. J. Digest. Dis. **7:** 527, 1940. Morrison, L. M., and Swalm, W. A. Observations on a Simple and Accurate Method for Quantitative Determination of the Bile Salts in Urine and Bile, J. Lab. & Clin. Med. **25:** 739, 1940; Preliminary Report of a New Physiologic Test for Liver Function, Rev. Gastroenterol. **7:** 269, 1940; The Bile Salt Concentration in Surgical Drainage Bile from Normal and Diseased Livers, ibid. **7:** 464, 1941. Morrison, L. M.: VI. A Simple and Accurate Method for Quantitative Determination of Bile Acids and Salts in Bile, J. Lab. & Clin. Med. **28:** 1503, 1943. Morrison, L. M., and Swalm, W. A.: Two New Tests for Gallbladder Disease, Rev. Gastroenterol. **12:** 175, 1945.

The tests involving only urinary excretions were often made more frequently. It was usually possible to correlate the tests with clinical improvement, although this could not be done in numerous instances due to contradictory results. However, more often than not laboratory correlation between the tests occurred, even though differing tests examined different functions of the liver. On the whole, the tests were found to be a valuable index of clinical improvement when clinically interpreted in the knowledge of their limitations and usefulness.

Table 1.—*Cirrhosis of the Liver Without Ascites*

Comparison of control cases* with treated cases† at the end of two years

	Controls *	Treated †
Number of cases	11	9
Deaths	3	0
Incapacitated from illness	6	3
Return to normal activity	2	6
Disappearance of symptoms	1	7
Improvement in liver function tests	1	9
Alcoholic history	6	4

* Patients treated from 1938 to 1940 with palliatives, high carbohydrate diet, sedatives, diuretics and intravenous dextrose.

† Patients treated from 1943 to 1945 with methionine, choline, high protein, low fat diet, liver extract and vitamin therapy.

RESULTS

1. *Group of Nine Patients Without Ascites* (table 1).—After an average of three months of treatment, 8 patients returned to normal activity. The liver in each of these instances receded to normal limits, with the exception of 1 case. Definite clinical improvement was present in each treated case, with complete disappearance of symptoms in 7 cases and improvement in the remaining 2 cases. Liver function tests were improved in each case from two to four weeks after therapeutic management was instituted. Most of the tests were normal in the 7 cases at the end of five months. A control group of 11 patients with cirrhosis of the liver in whom only palliative measures were employed from 1938 to 1940 revealed 3 deaths at the end of three years. The group of patients treated by the methionine-choline liver extract method revealed no mortality at the end of two years. In the control group of 11 patients the morbidity was revealed as 9 patients who had not yet died at the end of two years but were incapacitated because of illness. In the treated group there were no patients who were disabled at the end of two years.

2. *Group of Nine Patients with Ascites* (table 2).—After an average of four months of treatment, 4 patients returned to normal activity. The livers in these 4 patients receded to normal limits in each case. Complete disappearance of symptoms took place in 4 cases, improvement was present in 5 cases. In 4 patients the disease appeared to be arrested, neither improvement nor progression of the disease occurring. One patient grew worse and died after two months. Liver function tests showed improvement in 5 patients, usually in from two to four weeks after therapy. In the untreated control group of cases, 9 of the 12 patients were dead at the end of two years, as against 1 of the 9 patients in the treated group. In the control group the morbidity incidence was 2 patients who survived but were incapacitated at the end of two years, as against 5 patients in the treated group who survived but were incapacitated.

REPORT OF CASES

Case 1.—*History.*—T. I., a white man aged 54, complained of slight jaundice, dyspnea, decided anorexia and nausea, all of three months' duration. The past medical history revealed an intake of about a half pint of whisky and several bottles of beer daily over a ten year period. Meals were frequently omitted.

Physical Examination.—Essentially a mild but definite icteroid discoloration was present in the scleras and skin. The nutritional appearance seemed normal. The abdomen was not distended, and ascites were not detectable. The liver was enlarged to 3 cm. below the right costal margin, and the liver edge was firm, smooth and tender to palpation.

Liver Function Tests.—The icterus index was 28 units; a twenty-four hour urobilinogen test was positive in a 1:60 dilution; the sulfobromophthalein sodium retention in the blood was 15 per cent at one hour. Bile salt concentration tests (Morrison[14]) revealed 620 mg. of bile salts per hundred cubic centimeters of urine and 280 mg. of bile salts per hundred cubic centimeters of bile (both pathologic).

Treatment.—Two grams each of methionine and choline were given daily in conjunction with 3 cc. of an aqueous liver extract fortified with vitamin B complex for two months. The diet consisted of one average serving of meat with each meal, three times a day; a liberal intake of fruit and vegetables, and skimmed milk between each meal and on retiring.

Progress.—Within two weeks there was a diminution in jaundice, an increase in strength and well-being and disappearance of all symptoms. In two months, all visible jaundice had disappeared and the patient was completely free of symptoms. The values for all liver function tests had returned to normal. The edge of the liver had receded and was about 1 cm. below the right costal margin.

This patient was referred for psychiatric treatment in the attempt to prevent recurrence of the emotional factors which had motivated his escape into alcoholism. For one year following his recovery he has remained in excellent physical and mental health.

Case 2.—*History.*—A. L., a man aged 51, a traveling salesman, was seen four months after the onset of jaundice. There was associated weakness, abdominal distention, pain in the epigastrium and loss of weight. From four to five whisky highballs and several bottles of beer had been drunk daily for many years, and meals were frequently skipped when he was driving on long trips. Immediately prior to the onset of jaundice, the patient had been inhaling the fumes from a special antifreeze mixture, which had been escaping from an overheated radiator while he was driving his automobile on long trips.

Table 2.—*Cirrhosis of the Liver with Ascites*

Comparison of control cases* with treated cases† at the end of two years

	Controls *	Treated †
Number of cases	12	9
Deaths	9	1
Incapacitated from illness	2	5
Return to normal activity	1	4
Disappearance of symptoms	0	4
Improvement in liver function tests	1	5
Alcoholic history	6	5

* Patients treated from 1938 to 1940 with palliatives, high carbohydrate diet, sedatives, diuretics and intravenous dextrose.

† Patients treated from 1943 to 1945 with methionine, choline, high protein, low fat diet, liver extract and vitamin therapy.

Physical Examination.—Evidence of loss of weight was pronounced; pitting edema was present in both legs; the abdomen was moderately distended and displayed shifting dulness with a fluid wave. The collateral venous circulation was clearly visible over the abdomen and lower part of the chest; well defined hemorrhoids were present. The liver could not be palpated because of the distention.

Liver Function Tests.—The icterus index was 40 units; twenty-four hour urobilinogen tests were positive in a 1:100 dilution; the sulfobromophthalein sodium retention in the blood was 25 per cent in one hour. Bile salt concentration tests revealed 940 mg. of bile salts per hundred cubic centimeters of urine and 220 mg. of bile salts per hundred cubic centimeters of bile (pathologic). The total serum protein was 6.75 Gm. per hundred cubic centimeters, the albumin-globulin ratio was 0.8.

Treatment.—This patient was placed on a protein diet as high as could be tolerated (three servings of meat a day), low in fat, high in carbohydrate, high in fruit and vegetable content, with 2 quarts (2.3 liters) of skimmed milk and one serving of cottage cheese daily. Two multivitamin capsules[15] were taken daily; 5 cc. of whole aqueous liver extract was injected intramuscularly daily for one week, then every other day for two weeks, then twice weekly for one month. Two grams each of methionine and choline chloride were taken daily for three months.

Progress.—Within two weeks, decided diuresis began; in two months a negative water balance was present, all evidence of ascites and edema having completely disappeared. The edge of the liver was then just palpable below the right costal margin. In three months all tests of hepatic function had returned to normal values, as well as the serum albumin-globulin ratio (1.9). The patient returned to work and was completely symptom-free; one year later he reported that he was in excellent health.

This patient, who had an alcoholic background, probably suffered a superimposed toxic hepatitis when he *inhaled the toxic fumes of an antifreeze preparation* for a one week period while driving his automobile. His ascites responded promptly by diureses, which were due probably to an antidiuretic factor in the treatment as proposed by various investigators.[1c, g]

SUMMARY

1. A group of 20 patients with cirrhosis of the liver was treated by an intensive combined therapeutic regimen from 1943 to 1945; the results were compared with those in a control series of 23 patients with cirrhosis of the liver observed from 1938 to 1940. The control patients did not receive any of the forms of treatment given to those in the treated group.

2. All 43 patients were separated into groups with and without evidence of portal decompensation or ascites. Therapeutic results were compared over two year periods of time in each group.

3. The treatment consisted of the daily ingestion of 2 Gm. each of methionine and choline chloride, an aqueous whole liver extract with vitamin B complex supplement administered parenterally each day and a diet of maximal protein-carbohydrate, minimal fat intake with casein supplements.

4. After two years all patients in the treated group without ascites were alive, as compared with 3 deaths in the 11 patients of the control series.

5. After two years 8 of the 9 treated patients with ascites were alive, as compared with 3 of the 12 in the control series.

6. Six of the 9 treated patients without ascites had returned to normal activity in two years, as compared to 2 of the 11 in the control group.

7. Four of the 9 treated patients with ascites had returned to normal activity in two years, as compared with 2 of the 12 patients in the control series.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. WEIR, DR. OSGOOD, DRS. GIANSIRACUSA AND ALTHAUSEN, DR. CAPPS, CAPTAIN SBOROV AND DR. BARKER, DR. WILBUR, DR. HAVENS, LIEUTENANT COLONEL MALLORY, DRS. KIMBALL, CHAPPLE AND SANES, DR. HOFFBAUER, DRS. BOLES, CREW AND DUNBAR *AND DR. MORRISON*

DR. CECIL J. WATSON, Minneapolis: I want to congratulate not only the contributors to this symposium but also the officers of the Sections, who planned it. With regard to liver function tests, the two methods which are sufficiently simple that they may be designated as bedside tests should be emphasized. These are (1) the urine Ehrlich test for urobilinogen; and (2) the modified Harrison or barium filter strip test for bilirubin. It has been proved that one cannot rely on any single test or, in fact, on any two tests to give the necessary information from case to case. A composite study must be made of the functions of the liver; one must take a vote of these functions, if you will, and in that way, try to get a better insight into the overall current activity of the liver. Dr. Osgood has already indicated this in his excellent article. I think the urobilinogen test in the urine has received some injustice at the hands of dilution technics which have been widely employed. The test of Wallace and Diamond requires evident color in a dilution of 1:20 in order to be regarded as positive. This eliminates a large number of significant reactions. The use of sodium acetate in the qualitative reaction serves to bring out the maximum intensity of color and to eliminate certain interfering colors. I would recommend the inclusion of sodium acetate in this reaction. Dr. Osgood has indicated that the methylene blue test for bilirubin in the urine is simpler but not as reliable as the modified Harrison test. In my experience the latter has been not only simpler but more specific than the methylene blue test; it lends itself admirably to mass usage and is of particular value in the study of a large number of persons with respect to incipient or preicteric hepatitis. In a dynamic disease such as hepatitis, different tests are of different value at various stages of the disease. The experience gained during the war indicates that in the incipient or preicteric stage of hepatitis a study of the prompt reacting serum bilirubin, the urine bilirubin, and the urine Ehrlich reaction permits one to obtain the necessary information in at least a large majority of the cases. In the icteric stage of the disease the Hanger cephalin cholesterol flocculation and the Maclagan thymol turbidity tests, the serum cholesterol, both free and ester fractions, and the urine Ehrlich reaction followed frequently have been of greatest value. In the late, defervescent stage, which offers the greatest difficulty with particular reference to whether the person has actually a latent disease and whether he should be allowed to resume routine activity, one often has to go into more complex and composite types of study. The procedures which have been used to best advantage in this stage are as follows: The serum bilirubin, especially the delayed type, that obtained by subtracting the prompt or 1' fraction from the total; the urine Ehrlich reaction; the Hanger and Maclagan tests; the sulfobromophthalein sodium retention at forty-five minutes after the injection of 5 mg. of the drug per kilogram of body weight; and finally, the twenty-four hour urinary coproporphyrin which appears to be one of the most delicate means of detecting residual hepatic functional impairment.

DR. S. J. GLASS, Los Angeles: This symposium would be incomplete without proper emphasis of one of the functions which, in my way of thinking, is extremely important to reproductive physiology; namely, that one concerned with the inactivation of the sex steroid hormones. There is now ample experimental and clinical evidence, to indicate that a damaged liver will invariably be followed by some damage of the reproductive organs, particularly the testes and the sex accessories. This is probably due to the hepatic failure of steroid hormone inactivation, particularly the estrogens, so that abnormal concentrations of free, biologically active estrogens are available for the induction of gonadal damage, especially in the male. The damage to the sex organs is, in my experience, proportional to the severity and the duration of the hepatic disease. My associates and I reported in 1940 such hormonal observations in the striking syndrome of gynecomastia and testicular atrophy associated with advanced hepatic cirrhosis. Recently our group observed damage of sex organs in rats with experimental cirrhosis. Apropos of this liver-gonadal relationship, Snell and his associates reported in 1945 striking testicular damage in cases with acute hepatitis. Wood in 1946 likewise reported testicular damage in men with acute hepatitis. It is necessary to emphasize this liver-gonadal relationship so that a closer inspection of the patient be made at the bedside as well as at the postmortem table for evidences of pathologic conditions of the reproductive system particularly in the male testes, in the sex accessories and in the breast, in every case of disease of the liver. Where facilities are available, hormone assays for the estimation of urinary estrogens should be carried because the presence of free unconjugated estrogens in the urine is, in our experience, an accurate index of the failure of that particular function of the liver which has to do with the inactivation of the sex steroids. The clinical implications of this particular liver-gonadal relationship are truly legion. I commend their consideration to this group.

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[15] Capsules contained vitamin A 5,000 units, vitamin B_1 3 mg., vitamin B_2 2 mg., vitamin B_6 1 mg., calcium pantothenate 1 mg., niacinamide 20 mg., ascorbic acid 30 mg. and vitamin D 500 international units.

DR. LEON SCHIFF, Cincinnati: I should like to reemphasize the value and practical aspects of hepatic biopsy. At Cincinnati needle biopsy of the liver has been performed in 75 patients, and has been found particularly helpful in the diagnosis of hepatoma and secondary malignant disease of the liver. It was particularly useful in diagnosis in the case of a woman aged 32 who was admitted to the Cincinnati General Hospital with deep jaundice and coma; a clinical diagnosis of acute yellow atrophy was made by the clinicians who saw her. Biopsy of the liver revealed the changes of early obstructive cirrhosis. Two months after the patient recovered from coma and jaundice, laparotomy was performed and a stone was removed from the common duct. A hepatic biopsy specimen obtained at operation still showed the presence of obstructive cirrhosis, but a year later a third biopsy of the liver showed complete restoration of the organ to normal. We have had no serious mishaps in our 75 patients, although, as Dr. Hoffbauer has stated, fatalities have been reported subsequent to the procedure. Recently we encountered an instance of perihepatitis about two weeks after the procedure was carried out, with the perihepatic friction persisting for another week. I should like to ask Dr. Hoffbauer if he has encountered this complication. I should also like to ask if he has used the procedure in the differential diagnosis of jaundice due to hepatitis and that due to tumor or stone in the common duct. Since histologic studies have recently been made in infectious hepatitis, it seems that acquaintance with these changes might be helpful in the differentiation of this disease from jaundice due to neoplasm or to stone in the common duct. I should like to ask Dr. Althausen if he noticed any differences in the intravenous galactose tolerance and response of prothrombin time to vitamin K between the so-called hepatocellular group of hepatitis and the group Dr. Watson has referred to as the cholangiolar type. I believe a fourth of his cases were of the cholangiolar type. I should also like to ask Captain Sborov if he and Drs. Capp and Barker have a practical application of the exercise tolerance test in patients with infectious hepatitis which might be used in civilian practice.

DR. THEODORE L. ALTHAUSEN, San Francisco: I wish to say a few words about the first two papers on the program, those by Drs. Weir and Osgood. The merit of needle biopsies of the liver has interested me but the mortality associated with this diagnostic procedure, even though small, has prevented me and my associates from using it. In reference to Dr. Kimball's remarks about the reduced mortality rate of hepatic cirrhosis during the last five years I want to say that with the beginning of the war a decided drop in admissions of patients with cirrhosis and a reduction in the mortality rate of this disease has been observed at the San Francisco County Hospital. This has not occurred at the University Hospital. A possible interpretation of this difference is that before the war patients with cirrhosis who were admitted to the County Hospital had been able to raise enough money for liquor but had little left over for food. Since the beginning of the war they had enough money for both, with a corresponding improvement in their health. At the University Hospital, where patients from a higher economic level are represented, no such change was observed. To answer Dr. Schiff's question, no difference was noticed in the results of the intravenous galactose test or in the response of prothrombin time to vitamin K administration in the two types of hepatitis which he mentioned.

DR. HARRY SHAY, Philadelphia: I should like to stress the value to be derived from liver function studies in the differentiation of hepatocellular and cholangiolar or other types of obstructive jaundice. In evaluation of liver function tests, especially in jaundice, certain factors must be kept in mind. The multiplicity of the functions of the liver and the dissociation of the effects produced by hepatic damage has been stressed adequately. Another factor mentioned by Dr. Watson has not been appreciated sufficiently, namely that hepatic function is always a dynamic never a static process, and especially so in jaundice. In testing liver function in jaundice, several tests performed early and repeated frequently will overcome these difficulties. An adequate procedure should include two tests primarily affected by obstruction and two by hepatocellular damage. These requirements are met by the cholesterol partition in the blood serum, serum alkaline phosphatase and thymol turbidity tests. The quantitative van den Bergh measures the level of icterus. Total serum cholesterol and phosphatase reflect the effects of obstruction, while cholesterol ester ratio and thymol turbidity tests reflect those resulting from hepatocellular damage. Serum alkaline phosphatase was found to be the most sensitive indicator of obstruction. Striking changes in serum phosphatase levels occur with little or even no alteration in bilirubin level under conditions which cause only slight back pressure in the biliary tree. From a study of the various flocculation tests, the cephalin cholesterol, colloidal gold and thymol turbidity tests, I believe the last named will prove to be the most useful in the differentiation of jaundice. I have been impressed by a persistence of precipitate in the thymol test at eighteen hours in acute hepatitis after return of the reading of the test to normal at one-half hour. I have attempted to quantitate the precipitate by reading the turbidity of the supernatant at the end of eighteen hours. This reading in Maclagen units as the numerator over the half hour reading as denominator establishes a ratio indicating the degree of precipitation. Extremely interesting curves of these ratios can be plotted in the recovery and convalescent periods of patients with acute hepatitis. In my opinion the persistence of such precipitates into the convalescent period is not indicative of continuing hepatic damage provided the ratio continues to approach 100 per cent. Its persistence seems an indication of the time necessary for the serum protein fractions to become completely normal after acute hepatitis. The failure of the ratio to approach 100 per cent may be an indication of continuing damage to the liver even when other liver function tests have returned to normal.

DR. HYMAN I. GOLDSTEIN, Camden, N. J.: I rise to discuss the presentations by Drs. Althausen, Wilbur, Boles and Morrison. In reviewing the modern methods of diagnosis and treatment of hepatic disease, particularly that associated with jaundice, macrocytic anemia, alcoholic cirrhosis, hepatitis and neoplasm of the liver one should recall the early work of the Frenchman Professor Maurice Perrin of Nancy and others of his countrymen. I knew Professor Perrin, and I was on the programs at Vichy, France, in 1932 and in 1937, where I met him while attending the International Congresses on Gallbladder and Liver Diseases. Professor Perrin in 1904, 1905 and 1908 published his reports on "Alcoholic Cirrhosis." He found that liver therapy improved the anemia and the general condition of his patients. In June 1921 I published a paper on "Primary Sarcoma of the Liver" (Internat. Clinics 2:73 [June] 1921) with a Review of the Literature and the report of a case. Fifty-nine cases (primary) were found recorded in the literature (1921). Many of them were associated with cirrhosis or with gallstones. Few, if any, occurred in alcoholic addicts. MacMahon, Murphy and Bates, of Boston, on June 19, 1946 reported a case of primary sarcoma of the liver which in their opinion was caused by the administration of colloidal thorium dioxide for roentgenologic diagnosis and study. This interesting report was presented before the National Gastroenterological Association in New York. In my paper on "Primary Malignant Tumors of the Liver," (*M. J. & Record* **120**:119-123 [Aug. 6] 1924), with report of 12 cases, it was shown that cirrhosis and cancer may coexist without causal relationship (Yeomans). Cirrhosis may precede or follow the growth. However, in Eggel's series some cirrhosis was present in 85.4 per cent. In 69 of 163 cases pronounced cirrhosis was present.

Dr. Leo Lowbeer, Tulsa, Okla.: I should like to bring to your attention another cause for cirrhosis of the liver, namely chronic brucellotic infection. It is known that brucellotic granulomas frequently occur in the liver of inoculated animals. They have also been frequently found in livers of patients with fatal brucellosis at autopsy. I had occasion to biopsy the liver of a patient with osteomyelitis of the ilium bacteriologically proved due to Brucella suis. In this patient there developed symptoms of a cholecystitis, and the surgically removed gallbladder as well as a biopsy of the liver contained a large number of brucellotic granulomas. A similar observation on a hepatic biopsy was reported by Mettier and Kerr. In view of the chronicity of the brucellotic process it is conceivable that this often diffuse granulomatous inflammation of the liver may develop into cirrhosis of the liver. As a matter of fact, Hegler, Habs and others have reported cases of bacteriologically or serologically proved brucellotic infection, in which they could observe the development of a hepatic cirrhosis from an early stage with hepatomegaly and jaundice to a terminal stage with ascites and esophageal varicosities. They spoke of a hepatosplenomegalic type of chronic brucellosis. A review of the reported autopsies on fatal cases of brucellosis shows a certain percentage in which cirrhosis of the liver had developed during the brucellotic infection and death was due to rupture of an esophageal varix or to ascites with wasting.

Dr. Virgil H. Moon, *Philadelphia*: A pathologist has a keen interest in the histogenesis of portal cirrhosis. This tempts me to violate the precedent that the chairman should not discuss items on the program. After years of study on portal cirrhosis, often called the alcoholic cirrhosis, I came to the conclusion that from the point of view of pathology portal cirrhosis is synonymous with chronic progressive hepatitis. Hepatitis which does not become chronic and which does not progress, as the cases of acute hepatitis under discussion today, do not qualify as cirrhosis. The causes of chronic progressive hepatitis will be sought and perhaps found among those agents or conditions which singly or in combination will produce a chronic, progressive, inflammatory process. I agree with Dr. Boles that alcohol is not usually a primary agent. I think that he also endorses the belief that alcohol may act as an important contributory factor and hence may fall into the category of combinations of agents, thereby stimulating or increasing the effect of some other agent which is producing injury to the liver, with chronic inflammation as a result.

Dr. Edwin E. Osgood, Portland, Ore.: I agree with Dr. Watson's comments on the relative merits of the liver function tests mentioned in my paper. I want to reemphasize the importance in interpretation of liver function tests of the time-intensity curves which are graphic representation of the stage of the disease, as determined from the history and serial tests.

Dr. Frederick W. Hoffbauer, Minneapolis: Dr. Schiff has raised the question of the development of perihepatitis at the site of needle biopsy of the liver. I do not recall having observed such a reaction. There is always a small amount of bleeding at the site; some such reaction at that area might well occur. It is more difficult to answer Dr. Schiff's second question: can needle biopsy of the liver be used to advantage in the differential diagnosis of the jaundiced patient? In other words, can one determine from the histologic examination of this small strip of tissue whether the jaundice is due to an intrahepatic obstruction, such as occurs in parenchymal disorders, or is due to the intrahepatic obstruction of a gallstone, a tumor or a stricture of the biliary ducts? I directed this same question to Dr. Iversen of Copenhagen, Denmark, recently. On the basis of his wide experience of over 600 biopsies, Dr. Iversen is in a much better position to judge the value of the procedure in this regard. He stated in his letter that if the patient was subjected to biopsy within the first two weeks of jaundice, one could nearly always differentiate the nature of the obstructive process. This is certainly in keeping with my experience which has been on a much smaller scale. It must be admitted that the strip of tissue is extremely small, and the pathologist may well experience difficulty in interpretation if the specimen for biopsy is taken weeks or months after the onset of jaundice.

Capt. Victor M. Sborov, M. C., A. U. S.: In answer to Dr. Schiff's question about a practical exercise tolerance test, I should like to say that prior to the time the patient is given his exercise tolerance test other criteria for cure must be met. The patient must have completed at least four to six weeks of strict rest in bed and should be completely free of symptoms. There should be present no clinical symptoms, no enlargement of the liver or hepatic tenderness. The last mentioned is the most important. The laboratory tests should be completely within normal limits. Following this the patient is allowed to become slowly ambulatory on the ward over a period of seven to ten days, and if the criteria for cure continue to be met the patient is then allowed to take the exercise tolerance test. In the service I admit that the exercise tolerance test is a lot easier to execute than in civilian practice. There the patient is guided by the reconditioning officer. The first day the test consists merely of a 1 mile hike, the second day a 2 mile hike plus fifteen minutes of calisthenics, the third day a 3 mile hike plus 20 minutes of calisthenics, and so forth, until ten to fifteen days have been completed; the calisthenics consist preferably of liver-jolting exercises, such as a side straddle hop. The civilian patient cannot be followed as easily as the man in the service; however, the exercise test is important, I believe, and should not be overlooked. Its practical execution depends on the ingenuity of the physician. I think such exercises as horseback riding or long walks can easily be performed by the patient. To facilitate the following of the patient by the physician, the patient can be instructed as to the symptoms which will predict a relapse, such as discomfort in the right upper quadrant of the abdomen, flatulence and the other characteristic complaints.

Dr. Tracy B. Mallory, *Boston*: Dr. Watson is going to force me to mention something which I carefully left out, since I consider available evidence inadequate. In all the postmortem material which had been submitted to the Army Institute of Pathology up to the first of December, there was not 1 definite case of cirrhosis which could be attributed to a preceding hepatitis. In the biopsy material the time interval, as Dr. Watson pointed out, was invariably short. Since these cases were studied in an active theater of war, if a man was not able to get back to duty in the course of three or four months he was sent home, so there was no opportunity to observe late cases. In the group were 2 cases which seemed to be cirrhotic. One patient had no characteristic acute attack and the impression was gained that he had a mild cirrhosis before entering the Army. The second patient did have acute hepatitis and two months later showed early fibrosis; on the other hand, all these biopsies were obtained by the peritoneoscope and the possibility of extension of fibrous tissue from the capsule was difficult to exclude. In civilian life I have seen a number of cases of what F. B. Mallory in 1905 called toxic cirrhosis following hepatitis. These patients have survived considerable periods, in 1 instance as long as ten years after the initial episode. Ascites developed, and they required repeated hematemeses, showed enlarged spleens and had all the common symptoms of cirrhosis of the liver. I believe that it is probable that in occasional incidences cirrhosis of this type does follow epidemic hepatitis.

Dr. Stockton Kimball, Buffalo: I merely want to comment on Dr. Althausen's remarks. In my second five-year group of cases occurring during the war, the incidence of cirrhosis was greater than was that of alcoholism; the incidence of avitaminosis and of jaundice was greater than in the previous period.

Dr. Russell S. Boles, Philadelphia: In lieu of accepting your apology, Mr. Chairman, I think we would have to criticize you for shirking your responsibility had you not taken part in this discussion. Dr. Moon is one of the great authorities on this subject. My main purpose is to sound a note of caution against drawing too hasty conclusions and assuming that this disease, portal cirrhosis of the liver, is a disease due to nutritional deficiency. I am hearing that more and more every day, from the students at Philadelphia General Hospital and from interns and physicians. Personally I don't believe it is any more a nutritional deficiency disease than a disease solely due to alcoholism; on the other hand, I want to commend Drs. Morrison, Nemling and Neal as well as many others for the interesting, constructive work they are doing in the treatment of this disease. However, I believe their results are being best achieved in those cases showing fatty dystrophy of the liver in which some degree of reversibility can be attained. In the later stages of portal cirrhosis, when extensive scar formation has taken place and ascites has developed, it is not conceivable to me that parenchymal regeneration can occur, the symptoms subside and the disease be cured or even arrested. I do not believe these patients could grow new liver cells any more than they could grow hairs on a bald head. I can't follow the logic as far as protein is concerned. It was not long ago when it was reported that an excessive degree of animal protein was injurious to the liver. I appreciate that protein in acute disease conditions hastens the regeneration and proliferation of tissue. If a drunk eats an excess of anything, it is protein. He often lives on meat and potatoes. Economics, as Dr. Althausen has pointed out, has little to do with this disease in the East. In a large, 2,500 bed hospital, such as the Philadelphia General, one picks up a considerable knowledge during the years concerning the diet of this class of people. It is the wealthy patients who often show the least intelligence about their diet and who might be more susceptible to these diseases, if diet alone was so much to blame. There is some great unknown factor at work in the etiology of cirrhosis. No one knows why some particular person is going to become an alcoholic addict. Of 10 persons drinking the same amount of alcohol over the same period, some 1 or 2 are doomed to alcoholism. Why? Is it a constitutional predisposition, or tissue susceptibility? No one knows. The same thing with cirrhosis. There may be 100 individuals drinking the same amount of liquor over the same period, and some 1 or 2 of them are going to get cirrhosis. Why?

Dr. Lester M. Morrison, Los Angeles: I wish to thank Dr. Watson for his comments. I would like to emphasize that the best results occur in the treatment of alcoholic cirrhosis; and of these, the best results are obtained in the patients in whom the cirrhosis or the cirrhotic ascites has developed comparatively recently. This may account for the difference in therapeutic results in Dr. Watson's cases, since his etiologic incidence of alcoholism is half that in my cases. He also feels that the methionine content in the high protein diet is such (3 Gm.) as to render unnecessary the administration of synthetic methionine. Bollman, Mann and Magath first showed, by their classic experiments on hepatectomized dogs, that the metabolism of amino acids and the process of deaminization takes place mainly in the liver. I feel that these functions are so impaired in the cases of cirrhosis which I have presented that the liver is unable to metabolize sufficiently for the patient's needs the methionine in the diet. Therefore, until this point is clarified exactly I would prefer to give the methionine and to make certain that the patient receives an adequate supply of methionine. I believe the experimental work on methionine which I have quoted tends to support this belief. I also wish to thank Dr. Boles and Dr. Goldstein for their comments.

STREPTOMYCIN TOXICITY

Reactions to Highly Purified Drug on Long-Continued Administration to Human Subjects

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It is probable that the principal value of streptomycin will be in the treatment of subacute and chronic infections, notably tuberculosis, in which it will be necessary to administer the drug for long periods. Evaluation of the chronic toxicity of the material for human beings is thus appreciably more important than is the case with sulfonamide compounds or penicillin.

The effects of the short term administration of preparations of impure streptomycin to human subjects have been studied both by a number of independent investigators and in a cooperative study under the auspices of the National Research Council.[1] The only observations on long-continued administration of impure streptomycin are those presented in a preliminary report by Hinshaw and Feldman.[2] In their study an average daily dose of 1.5 Gm. of the drug was administered for periods of several or more months. In all the reports there is agreement that in general the impure drug is well tolerated but that occasionally untoward reactions of variable severity occur.

Four general types of toxic reaction have been observed: the so-called histamine reaction, characterized by flushing, headache and an abrupt fall in arterial pressure; various manifestations of anaphylaxis; a neurologic disturbance characterized by vestibular dysfunction and occasionally by deafness,[3] and evidences of renal irritation manifested by cylindruria and occasionally accompanied by impairment of renal function.[4]

It has not been possible to establish whether the observed evidences of toxicity were caused by contaminating substances or were produced by the antibacterial agent itself. There is reason to believe that at least one phenomenon, the so-called histamine reaction, was the

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The study was also aided in part by a grant from the Lederle Laboratories, Inc., Pearl River, N. Y.

A part of the streptomycin was furnished by the committee, and the remainder was generously donated by Chas. Pfizer & Company, Inc., Brooklyn.

Owing to lack of space, this article has been abbreviated in The Journal by omission of tables 1 and 2. The complete article will appear in the authors' reprints.

This investigation was conducted under the direction of the National Research Council Committee on Chemotherapeutics and Other Agents, Dr. Chester S. Keefer, chairman.

1. Rutstein, D. D.; Stebbins, R. B.; Cathcart, R. T., and Harvey, R. M.: The Absorption and Excretion of Streptomycin in Human Chronic Typhoid Carriers, J. Clin. Investigation **24:** 898-909 (Nov.) 1945. Adcock, J. D., and Hettig, R. A.: Absorption, Distribution and Excretion of Streptomycin, Arch. Int. Med. **77:** 179-195 (Feb.) 1946. Buggs, C. W.; Pilling, M. A.; Bronstein, B., and Hirshfeld, J. W.: The Absorption, Distribution, and Excretion of Streptomycin in Man, J. Clin. Investigation **25:** 94-102 (Jan.) 1946. Anderson, D. G., and Jewell, M.: Absorption, Excretión and Toxicity of Streptomycin in Man, New England J. Med. **233:** 485-491 (Oct. 25) 1945. Heilman, D. H.; Heilman, F. R.; Hinshaw, H. C.; Nichols, D. R., and Herrell, E. W.: Streptomycin: Absorption, [illegible] d Toxicity, Am. J. M. Sc. **210:** 576-584 (Nov.) [illegible] lippin, H. F.; Nichols, A., and Wiley, M. M.: [illegible] in Man: Absorption, Distribution, Excretion and Toxicity, Am. J. M. Sc. **210:** 421-430 (Oct.) 1945. Keefer, C. S., and others: Streptomycin in the Treatment of Infections, J. A. M. A. **132:** 4-11 (Sept. 7); 70-77 (Sept. 14) 1946.
2. Hinshaw, H. C., and Feldman, W. H.: Streptomycin in Treatment of Clinical Tuberculosis, Proc. Staff Meet., Mayo Clin. **20:** 313-318 (Sept. 5) 1945.
3. Brown, H. A., and Hinshaw, H. C.: Toxic Reaction of Streptomycin on the Eighth Nerve Apparatus, Proc. Staff Meet., Mayo Clin. **21:** 347 (Sept. 4) 1946.
4. Unpublished observations from this laboratory.

result of an impurity, as it occurred only after the administration of certain lots of the drug and is no longer detectable in the currently available product. Molitor and his associates,[5] however, observed evidences of toxicity even after the administration to animals of "chemically pure" streptomycin (800 micrograms streptomycin base per milligram). The "pure" material was free from the "histamine-like" substance but, when administered intravenously to monkeys in daily doses of 25 mg. per kilogram of body weight or higher, produced "a fatty metamorphosis in the liver and, less often, in the kidney." A transient proteinuria developed in 1 animal which had received 200 mg. per kilogram of body weight a day (three to four times the dose used in clinical practice). The hepatic and renal lesions were apparently reversible. In additional experiments in dogs these investigators noted the appearance of albuminuria and cylindruria after ten to fourteen days' treatment with streptomycin (50 or 100 mg. per kilogram of body weight a day), the purity of which was unspecified. A slight degree of tubular necrosis was observed in 1 dog which had shown severe proteinuria. Changes in gait and posture suggestive of a labyrinthine or cerebellar disturbance appeared in 3 of 5 animals. Molitor and his coinvestigators have emphasized that there is a considerable species-variation in tolerance to streptomycin, as rats, mice and guinea pigs showed no significant pathologic changes after the administration of large doses of the drug for periods of several months.

At present, therefore, it appears that (*a*) in order to realize the maximal therapeutic potentialities of streptomycin the drug must be well tolerated on continued administration for several or more months and (*b*) in order to establish the chronic toxicity of the material for man it is desirable to attempt to define the respective roles of the antibacterial substance and the associated impurities.

Accordingly, an investigation has been conducted in a group of human subjects, who underwent a four month period of continuous therapy with highly purified streptomycin sulfate.

MATERIALS AND METHODS

Streptomycin.—Four lots of streptomycin, each consisting of 1 Kg., were used. In general, an individual lot was administered throughout each month of the study. In the preparation of the individual lots, impure streptomycin (approximately 450 micrograms per milligram) was purified and converted to the crystalline calcium chloride double salt. The crystalline salt was then converted by mild treatment to the sulfate to ensure stability. The results of the relevant biologic and chemical analyses, which were performed in the laboratories of Chas. Pfizer & Company, Inc., are presented in table 1.[6] The final product used in the investigation was at least 95 per cent pure. The material was dissolved in 2.0 cc. isotonic solution of sodium chloride prior to injection, and the p_H of the resulting solution was 6.0.

Subjects.—Sixteen adults with active pulmonary or acute hematogenous tuberculosis were the experimental subjects. The group consisted of 4 Negroes, 11 white persons and 1 Chinese. All the subjects were febrile, and some were critically ill at the time of the institution of therapy. In no instance, however, was there any demonstrable evidence of abnormal renal function or tuberculous involvement of the kidneys. Audiometric examinations before treatment revealed abnormal conditions in only 2 subjects. In these persons nerve deafness with a loss of hearing of 9.3 and 12.6 (Co) and 19.3 and 8.8 (Ir) per cent, respectively, was present.

Subsequent to the present study, an additional 15 patients have been treated with this same preparation of streptomycin for periods shorter than one hundred and twenty days. The pertinent observations made in this group are included and separately indicated in the present report.

Technics.—The streptomycin concentrations in the body fluids were determined by the cup plate diffusion method of Stebbins and Robinson, in which Staphylococcus aureus of the S. M. strain is used as the test organism.[7] The urea clearance was calculated according to the formula of Moeller, McIntosh and Van Slyke,[8] and the plasma proteins were measured by the method described by Kingsley.[9] The sulfobromophthalein sodium retention [10] and the thymol turbidity tests [11] were used in the evaluation of hepatic function. Caloric stimulation of the vestibular apparatus was performed by injecting 2.0 cc. of ice water into the external auditory meatus. The reaction was considered to be normal when the time required for the onset of nystagmus was approximately one fourth as long as the duration of nystagmus.[12] All the audiometric examinations were made on a Maico audiometer in a room which is heavily insulated but not completely soundproof.

Protocol of the Investigation.—The subjects remained in bed throughout the period of the investigation and were observed daily for any evidences of drug toxicity. Immediately prior to the institution of streptomycin therapy the status of renal, hepatic, vestibular and auditory functions was determined by the procedures listed in table 2. Subsequent observations were made at the intervals indicated in the table, and complete neurologic examinations were made each week.

Streptomycin Regimen: Three grams of streptomycin (approximately 45 mg. per kilogram of body weight) was given to each subject daily. The total period of therapy was at least one hundred and twenty days, except for 2 subjects who died on the ninety-ninth and ninety-third days, respectively. The material was administered intramuscularly at three hour intervals, in individual doses of 0.375 Gm. The treatment was absolutely continuous in 13 of the 16 subjects. In the remaining 3 the administration of the drug was interrupted for periods of ten, twenty and eighty-six days.

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[5] Molitor, H.; Graessle, O. E.; Kuna, S.; Mushett, C. W., and Silber, R.: Some Toxicological and Pharmacological Properties of Streptomycin, J. Pharmacol. & Exper. Therap. **86:** 151-173 (Feb.) 1946.

[6] We are indebted to the members of the research staff of Chas. Pfizer & Company, Inc., for the use of these data.

[7] Stebbins, R. B., and Robinson, H. J.: A Method for Determination of Streptomycin in Body Fluids, Proc. Soc. Exper. Biol. & Med. **59:** 255-257 (June) 1945.

[8] Moeller, E.; McIntosh, J. F., and Van Slyke, D. D.: Studies of Urea Excretion: II. Relationship Between Urine Volume and the Rate of Urea Excretion by Normal Adults, J. Clin. Investigation **6:** 427-465 (Dec.) 1928.

[9] Kingsley, G. R.: Determination of Serum Total Protein, Albumin, and Globulin by Biuret Reaction, J. Biol. Chem. **131:** 197-200 (Nov.) 1939; Rapid Method for Separation of Serum Albumin and Globulin, ibid. **133:** 731-735 (May) 1940.

[10] Mateer, J. G.; Baltz, J. I.; Liver Function Tests: General E Appraisal of Comparative Sensi with Particular Emphasis on Intravenous Hippuric Acid Test and Improved Bromsulphalein Test with New Normal Standard, J. A. M. A. **121:** 723-728 (March 6) 1943.

[11] Shank, R. E., and Hoagland, C. L.: A Modified Method for the Quantitative Determination of the Thymol Turbidity Reaction of Serum, J. Biol. Chem. **162:** 133-138 (Jan.) 1946.

[12] Atkinson, M.: Simple Quantitative Method of Testing Vestibular Function, Arch. Otolaryng. **30:** 916-921 (Dec.) 1939.

Absorption and Distribution of the Streptomycin: The concentration of streptomycin in the blood at the end of the three hour interval between injections (charts 1 and 2) ranged between 7 and 30 micrograms per cubic centimeter of serum and was usually between 10 and 20 micrograms per cubic centimeter. Two specimens of pericardial fluid and 1 of pleural fluid, obtained after several days of intramuscular administration, contained amounts of streptomycin approximately equal to those present in the subjects' serum (10.1 to 11.5 micrograms per cubic centimeter). There was no detectable streptomycin in specimens of cerebrospinal fluid withdrawn from 5 subjects after several or more weeks of intramuscularly administered therapy. These values are essentially the same as those reported by other investigators after the use of crude streptomycin.[13]

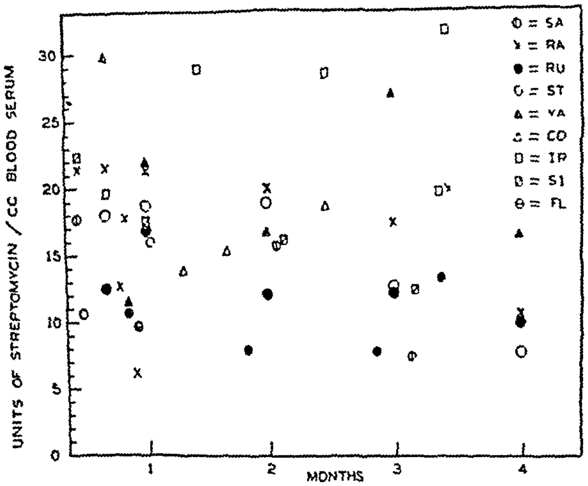

Chart 1.—Serum streptomycin levels. The dosage of 0.375 Gm. was given intramuscularly at three hour intervals. Samples were taken prior to the next three hourly dose.

MANIFESTATIONS OF TOXICITY

Throughout the entire one hundred and twenty day period it was considered advisable to interrupt the therapy of only 2 subjects because of a manifestation of toxicity. In both instances the reactions were anaphylactic in type, and it was possible for both patients to resume treatment subsequently.

Local Irritation.—Despite the administration of the drug at three hour intervals for so long a period, there was remarkably little irritation at the sites of the intramuscular injections. The subjects had all understood that it was planned to terminate the investigation at ninety days. At that time, however, when it was proposed that the investigation be continued for another month, the entire group availed themselves of the opportunity to obtain the additional therapy.

Intrathecal Administration.—Three subjects, who were without evidence of central nervous system disease, were given 0.1 Gm. streptomycin intrathecally dissolved in 10 cc. of isotonic solution of sodium chloride. In 2 of these persons the procedure was well tolerated, and they complained only of a slight headache during the succeeding day. The cerebrospinal fluid cell counts twenty-four hours after the intrathecal injections were 139 and 4 cells per cubic millimeter, respectively. In the third subject the intrathecal administration of the drug was followed by a reaction which was characterized by headache, nausea and vomiting. In this patient the cerebrospinal fluid contained 380 cells per cubic millimeter (95 per cent neutrophils) twenty-four hours after the instillation of the streptomycin. The reaction was complicated by evidences of anaphylaxis, to be discussed subsequently, but the symptoms of meningeal irritation subsided promptly within twenty-four hours.

A fourth subject, who presented minimal evidences of inflammatory disease of the central nervous system, received 0.1 Gm. streptomycin intrathecally in the lumbar region every day for a total period of twenty-eight days. Other than occasional leg pains, which were presumably the result of transient irritation of the nerve roots, the procedure was well tolerated.

Larger amounts of drug (0.2 to 0.375 Gm.) were repeatedly administered by the intrathecal route at forty-eight hour intervals to 6 persons, 5 of whom are not otherwise included in the study. In most instances the 0.2 Gm. dose was well tolerated. Moreover, the 0.375 Gm. dose was also well tolerated in each subject for the first seven to ten days of administration. In some patients among those on each of the two dosage regimens, however, and particularly after the 0.375 Gm. dose had been continued for several weeks, definite evidences of toxicity appeared after the intrathecal injection. The toxic reaction was characterized by somnolence, which at times approached stupor; headache; a slowing of the respiratory rate, and retention of urine. The symptoms usually persisted for twelve to twenty-four hours and then disappeared completely. Nystagmus was noted occasionally during the first few hours immediately after the intrathecal instillation. No sensory changes or persistent sphincteric disorders were observed. Appreciable amounts of streptomycin (4.5 to 17.0 micrograms per cubic centimeter) were always present in the cerebrospinal fluid forty-eight hours after the intrathecal administration of 0.2 to 0.375 Gm. of the drug (table 3). It is possible, therefore, that accumulation of the drug occurred after the repeated intrathecal injections.

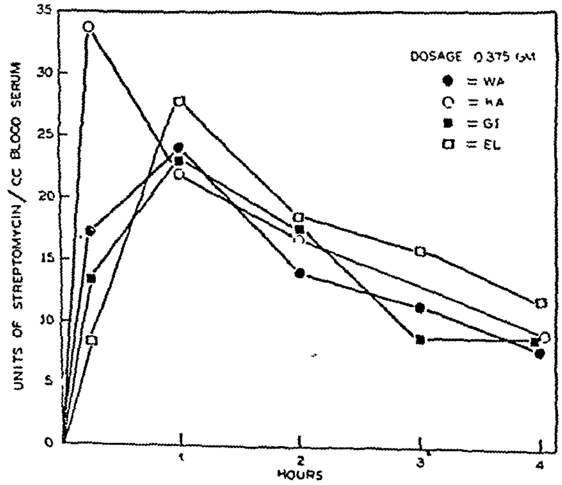

Chart 2.—Four hour absorption excretion tests, showing the concentration of streptomycin in the blood serum.

Manifestations of Anaphylaxis.—In 2 female subjects (Ro, Ra) definite evidences of anaphylaxis developed on the ninth day of therapy. The reactions were similar to those observed after the administration of a number of chemotherapeutic agents, for instance, oxophenarsene hydrochloride, sulfonamide drugs, thiouracil and organic gold preparations. In both women the sensitivity to streptomycin was characterized by: an itching maculopapular eruption over the trunk and extremities; increase in temperature; nausea and vomiting; the development of hypotension when administration of the drug was continued, and eosinophilia. The eruption became purpuric in the area distal to a tourniquet in 1 subject. However, the values for the bleeding and clotting times and for the total number of platelets were all within normal limits. Moreover, when the eruption was fading, application of the tourniquet was not followed by the appearance of purpura.

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[13] Footnotes 1 and 2.

In both subjects the evidences of sensitivity to the drug subsided within one week. During the ensuing weeks the reaction was repeatedly reproduced in mild form by the intramuscular administration of single small (0.037 Gm.) doses of streptomycin. In 1 subject (Ra) it was possible to resume treatment without reaction five weeks after the original institution of therapy. The other subject (Ro) still exhibited evidences of sensitivity at the end of the fifth week but was able to tolerate the standard regimen twelve weeks after the institution of therapy.

TABLE 3.—*Concentration of Streptomycin in the Cerebrospinal Fluid Following Intramuscular or Intrathecal Administration*

Subject	I. M. Only	I. M. and I. T.	Dose I. T., Gm.	Meningitis	Streptomycin Concentration in Cerebrospinal Fluid, Micrograms/Cc.			
Co	+ (after 1 mo. I. T.)	..	.....	+	3.4 *			
Ru	+	..	.....	0	0			
	+	..	.....	0	0			
St	+	..	.....	0	0.4			
					Hrs. after I. T. Streptomycin			
					12	24	48	96
Ru	..	+	0.100	0	....	12.0	....	....
Ram	..	+	0.100	0	....	9.7	....	....
Co	..	+	0.100	+	....	9.5*	....	....
Bu †	..	+	0.100	+	47.0	....	....	....
		+	0.100	+	37.7	....	....	....
Sa	..	+	0.100	+	....	....	9.30	....
Wa	..	+	0.100	+	....	....	10.30	....
Ran	..	+	0.200	+	....	....	20.10*	....
		+	0.200	+	....	....	.....	10.3
Sa	..	+	0.200	+	....	...	9.70*	....
Wa	..	+	0.200	+	....	....	20.60	....
De	..	+	0.375	+	....	....	11.10	....
Ran	..	+	0.375	+	....	....	17.00	....
Sa	..	+	0.375	+	....	....	6.25	....
		+	0.375	+	....	....	4.50	....

* Average of 3 to 6 specimens. † Eighteen month old infant.

On the seventy-fourth day of the second course of therapy there developed in this patient (Ro) a moderately acute synovitis, which involved the proximal interphalangeal joints of the hands and feet. At the time of the appearance of the articular involvement an eosinophilia of over 30 per cent was present. The administration of streptomycin was continued for approximately six weeks after the onset of the synovitis. Despite the continuation of therapy, the clinical evidences of joint involvement steadily diminished but had not entirely disappeared three months after the initial symptoms.

Eosinophilia with Questionable or No Eruption.—Eosinophilia appeared in 14 of the 16 subjects at some time during the one hundred and twenty days of streptomycin therapy (chart 3). A percentage of eosinophilia of 5 or more, on at least two occasions, is designated eosinophilia. In 5 instances the eosinophilia first appeared between the ninth and the twenty-third days of therapy, and in 2 of the 5 subjects the onset of eosinophilia coincided with the appearance of a definite (Ro, Ra) or a questionable eruption. The eruption designated as "questionable" consisted of a minimal itching dermatitis which persisted for only twenty-four hours, and which was usually limited to a single area, such as an antecubital fossa, the anterior part of the chest or the face. In 2 patients a minimal conjunctivitis which persisted for one to two days appeared along with slight itching, but in both subjects the conjunctivitis disappeared spontaneously without any residuum. These phenomena were so mild and ephemeral that it was difficult to relate them with any degree of certainty to the administration of the streptomycin. The first appearance of eosinophilia in the other 9 subjects occurred during the second and the third months of therapy. In 1 patient the eosinophilia appeared on the seventy-fourth day of therapy, ten days after the cessation of the intrathecal administration of streptomycin. The eosinophilia varied from an intermittent phenomenon which was present for one or two weeks at a time to a constant finding which persisted for as long as sixty to a hundred days. In all the subjects the percentage of eosinophils fell gradually to below 5 within four to six weeks after the cessation of therapy.

The magnitude and the course of the eosinophilia in 11 subjects is presented in chart 3. In 7 patients the percentage of eosinophils increased to 10 or more and in 2 instances to 36 or above. Other than the 2 instances of characteristic drug rash and the occasional occurrence of transient pruritus, there were no symptoms associated with the presence of the eosinophilia save for the synovitis which appeared in the 1 subject (Ro). A transient leukopenia (3,000 to 4,000 cells per cubic millimeter) without granulocytopenia appeared in 2 persons at the time of the eosinophilia.

Effects on the Kidney.—Cylindruria appeared in 14 of the 17 subjects at some time during treatment with streptomycin. The onset of the phenomenon was striking in 10 persons, as it occurred within forty-eight hours of the institution of therapy. In the others the excretion of casts did not appear until after four to six weeks of treatment. Granular, hyaline and occasionally cellular casts were excreted. In 3 subjects the casts appeared only infrequently and in minimal numbers. In the other 11 patients, however, the cylindruria was essentially constant as long as the urine was highly acid. The centrifuged specimens of acid urine excreted by these persons usually contained 3 to 5 casts per low power field, and occasionally as many as 15 or 20. At the end of the fourth week of streptomycin therapy, the p_H of the urine of 7 subjects was maintained around 5.0 for a three day period by the oral administration of ammonium chloride. In all 7 subjects there was a sharp increase in the cylindruria, and in 4 instances on several occasions innumerable casts were excreted. When the urine was maintained at a neutral or slightly alkaline p_H (7.0 to 7.5) by the administration of sodium bicarbonate, cylindruria was demonstrable in only 1 subject. In general, throughout the period of the experiment, whenever the p_H of the urine would drop to 5.5 or below, cylindruria would reappear. During the fourth month of the study, the ammonium chloride regimen was reinstituted for a four-day period in 11 subjects of the experiment and in an additional 5 tuberculous patients who were not receiving streptomycin. There was no cylindruria in any of the latter group despite the acidification of the urine. In the streptomycin-treated subjects only minimal and sporadic cylindruria appeared during the three-day period after the cessation of adjuvant alkali therapy. Forty-eight hours after acidification, however, cylindruria appeared in 9 of the 11 subjects.

As the possibility existed that the cylindruria was a phenomenon unique to the particular preparation of streptomycin used, two preparations (streptomycin hydrochloride and streptomycin trihydrochloride calcium chloride complex[14]) of different manufacture were tested in a similar fashion. Cylindruria similar to that observed following the use of the highly purified sulfate was also noted after the administration of these other preparations of streptomycin.

No significant hematuria or albuminuria developed in 15 of the 16 subjects during the one hundred and twenty day period of treatment. Observations on the 1 patient who presented abnormal urinary findings are presented later in detail.

Renal Function.—In 14 of the 16 subjects the values obtained in the determinations of renal function (urea clearance, concentration and dilution and biweekly blood urea nitrogen) all remained within normal limits throughout the period of streptomycin therapy. In 1 person (St) the urea clearance progressively fell from a range of 85 to 100 per cent of normal to 50 to 60 per cent of normal. At no time was there an elevation of urea nitrogen or albuminuria, and this subject was one of the few who never exhibited cylindruria. One patient, however, (Ir, chart 4) manifested definite evidence of impairment of renal function coincidentally with the administration of the drug. This patient was a Negro woman aged 33 with an exudative tuberculosis of the lower lobe of the left lung, which presented the clinical signs of pneumonic consolidation. On entry to another hospital she was believed to have pneumococcic pneumonia, and sulfadiazine and penicillin were administered without obvious effect. The diagnosis of tuberculous pneumonia was subsequently established, and the patient was transferred to the New York Hospital. There was no history of symptoms suggestive of renal disease or previous hypertension, and the blood pressure in millimeters of mercury ranged between 90 and 118 systolic and 55 and 68 diastolic during the experimental period. Previous to the streptomycin therapy the patient had considerable fever, with a maximum daily temperature between 39 and 40 C. (102 and 104 F.). Neither the liver nor the spleen was palpable. The serum albumin ranged between 2.6 and 3.0 Gm. and the values for globulin were between 4.0 and 4.6 Gm., per hundred cubic centimeters. The total erythrocyte count was 3.9 million, with 9 Gm. of hemoglobin. On two occasions during the acute febrile illness, a 2 plus albuminuria without cylindruria occurred, but the other eight pretreatment specimens of urine were all normal. The blood urea nitrogen level was not elevated (10 mg. per hundred cubic centimeters). Immediately prior to therapy, the urea clearance was 97.5 per cent of the average normal value, the maximum specific gravity of the urine was 1.030 and the minimum specific gravity was 1.002. It was believed that the occasional albuminuria was related to the high fever, the hypoproteinemia was a reflection of the long-continued infection and the renal function of this subject was normal. In the light of subsequent events, it is possible that impaired renal function was present before therapy but was masked by increased renal blood flow consequent to the high fever.

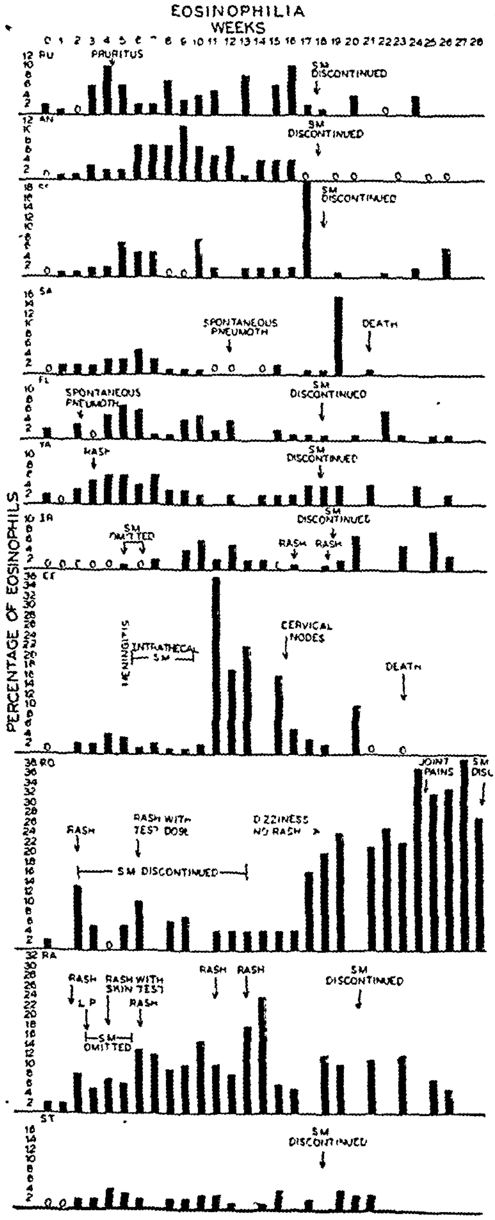

Chart 3.—Relationship of eosinophilia to streptomycin (*SM*) therapy.

Within twenty-four hours of the institution of the streptomycin therapy, albuminuria reappeared and was accompanied by the excretion of 15 to 20 casts per low power field of centrifuged specimens of urine (p_H 5.0 to 6.5). The albuminuria and cylindruria continued throughout the ensuing two month period, including a ten day interval during which streptomycin was not administered. In contrast to that of the other subjects, the cylindruria of this patient could not be eliminated by adjuvant alkali therapy, although the number of casts was considerably diminished when an alkaline urine was excreted.

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[14] The material for this aspect of the investigation was kindly supplied by Merck & Co., Inc., Rahway, N. J.

As may be seen in chart 4, the values for the blood urea nitrogen remained within normal limits until the fourth week of therapy, when a rise to 20 mg. per hundred cubic centimeters occurred. At this time (day 30) treatment was interrupted for a ten day period, during which the blood urea nitrogen fell to normal levels. On reinstitution of streptomycin therapy, the blood urea nitrogen again rose within a week to a level of 24 mg. per hundred cubic centimeters. During the ensuing sixty days of therapy, the values for the blood urea nitrogen fluctuated between 16 and 24 mg. per hundred cubic centimeters. A decrease in renal function, as determined by the urea clearance, accompanied the nitrogen retention. At the end of the first two weeks of treatment the urea clearance had dropped to 62 per cent, and at the end of sixty days of therapy it had fallen to approximately 40 per cent. No impairment of the ablity to concentrate urine was ever demonstrable.

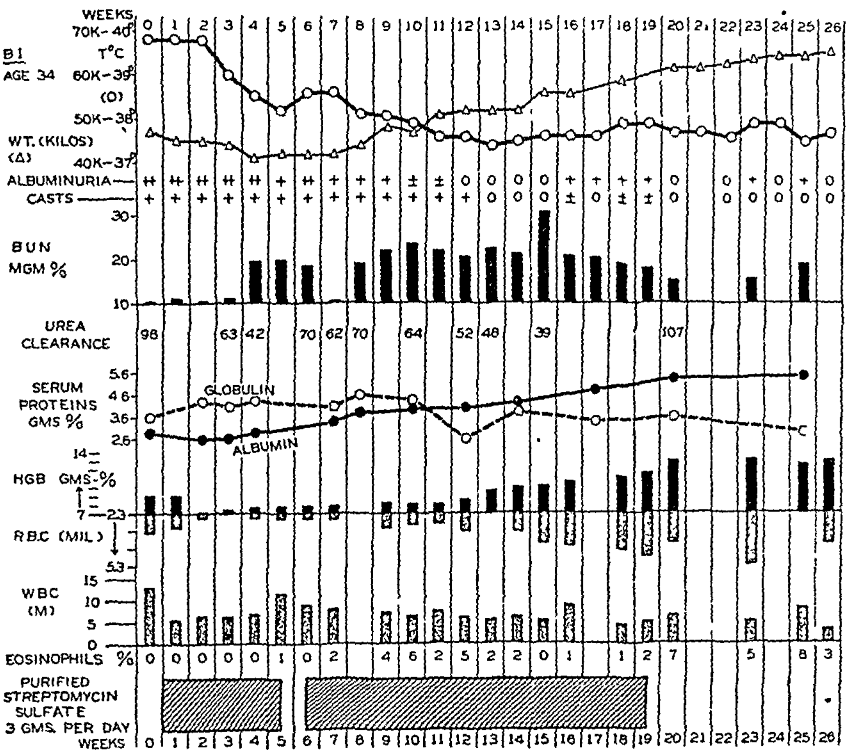

Chart 4.—Course of renal function in patient in whom reversible renal insufficiency developed during streptomycin therapy.

During the third month of observation, despite the continued administration of the streptomycin, the albuminuria decreased and the cylindruria was appreciably diminished. The values for the urea clearance and the elevation of the blood urea nitrogen remained essentially unchanged. Throughout the last thirty of the one hundred and twenty days of treatment, the urea nitrogen in the blood gradually fell to within normal limits, although minimal albuminuria and cylindruria persisted. Shortly after the cessation of treatment, the albuminuria and cylindruria ceased entirely, the value for the blood urea nitrogen was 10 mg. per hundred cubic centimeters and the urea clearance had assumed a normal value (102 per cent). The recovery was maintained during the six week period of subsequent observation. It is conceivably relevant that the arrest and subsequent reversal of the renal insufficiency of this patient occurred during the same period in which her tuberculous pneumonia resolved almost completely.

Histologic Examination.—Three subjects, Co, Sa and Te, had received the highly purified streptomycin sulfate for one hundred and fifty-four, one hundred and forty-two and ninety-three days, respectively, at the time of death. All these subjects had shown a considerable degree of cylindruria at various times during treatment. In all 3 instances gross and microscopic examination of the kidneys at postmortem examination disclosed no abnormalities which were attributable to the streptomycin therapy.

Neurologic Abnormalities. — Vestibular Function: Symptoms of vestibular dysfunction appeared between the seventeenth and the twenty-fifth days of therapy in all 16 subjects. This reaction is characterized by the appearance of a mild headache, which disappears within twenty-four hours and is followed by the development of symptoms which resemble vertigo. The sensations differ from vertigo in that they seem to occur in a linear rather than a circular plane. At the completion of a sudden movement, such as reaching for an object, sitting up or leaning to one side, the afflicted person feels as though the movement was continuing in the same direction in which it had been going. Thus he experiences the sensation either of past pointing or of falling in the direction of the previous movement. Occasionally, a momentary delay in focusing the eyes after a sudden change in position will be noted. At the height of the reaction 1 patient displayed striking pendulum movements, similar to those observed in labyrinthectomized animals. When he assumed the erect sitting position suddenly, he swayed back and forth rhythmically for approximately sixty seconds.

There was a considerable variation in the intensity of the vestibular dysfunction experienced by the different subjects. The reaction was negligible in 6, moderately severe in 8 and severe in 2 members of the group. In 2 subjects in whom the reaction was designated as negligible, the symptoms would occur only after unusually sudden movements; they were fleeting and were predominantly of the ocular variety. In the remainder of the group, however, the symptoms were incapacitating. At the peak of the reaction these subjects were unable to sit up in bed unassisted and with the slightest motion were acutely uncomfortable even when lying flat. They were frequently nauseated, and occasionally they vomited. The symptoms usually persisted in an acute form for seven to ten days and then subsided almost entirely. The disappearance of the acute symptoms occurred with striking rapidity, sometimes within a period of twenty-four hours. In no instance, however, did complete recovery occur with the subsidence of the acute symptoms. Instead, the subjects entered into a phase in which the symptom was absent during ordinary activity but could be evoked momentarily by an unusual stimulus, such as an abrupt shaking of the head. One subject (An) experienced a second attack of acute symptoms after a two week interval during which the sensations were latent. This person's initial attack of vestibular dysfunction was among the severest in the entire group. Although the second attack was of comparable severity, it disappeared within a period of three days.

In general the stage of latent vestibular dysfunction persisted for approximately sixty days and then disappeared. During the fourth month of therapy all subjects except 1 were completely free from these symptoms while reclining or sitting erect in bed. The exception was the man who had shown the "pendulum" movements. His symptoms also had virtually disappeared at the end of the one hundred and twenty day period of treatment. Four of the subjects, however, who were symptom-free while sitting erect in bed, had difficulty in maintaining balance when an ambulatory regimen was resumed. Ataxia was absent as long as these persons could orient themselves visually with any fixed object. A staggering gait was present, however, when they attempted to walk in the dark or with closed eyes. In these particular instances the symptom has not been disabling and has slowly diminished in intensity during the nine months since the cessation of therapy. In no instance was streptomycin therapy interrupted because of vestibular dysfunction.

A noteworthy feature of the reaction manifested by vestibular dysfunction is the fact that nystagmus was seldom encountered. Only 1 patient (Ph) manifested a sustained nystagmus, although in several other subjects fleeting nystagmoid movements of questionable significance were observed. In a patient not included in this series, treated subsequently with the same lots of streptomycin, a rotary nystagmus was observed.

With the particular technic used, it was not possible to demonstrate at the height of the reaction or subsequently an abnormal response to caloric stimulation of the vestibular apparatus in the majority of the group. In the remainder of the persons a definitely sluggish response to caloric stimulation was observed. It is probable that, by the use of more quantitative technics, it would be possible to demonstrate a hypofunction of the vestibular apparatus in most, if not all, persons who experience this reaction to streptomycin.

Cochlear Function: Deafness developed in 2 of the 16 subjects during the period of treatment. The loss of hearing was virtually complete in 1 person and amounted to more than 50 per cent of total hearing in the other. In both instances the deafness appeared after the repeated intrathecal administration of streptomycin for the treatment of tuberculous meningitis. Deafness, virtually complete in extent, has also developed in 3 of 15 patients treated subsequently with the same preparation of streptomycin, but who were not included in the present study. Two of these persons also had received repeated intrathecal instillations of streptomycin for tuberculous meningitis, and the third patient had decidedly impaired renal function. Thus, in a total group of 31 patients treated with the highly purified streptomycin, deafness appeared in 4 subsequent to intrathecal treatment for meningitis and in a fifth who had uremia.[14a]

It was not possible to observe the effect of the cessation of treatment with the drug on the deafness of the 2 patients of the present study because of a fatal outcome of the tuberculous meningitis in both instances. In the patient (Co) in whom a 50 per cent loss of total hearing developed during intrathecal administration, the subsequent administration of streptomycin by the intramuscular route for a ninety day period caused no increase in the deafness.

No tinnitus or impairment of hearing developed during or subsequent to the streptomycin treatment in any other of the 14 subjects. Moreover, in these same persons, repeated audiometric examinations failed to disclose any loss of auditory function in the zones beyond the limits of clinical detection.

Other than vestibular dysfunction or deafness, repeated neurologic examinations of the entire group revealed no abnormal findings during or subsequent to the one hundred and twenty day period of streptomycin therapy.

Miscellaneous Observations.—Anemia did not appear in any of the subjects after the institution of streptomycin treatment. In several persons anemia which was present before treatment disappeared with improvement in the status of the infection.

Leukopenia, without granulocytopenia, appeared in 2 subjects in conjunction with the appearance of a drug sensitivity reaction. In another subject (Ph) leukopenia (2,000 to 3,000 cells per cubic millimeter) developed during the second month of therapy. A relative granulocytopenia was also present. The administration of streptomycin was not interrupted. The leukopenia persisted for approximately sixty days but eventually disappeared. It is doubtful that this phenomenon represented a toxic reaction to the streptomycin. The subject, who is a radiologist, states that his total leukocyte count has "always been very low." Moreover, at the start of streptomycin treatment he was suffering from acute hematogenous tuberculosis.

Thrombocytopenia was never observed. Determinations of the bleeding, clotting and prothrombin times were made on several occasions, but normal values were always present.

There was no evidence that the administration of the streptomycin resulted in any damage to the liver. The values for the retention of sulfobromophthalein sodium were within normal limits before and throughout the experiment in 9 of the 16 subjects. In the remaining persons, all of whom had acute hematogenous tuberculosis, 16 to 36 per cent of the dye was retained (at forty-five minutes) in the test performed immediately before the institution of therapy. Subsequent observations when the acute infection had largely subsided revealed retention values which were within or close to the normal limits. In 11 of the series, the values for the thymol turbidity were within the normal range before and during the period of treatment. Values slightly higher than normal (5.8 to 10 units), observed in 5 subjects, fell to normal as the tuberculous infections improved. Variations in the amount of plasma protein and the respective amounts of albumin and globulin observed during therapy were no greater than could be attributed to the variations in the state of the tuberculous infection.

Visual acuity and the visual fields of all the subjects remained unimpaired during the one hundred and twenty day period of streptomycin therapy.

[14a] Examination of the brains of 4 of these subjects revealed liquefaction necrosis in the ventral cochlear nuclei. Similar changes were noted in the inferior vestibular nucleus in 1 of 2 brains which were studied. These observations are reported elsewhere (Stevenson, L. D.; Alvord, E. C., Jr., and Correll, J.: Proc. Soc. Exper. Biol. & Med., to be published).

COMMENT

From the foregoing observations it is evident that 0.375 Gm. of highly purified streptomycin sulfate administered at three hour intervals for one hundred and twenty days is remarkably well tolerated by tuberculous persons. It is also evident, however, that all the manifestations of toxicity which may occur from the use of impure streptomycin (histamine reaction excepted), have been observed after the administration of the highly purified streptomycin sulfate. The question immediately arises as to whether the observed instances of toxicity were produced by streptomycin per se, by residual impurities in the highly purified material or by a change in the nature of the compound which conceivably might occur during its conversion to the salt. It is unlikely that the sulfate itself is responsible, for identical toxic manifestations have occurred after the use of streptomycin hydrochloride. Moreover, the total daily dose of sulfate (0.6 Gm.) is well within the limits of the tolerated dosage of this substance.

Although the streptomycin used in the present investigation was prepared from crystalline material, it does not necessarily follow that the material was entirely pure. Craig and his fellow workers[15] have amply demonstrated by means of the counter-current differential phase method of extraction that such substances as synthetic antimalarial compounds and crystalline penicillins are by no means single chemical entities. The antibacterial potency of the streptomycin used in the present study coincided with the theoretic potency for pure material. The acute toxicity observed on the intravenous injection of the material to mice (table 1) was not so low as has been occasionally observed from the use of considerably less pure material. However, it has not been established that a correlation exists between the degree of purity of a preparation of streptomycin and its acute toxicity on intravenous administration to mice.[16]

On the basis of the manufacturer's examinations, in which the currently available biologic and chemical technic were employed, it has been determined that the four lots of streptomycin used in the present investigation were all at least 95 per cent pure (table 1). Thus, in the interpretation of the toxic reactions observed in the present investigation, the significance of the less than 5 per cent of adventitious substances present in the streptomycin must receive consideration. It should also be emphasized that the clinical significance of the various manifestations of toxicity can be evaluated at this time only on the basis of a four to eight month period of observation. The possibility exists that toxic reactions now regarded as minor might assume greater importance on long-continued observation.

There are innumerable chemical compounds which on occasion will give rise to manifestations of anaphylaxis on administration to human subjects. Thus, either the antibacterial substance or impurities might have been responsible for the reactions of sensitivity to the drug which were observed in some persons in the present study.

The moderately severe sensitivity reactions which appeared in 2 subjects were clinically similar to those which have been observed after the administration of organic arsenicals, sulfonamide compounds, salts of gold, penicillin, thiouracil and other chemotherapeutic agents. With the streptomycin reactions, as with the similar reactions to other agents (notably arsenic), the duration of clinically detectable sensitivity was self limited. In both subjects it was eventually possible to renew the administration of streptomycin without producing sensitivity phenomena other than the eosinophilia. It is conceivable that, if streptomycin therapy had been continued despite the appearance of the reactions, the ultimate outcome would have been the same. However, from experience with the similar reactions to other agents, it is not unlikely that in some patients, perhaps one half, the continuation of therapy in such circumstances will be followed by more serious anaphylactic phenomena. Therefore, unless the indications for streptomycin therapy are urgent, it seems advisable in the presence of such reactions to interrupt therapy for three to eight weeks or until the period of clinically demonstrable sensitivity to the drug has passed.

The appearance of eosinophilia in 14 of the subjects is a disquieting phenomenon, in view of the work of Rich and others,[17] on the possible association of sensitivity to the drug with the development of diffuse vascular disease. During the period of observation, however, there was only 1 instance of synovitis and none of arthritis, myositis or other symptoms suggestive of diffuse vascular disease. The possibility that the eosinophilia was related to the effect of the drug on the tuberculous infection can neither be affirmed nor denied.

It is probable that the development of cylindruria without other evidences of renal disease is not in itself a reaction of serious clinical significance. This would be particularly the case if it could be demonstrated that the concomitant administration of alkali actually prevents, rather than masks, the phenomenon. The cylindruria presumably results from damage to the epithelium of the proximal convoluted tubules. The reason for this assumption is the fact that these structures were extensively involved in a fatal nephrosis which was presumably attributable to therapy with impure streptomycin.[4] Moreover, in unpublished observations in this laboratory, 1 of 3 dogs which received large doses of impure streptomycin sulfate died in uremia and showed damage to the proximal convoluted tubules on postmortem examination. It should be emphasized, however, that in the lesion produced in the dog glomerular changes were prominent and the tubular lesions were minimal.[4]

If the cylindruria observed in the present investigation arose from the proximal convoluted tubules, it is conceivable that alkalinization of the urine did not prevent the phenomenon but merely facilitated the solution of the casts. If the sole effect of alkalinization were to dissolve casts already formed, however, it would not be anticipated that a change in the p_H of the urine from 6.0 to 5.0 would result in such an increase in cylindruria as was observed in the present study. It should be possible to establish the precise effect of alkalinization on the cylindruria which accompanies streptomycin therapy by suitable experiments in dogs.

The nitrogen retention and reduced renal function which appeared in 1 subject presumably represents a more advanced form of the same process which was characterized only by cylindruria in the other patients. It is possible that this subject had undetectable renal damage prior to therapy. Albuminuria and cylindruria appeared immediately after the institution of streptomycin, the blood urea nitrogen rose, and the urea clearance fell within the ensuing three weeks. Moreover, during the ten day interval (day 30 to day 40) in which no drug was administered, the blood urea nitrogen returned to a normal level although the urinary abnormalities and the reduced urea clearance remained unchanged. During the second two months of therapy, however, in association with a pronounced improvement in the subject's tuberculous infection, the albuminuria and cylindruria virtually disappeared. The results of urinalyses and renal function tests did not become entirely normal until the streptomycin therapy had been discontinued.

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[15] Craig, L. C.; Golumbic, C.; Mighton, H., and Titus, E.: Identification of Small Amounts of Organic Compounds by Distribution Studies: III. The Use of Buffers in Counter-Current Distribution, J. Biol. Chem. **161**: 321 (Nov.) 1945. Craig, L. C.; Hogeboom, G. H.; Carpenter, F. H., and duVigneaud, V.: Separation and Characterization of Some Penicillins by the Method of Counter-Current Distribution, ibid., to be published.

[16] Molitor, H.: The Pharmacology of Streptothricin and Streptomycin, Ann. New York Acad. Sc. **48**: 101-117 (Sept. 27) 1946.

[17] Rich, A. R.: Role of Hypersensitiv[illegible] Periarteritis Nodosa as Indicated by Seven Cases Developing Du[illegible] d Sulfonamide Therapy, Bull. Johns Hopkins H[illegible] 1942. Longcope, W. T.: Serum Sickness an[illegible] from Certain Drugs Particularly Sulfonamides, [illegible] (Sept.) 1943.

Thus, whether the observed evidences of renal damage resulted solely from the drug or represented an effect of the drug on diseased kidneys, it appears that the process was arrested and definite improvement occurred despite the continued administration of streptomycin.

It is probable that the observed effect on the kidney is produced by streptomycin itself and not by an accompanying impurity. If the latter were responsible, it would be necessary to postulate the existence of an unusually nephrotoxic substance. On the regimen used, the total daily dose of "impurities" must have been small, and yet the cylindruria frequently appeared within seventy-two hours of the institution of therapy.

It also appears that the neurologic reaction was produced by the drug and not by associated impurities. Although the degree of vestibular dysfunction observed in the present study was seldom severe, it has not been possible to establish unequivocally that the reaction was uniformly less severe than that produced by streptomycin containing 30 to 50 per cent "impurities."[3] The possibility exists, however, that the highly purified material is less neurotoxic than impure material, and it may subsequently be possible to affirm or deny this hypothesis.

The mechanism by which the vestibular dysfunction is produced is not established. Presumably the site of this action of the drug is centrally situated, as the loss of labyrinthine function is bilaterally symmetric.[18] The reaction may be an intoxication which is reversible up to a point but which results in more persistent damage if the administration of streptomycin is continued. The ataxia produced in dogs by the administration of large doses of impure streptomycin (0.180 Gm. per kilogram of body weight daily) was notably severer in the evening after the last daily dose than in the morning when no drug had been administered for twelve hours.[4] Moreover, in human beings the interval between the institution of streptomycin therapy and the time of the onset of symptoms of vestibular dysfunction appears to be directly related to dosage. On the 3.0 Gm. a day regimen used in the present study the reaction appeared on approximately the twenty-first day. With larger daily doses the reaction has been observed at an appreciably earlier period, and with smaller doses (1 to 2 Gm. a day) it usually has been delayed until approximately the twenty-eighth day of treatment.[18] Although precise observations are not yet available, it appears that the reaction does not become evident at all if a daily dose of 3 Gm. or less is administered for only a short period.

The disappearance of all symptoms of vestibular dysfunction despite the continued administration of streptomycin presumably reflects the activation of compensatory mechanisms rather than the restoration of vestibular function.[18] The duration of the period of depressed vestibular function is not established, but it is possible that the condition may be permanent. In the present investigation complete symptomatic recovery occurred in all subjects. However, if symptomatic recovery is dependent on compensatory mechanisms it is conceivable that the degree of recovery might not always be complete. On the basis of an extensive experience with the clinically available streptomycin, Brown and Hinshaw[3] have suggested that symptomatic recovery may be appreciably less complete in elderly persons.

The fact that, among 31 patients treated with highly purified streptomycin, deafness occurred only after intrathecal administration of the drug or in the presence of well defined renal insufficiency suggests that this reaction may be the result of overdosage. Support for this opinion is afforded by the study of Brown and Hinshaw, in which deafness was observed only after intrathecal administration of streptomycin or in patients who had received a daily dose of 5 to 10 Gm. of the drug by the intramuscular route. In both the Mayo Clinic study and the present investigation the majority of the persons in whom deafness developed during streptomycin therapy were patients with tuberculous meningitis. It is possible that in many instances the meningitis rather than the drug therapy was responsible for the production of the deafness. However, 1 of the subjects of the present investigation in whom total deafness developed had acute hematogenous tuberculosis without any evidence of involvement of the central nervous system.

It is evident that highly purified streptomycin is a chemotherapeutic agent of low toxicity, since it was possible to administer moderately large doses of the drug for such a long period to persons who were seriously ill. It is also evident that the drug is by no means innocuous, for it produces eosinophilia and the symptoms of vestibular dysfunction with uniformity, and, in large doses, may produce deafness.

An evaluation of the toxicity of a chemotherapeutic agent cannot be made with precision without consideration of the particular diseases against which the drug is to be employed. It would seem that the long-continued administration of streptomycin will be employed principally in the treatment of tuberculosis and, less frequently, in acute brucellosis and certain instances of bacterial endocarditis. On the basis of the present investigation it appears that the toxicity of highly purified streptomycin is sufficiently low to justify its long-continued administration to patients with actively progressing tuberculosis and other comparably serious infections. Conversely, it appears that streptomycin should not be employed in the treatment of relatively benign infections, such as recently developed minimal tuberculosis or chronic brucellosis, until the question of possible late effects resulting from the use of the drug can be determined.

SUMMARY

1. An investigation of the toxicity of streptomycin was made in a group of tuberculous subjects, who received 3 Gm. of highly purified streptomycin sulfate daily for one hundred and twenty days.

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[18] Fowler, E. P., Jr., and Seligman, E.: Otic Complications of Streptomycin Therapy, J. A. M. A. 133: 87-91 (Jan 11) 1947.

2. It was necessary to interrupt therapy in only 2 patients. In both instances the reactions to the drug were anaphylactic in character, and it was possible to resume treatment eventually in both subjects.

3. The highly purified streptomycin caused appreciably less irritation at the site of intramuscular injection than did the drug available for general clinical use.

4. The repeated intrathecal administration of 0.1 Gm. of streptomycin was well tolerated. Larger amounts (0.2 to 0.375 Gm.) were well tolerated in some instances but at times produced untoward reactions of a potentially serious nature.

5. Except for the so-called histamine reaction, instances of all of the previously described manifestations of toxicity to streptomycin were observed after the use of the highly purified material. In addition, an intermittent or sustained eosinophilia ranging between 5 and 39 per cent was noted in 14 of 16 subjects.

6. Symptoms of vestibular dysfunction of variable severity appeared uniformly on approximately the twenty-first day of therapy. Complete symptomatic recovery eventually occurred in all subjects. The recovery was presumably a result of the activation of compensatory mechanisms rather than of the restoration of labyrinthine function. It is not possible to establish at this time whether the neurologic reaction observed in this study was less severe than the reactions which have occurred after the use of impure material.

7. Deafness developed in 2 of the 16 subjects in the study and in 3 persons treated subsequently with the same preparation of streptomycin. Four of the instances of deafness occurred after the intrathecal administration of the streptomycin, and the fifth developed in a subject with pronounced renal insufficiency.

8. Cylindruria appeared intermittently in the majority of the subjects, and it was present uniformly when a highly acid urine was excreted. Reduction in renal function appeared in only 2 persons, and in 1 of these the restoration of normal function occurred despite the continued administration of the drug.

CONCLUSIONS

The immediate toxicity of highly purified streptomycin sulfate on long-continued administration is sufficiently low to justify the use of the drug in the treatment of serious protracted infections, such as most forms of tuberculosis. As streptomycin can produce potentially serious toxic reactions, however, it is inadvisable to use the drug in the treatment of generally benign infections, such as recently acquired pulmonary tuberculosis of minimal extent.

Vaccinia.—The virus of vaccinia, although not yet obtained in crystalline form, has been obtained in a state of great purity (McFarlane and others, 1938, 1939; Smadel and Hoagland, 1942). Like the bacteria and the mosaic viruses, the vaccinia virus is composed at least in part of nucleoprotein. In addition, it contains carbohydrate and fat. There is also evidence of the presence of complex enzyme systems (flavine, adenine, dinucleotide, biotin and copper), some of which at any rate are related to respiratory activity of living cells. McFarlane et al. (1939) suggest that the vaccinia virus particles have a loose outer shell of lipoid, a structural arrangement analogous to bacteria.—Van Den Ende, M.: Laboratory Aspects of Some Recent Advances in Medicine, *South African M. J.*, April 26, 1947.

VITAMIN D ("ERTRON") THERAPY IN ARTHRITIS

Treatment Followed by Massive, Metastatic Calcification, Renal Damage and Death

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R. DONALD BECK, M.D.
and
RICHARD D. WISEMAN, M.D.
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Several instances of high potency vitamin D ("ertron") intoxication have been published lately in the medical literature; all patients recovered except 1 infant, who died and whose postmortem findings showed calcification in the renal tubules.[1] To our knowledge the case which we report is the first in which death followed the long-continued use of this preparation by an adult and in which autopsy confirmed the diagnosis of vitamin D intoxication. The case is reported because it further proves the danger of high doses of vitamin D and of the regrettable practice of noncontrolled self medication with some of the vitamins, and because it disproves the unwarranted claim of harmlessness made by some of the manufacturers of high potency vitamin D preparations.

REPORT OF A CASE

First Admission.—A woman aged 63 was admitted to Goldwater Memorial Hospital Dec. 28, 1942. She was badly crippled by a rheumatoid arthritis of thirteen years' duration. In the two years prior to her admission to the hospital she received one hundred injections of a gold preparation with temporary improvement.

Signs of deforming arthritis were found in several joints, predominantly in knees, elbows, wrists and fingers. Roentgenograms of these joints showed a moderately advanced rheumatoid arthritis without any suggestion of calcinosis. Laboratory data, including complete blood count, urinalysis and blood chemistry tests were essentially normal, except for a moderate secondary infectious type of anemia and a trace of albumin in the urine. During her stay at the hospital the patient received routine physiotherapy for the joints involved and afterward roentgen irradiation, which, however, had to be stopped after she became ill with anemia and diarrhea. In July 1943 the patient left the hospital in a somewhat improved condition.

Second Admission.—On July 4, 1945 the patient was readmitted and gave the history that after she left the hospital she went to Arizona for a change of climate. While there, on the advice of her private physician, she started to take daily 150,000 to 200,000 units of vitamin D as "Ertron" capsules (50,000 U. S. P. units each). This she continued for about fourteen months without any improvement. After spending eighteen months in Arizona the patient, on her way to the

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From the Second Medical Division of Goldwater Memorial Hospital.

Because of lack of space, this article is abbreviated in The Journal by omission of part of the text, footnotes and illustrations. The complete article will appear in the author's reprints.

1. Wolf, I. J.: Safety of Large Doses of Vitamin D in the Prevention and Treatment of Rickets in Infancy, J. Pediat. **22**: 707, 1943.

1. (a) Abrams, N. R., and Bauer, W.: Treatment of Rheumatoid Arthritis with Large Doses of Vitamin D: Critical Evaluations, J. A. M. A. **111**: 1632 (Oct. 29) 1938. Slocumb, C. H.: Vitamin D in the Treatment of Infectious Arthritis, Ann. Int. Med. **16**: 241 (Feb.) 1942. Comroe, B. I.: Arthritis and Allied Conditions, Philadelphia, Lea & Febiger, 1944, pp. 498-499. Freyberg, R. H.: Treatment of Arthritis with Vitamin and Endocrine Preparations: Emphasis of Their Limited Value, J. A. M. A. **119**: 1165 (Aug. 8) 1942. Freeman, S.: Irradiated Ergosterol Poisoning, Correspondence, ibid. **119**: 968 (July 18) 1942. Wolf, I. J.: Safety of Large Doses of Vitamin D in the Prevention and Treatment of Rickets in Infancy, J. Pediat. **22**: 707 (June) 1943. (b) McChesney, E. W., and Messer, F.: The Metabolism of Calcium and Phosphorus as Experienced by Various Activated Sterols, Am. J. Physiol. **135**: 577, (Feb.) 1942.

East, consulted a physician in Chicago. He found pronounced symptoms of anorexia and vomiting. He had a series of gastrointestinal roentgenograms taken, with negative results. The patient continued to take the high potency vitamin D preparation after returning to New York until March 1945, when on the advice of another physician she discontinued it. At this time a draining abscess developed on the heel of the patient's right foot, and there was tenderness of the gums and teeth.

Roentgen examination of her teeth revealed many small apical abscesses, and all her teeth were extracted. During the next few months her foot continued to drain, and she then noticed similar areas on the other foot and on the backs of her hands. About three weeks before her second admission her left knee became uniformly swollen. During the last six months she had been extremely weak and had lost about 40 pounds (18 Kg.) because of decided loss of appetite, continuous nausea and frequent spells of vomiting. The patient had complained of severe headaches at the back of her head. She had generalized pruritus for five months without eruptions. She also had a cough productive of brownish sputum. Repeated attacks of frequency and burning on urination also were noted. There was no apparent fever but the patient had occasional chilly sensations.

Physical Examination.—On admission examination showed an emaciated, severely crippled, chronically ill, middle-aged woman, hardly able to move. The skin showed numerous scratch marks but no eruption. There was a tender mass about the size of a walnut, not freely movable, over the anterior portion of the right sternomastoid muscle. A lymph node the size of a pecan was found in the right axilla, and there were several smaller nodes in both inguinal and femoral areas. None of the nodes was tender, all were discrete and freely movable. The extremities showed appreciable wasting with severe articular deformities of the hands, feet, wrists, elbows and knees; all were extremely painful on motion. The fingers were spindle-shaped, the skin shiny. There was a draining abscess in the right heel with a punched out ulceration. Distinct multiple swellings were seen on the backs of the hands and on the dorsal aspect of the left foot. These swellings varied in size from a pea to a walnut, were extremely tender and had a doughy consistency. The left knee showed an exceedingly large uniform swelling. Examination of the lungs revealed essentially normal conditions except for a few moist rales in the left axilla. The heart was normal. The liver and spleen were not palpable. (Aspiration material from the knee is shown on figure 1.)

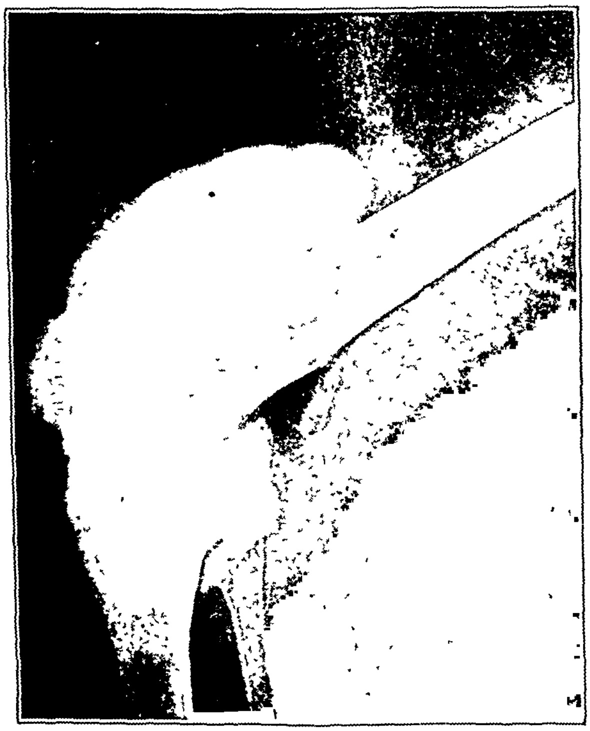

Fig. 2.—Left knee showing massive heterotopic (metastatic) calcification on Aug. 22, 1945. Calcium fills out completely the articular bursae. There are also calcific deposits in the soft tissue adjacent to the articular space. The popliteal artery shows calcification (lateral view).

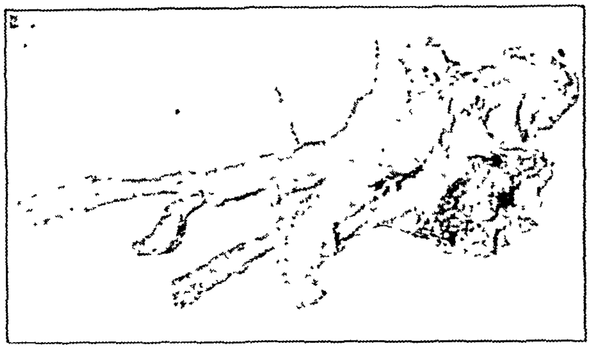

Fig. 5.—Black and white photograph of a "kodachrome" picture taken at autopsy and showing calcinosis of the renal artery.

Laboratory Data.—Examination of the blood on admission was as follows: Red blood cells 2,500,000; hemoglobin 6 Gm., white blood cells 7,800, with a differential count of 77 per cent polymorphonuclears, 12 per cent lymphocytes, 4 per cent monocytes and 1 per cent eosinophils. The urine was clear, yellow and alkaline, with specific gravity 1.012, albumin 2 plus, sugar 1 plus, and occasional epithelial cells in the sediment. The Wassermann test was negative; the level of nonprotein nitrogen was 96 mg., blood urea nitrogen 58 mg. and fasting blood sugar 100 mg. per hundred cubic centimeters. On admission the blood pressure was 125 systolic and 85 diastolic, the pulse rate 96, the respiratory rate 18 and the temperature 99 F.

Course.—Three days after admission the patient became acutely ill and vomited several times but remained afebrile. At this time Staphylococcus aureus was reported in the culture from the draining abscess on the right heel. Incision and drainage of the multiple abscesses was performed, and a biopsy of the lymph node was made. All these showed that the abscesses were not real abscesses and that they and the excised lymph node contained whitish yellow gritty material, which under microscope proved to consist almost entirely of calcium. Biopsy of one of the masses on the back of the left hand showed chronic, nonspecific, productive inflammatory reaction with calcinosis.

Penicillin therapy was started at this time because of the presence of Staphylococcus aureus in the culture.

Most of the roentgenograms of the joints revealed massive deposits of calcium around the articulations, especially in the left knee, where the calcium completely filled the articular bursae, and in the left ankle (figs. 2, 3 and 4).

On August 18 the nonprotein nitrogen was 129 mg. per hundred cubic centimeters, and the patient appeared to be failing rapidly. She was given large amounts of parenteral fluid together with oral ammonium chloride and ammonium mandelate in an attempt to acidify and increase the urinary output. A spinal tap done two days before her death was nonrevealing. The patient refused to eat, became weaker and died in uremia on Sept. 8, 1945.

Subsequent Laboratory Data.—Laboratory examinations following admission showed rapidly rising nonprotein nitrogen levels of 129, 133 and 153 mg. per hundred cubic centimeters, and six hours before her death there was a urea nitrogen determination of 107 mg. and nonprotein nitrogen of 172 mg. per hundred cubic centimeters. The carbon dioxide combining power stayed within normal limits, being 68 per cent and 46 per cent until the day of death, when it dropped to 35 per cent. The total protein was 6.6 mg. per hundred cubic centimeters, with an albumin/globulin ratio of 4.9/1.7. The blood calcium determination on Aug. 31, 1945 was 147 mg. per hundred cubic centimeters, phosphorus 6 mg. per hundred cubic centimeters and alkaline phosphatase 9.6 Bodansky units. The calcium level was 130 mg. per hundred cubic centimeters when the test was repeated one week later just before the death of the patient. Urinalysis continued to show an alkaline urine with a low specific gravity, a persistent albuminuria of 1 to 2 plus and an essentially clean sediment on microscopic examination, except for the large amounts of calcium phosphate crystals.

Final Anatomic Diagnosis.—The final diagnosis was calcinosis involving the joints of the extremities, the sternoclavicular joints, the costosternal articulations, subcutaneous tissue, the myocardium, the lungs, pancreas, parathyroid glands and the iliac and renal arteries. Apart from the calcinosis, the salient points of the gross pathologic diagnosis were: chronic rheumatoid arthritis, rheumatoid valvulitis of the mitral valve, chronic pericarditis with calcium deposits, aspiration lobular pneumonia and pyelonephritis. (The calcification of the renal artery is illustrated in figure 5.)

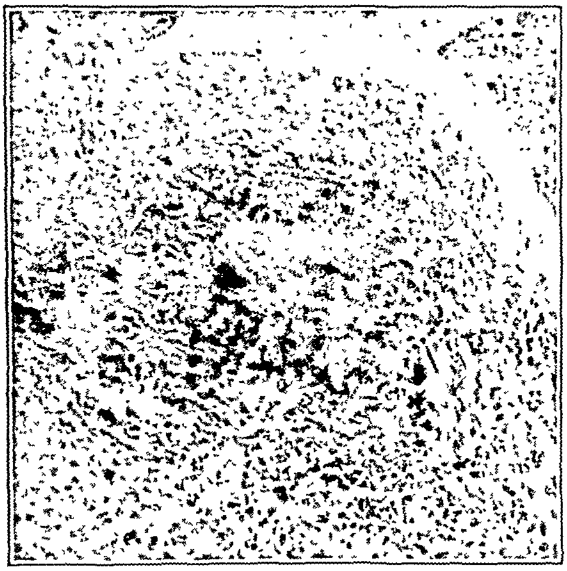

Fig. 6.—Masses of calcified tissue in the myocardium of the left auricle of the heart.

ABSTRACT OF MICROSCOPIC DESCRIPTION

Heart.—In the heart there were large, poorly circumscribed granulomatous lesions replacing the muscle fibers. These were made up of hyalinized connective tissue which was partially calcified, fragmented edematous collagen fibers, fibrocytes and pyknotic nuclear fragments. About some of the calcified areas were bizarre giant cells which appeared to be of the foreign body type. There were also a few Anitschkow myocytes and lymphocytes. These plaques were poorly vascularized, but in the surrounding myocardium there were many dilatated capillaries.

The epicardium of the left ventricle presented a bizarre picture. Over the surface were fragments of an exudate which was fibrinoid and also in a few places appeared partially calcified. There were rows of fibroblasts arranged at right angles to the surface. Elastic tissue stains of the left auricle showed fragmentation and proliferation in the region of the calcified lesions. (Figure 6 shows calcification in the myocardium.)

Lungs.—The alveolar septums of the lungs were greatly thickened by fibrous tissue, and within this were spicules of calcium and giant cells, some of which resembled those cells in giant cell tumors of bone; others were definitely of a foreign body type. There were a number of recognizable bronchi present which were dilatated, and the epithelium of these was partly calcified (fig. 7).

In the midst of solid sheets of fibrous tissue were small areas of granulation tissue and fragmented polymorphonuclear cells similar to those seen in the myocardium.

Renal Artery.—Sections of the renal artery showed large amounts of intimal sclerosis with splitting and reduplication of the internal elastica. There were flecks of calcium throughout the intima.

Parathyroid.—In one of the parathyroid glands there was a small colloid cyst lined by a single layer of flat epithelium. The overall size of the gland was not increased by this. The cell types were not unusual. The other gland was fragmented due to the presence of large amounts of calcium. Other cells were large and multinucleated and placed in the midst of proliferating fibrous tissue (fig. 8).

Kidneys.—Calcium deposits were found in the glomerular capsules. Some of the tubules of the kidneys (fig. 9) also showed calcification.

COMMENT AND SUMMARY

The history, the physical, laboratory, roentgen and pathologic data of this case furnish fairly conclusive evidence that this patient suffered and died of high potency vitamin D, "ertron" intoxication. There were no signs of calcinosis or renal insufficiency at her first stay at the hospital in 1942-1943. At the second admission she had massive calcinosis, extensive renal damage as evidenced by biopsy material, by pronounced hypercalcinemia and azotemia and by roentgen pictures of the affected joints. She died of uremia, and the gross pathologic observations showed massive calcification in and around several joints of the synovial membranes, soft tissues, lymph glands and the renal and iliac arteries.

On microscopic examination extensive deposits of calcium were found in the myocardium, lungs, parathyroid glands and pancreas, in the tubules and glomeruli of the kidneys and in the bronchial epithelium. The only event which occurred between the first and second admissions to which these changes can be attributed was the huge amount of "ertron" (150,000 to 200,000 units daily for about fourteen months) which the patient took for her rheumatoid arthritis.

As to the mode of action of high potency vitamin D intoxication, the experimental data and the evidence presented by this and other cases of vitamin D intoxication seem to indicate that tissue damage sometimes precedes, at other times follows, hypercalcemia. Apparently a vicious circle is created by the vitamin D, in which the higher the blood calcium level (or the greater its fluctuation, according to Ham and Portuondo[9]) the more extensive is the resultant calcification of tissue. On the other hand the more extensive the damage to the kidneys through the calcinosis, the less capable they are of excreting the concentrated calcium from the body fluids; further precipitation of calcium and further damage to the kidneys result.

At least that was the chain of events which occurred in the case reported here.

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[9] Ham, A. W., and Portuondo, B. C.: Relationship of Serum Calcium to Pathological Calcifications of Hypervitaminosis D, Arch. Path. **16:** 1 (July) 1933.

PULMONARY CALCIFICATION IN RELATION TO SENSITIVITY TO HISTOPLASMIN

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It has recently been suggested that in the central eastern region of the United States there is a disease or a group of diseases which closely simulates tuberculosis. This has been indicated by the observation of pulmonary calcification in persons who are negative reactors to tuberculin but in whom the reaction to histoplasmin is positive. Until the past decade pulmonary calcification in the presence of a negative reaction to tuberculin has been considered a manifestation of a disturbance of the allergic mechanism, but the more probable explanation is that there is another disease or group of diseases which account for many instances of pulmonary calcification. That this is a likely possibility is demonstrated by the striking similarity in some instances of coccidioidomycosis to tuberculosis during the active and the end stages of disease.

Christie and Peterson[1] and Palmer[2] have shown a correlation of sensitivity to histoplasmin with pulmonary calcification in tuberculin-negative persons. Emmons[3] and Smith[4] have indicated that sensitivity to histoplasmin may not be specific. Whether the antigen is specific for present or past histoplasmosis is of secondary concern at the moment; of primary importance is the suggestive evidence of a disease which simulates tuberculosis and is apparently benign in many of its aspects. If histoplasmosis were to be considered the major cause of tuberculin-negative pulmonary calcification in the central eastern region of this country, it is evident that histoplasmosis is not necessarily a fatal disease, as had previously been considered.

A survey of student nurses in ten cities throughout this country has demonstrated a close parallel of sensitivity to histoplasmin with pulmonary calcification. In those cities in which pulmonary calcification is seen frequently the number of reactors to histoplasmin is high, and in those cities in which pulmonary calcification appears relatively infrequently the number of reactors is low. There is seen no significant parallel with the reaction to tuberculin. Since many of the student nurses lived for appreciable periods of time in cities other than those in which they train an attempt was made to map those places in which they had spent the major portion of their lives (Palmer[5]). Aside from significant interstate differences in sensitivity to histoplasmin, a definite intrastate variation was shown.

Recent data accumulated from Kansas City, Mo., by Furcolow[6] and his associates suggest that there are only slight differences in sensitivity to histoplasmin by sex and race. The lack of a higher incidence of sensitivity to histoplasmin in the Negro population is noteworthy in view of the known higher incidence of tuberculosis and positive reactions to tuberculin in this group.

ROENTGENOGRAPHIC OBSERVATIONS

To prove the existence of another disease which simulates tuberculosis roentgenologically, it would be necessary to obtain bacteriologic proof in instances of active pulmonary disease and then to follow these cases to an end stage of progressive disease or of healing with or without calcific deposition. A limited number of cases of this type have been studied in Kansas City, Mo., in which the roentgenogram of the chest demonstrated a parenchymal lesion with or without visible enlargement of the mediastinal lymph nodes; in these instances the reaction to tuberculin was negative and that to histoplasmin positive. Mycobacterium tuberculosis was not recovered. Further investigations are being conducted and will be reported on in the future.

With the present lack of bacteriologic proof it is possible to accept tentatively cutaneous testing as a method of directing one's thoughts and efforts toward the solution of this problem. In this respect there has been 1 instance of active disseminated pulmonary disease in a child, discovered in a school survey in February 1945. The skin tests, positive to histoplasmin and negative to tuberculin then, have remained so to the present. Definite evidence of beginning calcific deposition in these lesions was noted in January 1946.

Additional case material has been collected, in which the disease has not as yet progressed to the stage of calcification; in these there has been a small pulmonary lesion frequently associated with demonstrable enlargement of the lymph nodes. Under ordinary circumstances the lesion would be considered reinfection in minimal tuberculosis or a primary complex.

In 3 instances minimal lesions similar to those seen in pulmonary tuberculosis have appeared in persons who were previously negative to tuberculin and histoplasmin, and in whom roentgenograms of the chest had been negative. Within three months after negative cutaneous reactions and roentgenograms, the reaction to histoplasmin became positive and the lesion appeared. Recent follow-up films have indicated a persistence of the lesions for several months, suggesting a tendency to chronicity.

The impetus to the study of these instances of active disease resulted from the discovery of the correlation of tuberculin-negative pulmonary calcification with positive skin tests to histoplasmin. A distinction by roentgenography between tuberculin-positive, histoplasmin-negative calcification and tuberculin-negative, histoplasmin-positive calcification cannot be definitely made at this time. The calcified primary complex, massive hilar calcification and other types may fall in either group. However, disseminated bilateral calcification is more frequently associated with a positive reaction to histoplasmin than with one to tuberculin. High[7] has studied more than 100 instances of this type, including miliary calcinosis, of which approximately 90 per cent were positive to histoplasmin. Among these instances of disseminated calcification, 12 occurred in six pairs of siblings.

SUMMARY

It is probable that a disease other than tuberculosis and coccidioidomycosis accounts for a considerable number of instances of pulmonary calcification in the United

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Read before the Section on Radiology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Christie, A., and Peterson, J. C.: Pulmonary Calcification in Negative Reactors to Tuberculin, Am. J. Pub. Health **35:** 1131-1147 (Nov.) 1945.

[2] Palmer, C. E.: Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin, Pub. Health Rep. **60:** 513-520 (May 11) 1945.

[3] Emmons, C. W.; Olson, B. J., and Eldridge, W. W.: Studies of the Role of Fungi in Pulmonary Disease: I. Cross Reactions of Histoplasmin, Pub. Health Rep. **60:** 1383-1394 (Nov. 23) 1945.

[4] Smith, C. E.: Coccidioidomycosis, M. Clin. North America **27:** 790-807 (May) 1943.

[5] Palmer, C. E.: Geographic Differences in Sensitivity to Histoplasmin Among Student Nurses, Pub. Health Rep. **61:** 475-487 (April 5) 1946.

[6] Furcolow, M. L.; High, R. H., and Allen, M. F.: Some Epidemiological Aspects of Sensitivity to Histoplasmin and Tuberculin, Pub. Health Rep. **61:** 1132-1144 (Aug. 2) 1946.

[7] High, R. H.; Zwerling, H. B., and Furcolow, M. L.: Disseminated Pulmonary Calcification: A Report of One Hundred and Thirteen Cases, Pub. Health Rep. **62:** 20-29 (Jan. 3) 1947.

States. This disease or group of diseases apparently causes sensitivity to histoplasmin. By means of testing with histoplasmin, instances of active pulmonary disease have been discovered in school children in Kansas City, Mo., and in student nurses throughout the country which simulate pulmonary tuberculosis by roentgen examination.

ABSTRACT OF DISCUSSION

Dr. Charles E. Smith, San Francisco: While their approaches and the groups studied have been decidedly different, the results of Christie and Peterson of Vanderbilt and of Palmer and Zwerling of the Tuberculosis Control Division of the U. S. Public Health Service have checked closely. As Dr. Zwerling indicated today, neither group has committed itself to the etiology of the sensitivity to histoplasmin which so convincingly parallels pulmonary calcifications. This conservatism is appropriate, particularly in view of the questions which Emmons has raised regarding possible cross reactions. However, to one safely out of the area, it would appear that the noose is tightening around Histoplasma capsulatum. We are sure that such infections are not acquired in nature in California or other western states. Palmer's reported sensitivity to histoplasmin in California is recognized by him as the result of cross reactions in persons with coccidioidal infections. I am not qualified to discuss the roentgenologic aspects of these pulmonary lesions. A general pattern appears on the way so that statistically one could differentiate tuberculous infection. However, judging from our own experience with coccidioidal infections, exceptions appear with disconcerting frequency. One hopes that in the flush of histoplasmin enthusiasm we may exhibit Dr. Zwerling's caution in our conclusions with respect to our individual patients. Although a patient has histoplasmin (or coccidioidin) sensitivity, a pulmonary lesion may be tuberculous. Tuberculin testing and sputum and gastric cultures, smears and animal inoculations are as important as ever. An additional precaution should be mentioned. The different biologicals should have their individual tuberculin luers unless the syringes are soaked in dichromate cleaning solution after each use. Otherwise, the active principles will be adsorbed and diagnostic chaos result.

Dr. Ray O. Carter, Los Angeles: Drs. Zwerling and Palmer have made a definite contribution in correlating roentgenographically evident, apparently early pulmonary lesions with a negative tuberculin test and a histoplasmin reaction which turned positive and in observing the onset of calcification in such lesions. As they stated, the exact specificity of the reaction to histoplasmin is secondary to the fact that calcifications due neither to tuberculosis nor coccidioidomycosis are present in numerous instances in the lungs. Complete proof may require identification of the organism. However, it appears safe to assume that histoplasmosis or an allied group of diseases is the cause of these calcifications. Pulmonary calcifications due to coccidioidomycosis have been authenticated by Smith and Aronsen and by Butt. No assumption appears to have been made by Palmer or Zwerling or Christie that the residual calcifications of histoplasmosis which are so prevalent are of clinical significance nor has this been shown to be true in coccidioidomycosis. Since they are so considered in tuberculosis, it is important to recognize that many of the calcifications found in roentgenograms of the chest are neither tuberculous in origin or of known present clinical importance. This knowledge would have been extremely useful during the period of assembly of the nation's military forces. However, the roentgenologic military surveys themselves gave an impetus which has furthered the more recent work of Palmer, Christie, Zwerling and others. Pathologic calcifications appear to be largely a sequel to avascularization and focal necrosis. As such they are quite nonspecific. Their significance depends largely on incidentally available distinctive features of their location and appearance and associated immunologic evidence. With fungus infections geographic considerations become important. The policy of most observers in the reporting of pulmonary calcifications appears to be conservative. This is natural, since these may be simulated by vascular shadows. This conservatism has also been furthered by the presumed tuberculous origin of the calcification, which makes one reluctant to identify smaller dubious ones. Under these influences the policy may well have become overconservative. Most physicians have seen pulmonary calcifications proved on incidentally obtained oblique roentgenograms which would have been accepted as vascular shadows on a simple survey film. It is of interest that histoplasmosis, like coccidioidomycosis and other diseases, was first recognized and typed by its severe manifestations and was later revealed to have a large, previously unrecognized substratum of benign involvement and an even broader one of subclinical manifestations. This appears to be true also of tuberculosis. Earlier studies of pulmonary calcifications are now of renewed interest. Conceptions of calcium metastasis of anergic or healed miliary tuberculosis now are less readily accepted, but these also may occur.

Dr. W. Edward Chamberlain, Philadelphia: This is an extraordinarily fine piece of work. In my capacity as Consultant, Division of Tuberculosis Control, United States Public Health Service, I have had an opportunity to follow its development and witness the care with which it has been handled. That it has great practical importance is obvious, for it has answered some questions that have bothered radiologists for thirty years. The authors have reported their observations with commendable conservatism. Perhaps this is necessary in cases in which evidence is circumstantial. But circumstantial evidence can be exceedingly convincing, and in this particular case it seems to me that the conclusions which the authors have suggested are thoroughly justified from every point of view.

Dr. Henry B. Zwerling, Berkeley, Calif.: One statement that did not belong in the paper, in my opinion, is that we have collected a few instances of splenic calcification in tuberculin-negative, histoplasmin-positive children. The only difficulty is that we cannot say just what that observation means because so far all these cases of splenic calcification involve pulmonary calcification. We expect pulmonary calcification in Kansas City, Mo., to be histoplasmin-positive; whether the splenic calcification is evidence of disseminated histoplasmosis cannot be stated.

Clinical Notes, Suggestions and New Instruments

SUBCONJUNCTIVAL HEMORRHAGE DURING THE ADMINISTRATION OF RUTIN

A Report of Two Cases

JOSEPH B. WOLFFE, M.D.
and
A. W. DANISH, M.D.
Philadelphia

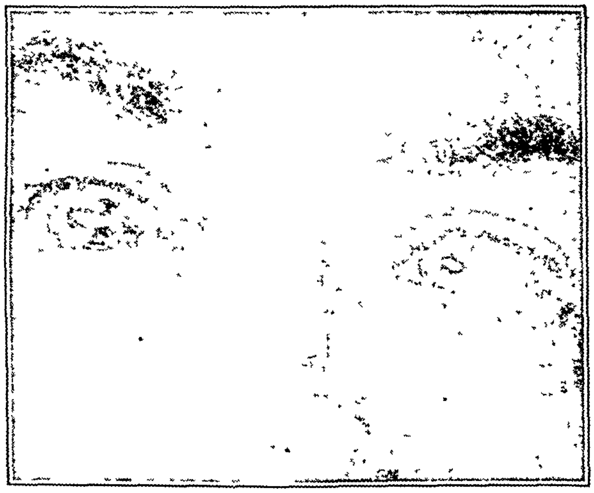
Rutin, a flavone glucoside first isolated in 1842, is found in many plants. Dr. James F. Couch of the Eastern Regional Research Laboratory, United States Department of Agriculture, noting the structural similarity of rutin to hesperidin, advanced the possibility of its use in the treatment of some forms of bleeding. As a result of a series of chemical investigations, he found that the unripe buckwheat leaf gave the highest yield of rutin, and this is the plant from which our present supply is extracted.

Rutin was given in initial doses of 60 mg. daily to a series of 66 patients in the course of a clinical investigation. In the four months during which this study has been followed, in 2 of the patients who were taking the rutin there developed subconjunctival hemorrhages. During the same period, only 1 patient of a much larger group being treated similarly (with the exception that they were not receiving rutin) and for similar conditions has shown this type of hemorrhage.

From the Wolffe Clinic and the Department of Medicine, Temple University School of Medicine.

REPORT OF CASES

CASE 1.—R. G., a dentist aged 46, gave a history of hypertension for fifteen years and of effort angina for one year. When first seen in March 1946 his blood pressure was 210 systolic and 125 diastolic. There was an area suggestive of old healed small hemorrhages in the right retina. The rest of the physical examination and laboratory studies were as expected in a case of long-standing hypertension (on a renal and atheromatous basis) with angina. This patient was started on rutin, 20 mg. three times a day, on March 12, 1946, in addition to other therapy. On April 9, 1946, there developed in his right eye a subconjunctival hemorrhage, which increased in size the following day (see the accompanying illustration). Further history revealed that he had had a similar, but less extensive, hemorrhage several years before A capillary fragility test performed on the day that the hemorrhage developed was well within normal limits (petechial index—Gothlin technic). The blood pressure was 185 systolic and 110 diastolic. In spite of the hemorrhage the dosage of rutin was increased to 50 mg. three times a day. On May 5, 1946 we received a communication stating that a similar hemorrhage had occurred the day before involving the same area. We then increased the rutin to 100 mg. three times a day, and to date there have been no recurrences.



Subconjunctival hemorrhage (case 1) appearing four weeks after start of rutin therapy.

CASE 2.—J. W., a physician aged 50, gave a history of detached left retina ten years previously and venous and arterial thrombosis in the right eye three years before The blood pressure was 145 systolic and 90 diastolic. In February 1946, after taking 60 mg. of rutin in twenty-four hours, a small subconjunctival hemorrhage appeared in the left eye. Nothing of this sort had ever before been experienced by this person. The patient's fragility test was normal. The patient discontinued rutin of his own accord. No hemorrhage has occurred since then.

COMMENT

The fact that hemorrhages occurred in patients whose capillary fragility was normal throws doubt on the relationship between the Gothlin index and the tendency to hemorrhage—at least in this particular type of bleeding. It would indicate that the Gothlin index is no criterion on which to predict this kind of hemorrhage.

In the first case, hemorrhage occurred in spite of the ingestion of 1,700 mg. of rutin within four weeks and recurred four weeks later, after an additional 4,200 mg. of the drug had been taken. When the dose was increased to 300 mg. a day no further hemorrhage occurred.

It is possible that early in the administration of rutin there is a period when there is an increased tendency to hemorrhage—a so-called vulnerable period. There is some experimental evidence for this phenomenon, both in our unpublished work on rutin in animals, and in Majovski's[1] work on hesperidin. This important phase needs further investigation.

Amounts of rutin as high as 60 to 150 mg. daily did not protect the patient in case 1 from subconjunctival hemorrhages. However, when the same patient was given still larger doses of rutin, he did not have further recurrences.

SUMMARY

Two cases of subconjunctival hemorrhage are reported; the first after approximately four and eight weeks of rutin therapy, the second after one day's administration of this drug.

1829 Pine Street.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

AN APPRECIATION

The Council on Physical Medicine desires to take this opportunity to express its feelings of gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during the past year: Drs. Charles A. Bahn, Alvan Barach, Edward Bigg, Raymond Carhart, Milton B. Cohen, Clarence J. Gamble, H. G. Hansson, Le Grande Hardy, John S. Hibben, Alexander Hollaender, Alfred Lewy, A. M. Olsen, Stafford L. Osborne, Howard F. Polley, Scott N. Reger, Henry Schwerma, Khalil G. Wakim, Ralph Waters, Harold Westlake, Lieut. (jg) Eva Thompson and Mr. Luther Ramer.

Artificial Limbs.—Drs. Henry H. Kessler, Paul Klopsteg, Harry E. Mock, S. Perry Rogers, Paul B. Steele, J. B. Korrady, Joseph A. Spievak and David E. Stolpe.

Medical Aspects of Atomic Energy.—Drs. Kenneth S. Cole, L. F. Curtiss, Hymer L. Friedell, Shields Warren and Stafford L. Warren.

Audiometers and Hearing Aids.—Drs. Gordon Berry, Hallowell Davis, E. P. Fowler, W. E. Grove, Isaac H. Jones, Dean Lierle, Moses H. Lurie, Douglas Macfarlan, C. Stewart Nash, Paul E. Sabine and B. R. Shurly.

Contraceptive Devices.—Drs. N. J. Eastman, William W. Greulich, Joseph Hughes, Andrew C. Ivy, Walter J. Meek, Ephraim Shorr and Mr. R. R. Olin.

Educational Work.—Drs. Frances Baker, Robert L. Bennett, Benjamin Boynton, Earl C. Elkins, F. H. Ewerhardt, Richard Kovacs, Fred B. Moor, W. H. Northway, William Schmidt, Walter M. Solomon, Arthur L. Watkins, George D. Wilson and Walter J. Zeiter.

Electrocardiographs.—Drs. A. R. Barnes, George Fahr, Harold E. B. Pardee, William D. Stroud, Carl J. Wiggers and Frank N. Wilson.

Electroencephalographs—Drs. Percival Bailey, Edward J. Baldes, Stanley Cobb, Hallowell Davis and Frederic A. Gibbs.

Occupational Therapy.—Drs. Raymond B. Allen, Robert W. Johnson Jr., Winfred Overholser, Howard A. Rusk, William D. Stroud and Francis B. Trudeau.

Ophthalmic Devices.—Drs. Thomas D. Allen, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, Walter B. Lancaster, William H. Luedde, Lawrence T. Post, Avery D. Prangen and Kenneth C. Swan.

Respirators.—Drs. Edward L. Compere, Charles F. McKhann and James L. Wilson.

Roentgen Rays and Radium.—Drs. William E. Chamberlain, Arthur C. Christie, Edwin C. Ernst, Gioacchino Failla, Fred M. Hodges, Robert R. Newell, Eugene P. Pendergrass, Ursus V. Portmann, Lauriston S. Taylor and J. L. Weatherwax.

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[1] Majovski, G. J., and others: Vascular Fragility and Permeability as Influenced by Various Agents, J. Pharmacol. & Exper. Therap. 80: 1-7, 1944.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - : Eight dollars per annum in advance

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SATURDAY, JUNE 21, 1947

THE CENTENNIAL SESSION

The great convention celebrating the one hundredth anniversary of the establishment of the American Medical Association held in Atlantic City last week, for which the Board of Trustees, the Centennial Committee and the headquarters staff of the Association had planned so long and so carefully, surpassed every hope and expectation. Those who were fortunate in attending this great session will long remember it as an epoch marking occasion.

Attendance

The registered attendance—15,667—represents by far the largest assemblage of physicians ever held anywhere in the world. When it is realized that the number includes about one in four of the Fellowship of the Association, who were the only physicians eligible to register except for foreign guests, the number of those attending is all the more remarkable. As a result of this tremendous registration, every one of the scientific sections and every exhibit had the continuous participation of a capacity audience. Indeed from some of the meetings and special functions it became necessary to turn away hundreds or even thousands of visitors.

Dinner for Associated Organizations

In The Journal of June 28 will appear the papers of Mr. Henning W. Prentis Jr. and Mr. Basil O'Connor, which were read to the audience at the dinner honoring the industries, the organizations and the professions associated with medicine. These addresses speak for themselves. Their significance was recognized. These pronouncements by great leaders in American industry and philanthropy will unquestionably be effective in indicating to the public the importance of the American way of life for the advancement of medical science and medical practice. In his extemporary address General Omar Bradley paid tribute to the contributions of the medical profession toward the winning of the war and in the great task of salvaging the wounded and the disabled in our military forces.

Religious Services

On Sunday morning, June 8, the National Broadcasting chain spread to the nation addresses by three great religious leaders, the Rev. Ralph Cooper Hutchison, President of Lafayette College, Easton, Pa.; Rabbi Joshua Loth Liebman of Boston, and Monsignor Fulton J. Sheen of Washington, D. C. These sermons were classical. After the broadcast the speakers delivered more extended addresses in the great convention hall. Here they spoke so eloquently, so beautifully and with such sincerity of the partnership that prevails between the minister of faith and the minister of healing that many of those who heard the addresses considered the occasion the outstanding event of the entire session.

The Centennial Stamp

On Monday morning a hoard of philatelists descended on Atlantic City to be present at the opening day's sale of the centennial stamp issued through cooperation of Postmaster General Robert E. Hannegan and the Post Office Department. The Journal in a recent editorial told the story of this stamp. Thousands of first day covers were made available, and this reminder of the services that the doctor gives was spread into every state. The Post Office Department issued 125,000,000 stamps. In the official presentation of the stamp by Assistant Postmaster General Joseph Lawler at the dinner of the House of Delegates on Monday night, Mr. Lawler stated that postmasters throughout the United States had ordered 80,000,000 of the stamps; 2,000,000 had been ordered for distribution in Atlantic City. This, he said, was apparently one of the most popular issues of stamps for special occasions developed by his department.

Exhibits

Unquestionably first in recognition by Fellows of the Association and by guests from all the countries of the world was the Scientific Exhibit. The mere listing of these exhibits or a reading of the descriptions of the exhibits which received the awards cannot convey the completeness, the elaborate character or the high scientific quality of these demonstrations of medical progress. Again and again those in attendance expressed the wish that these might be available throughout the year for graduate study in all parts of the country. Some of the foreign guests were amazed to learn that most of the exhibits would be shown merely for the one week at the annual session and would then not appear again. From the opening to the closing each day throngs of interested observers occupied every inch of available space at the exhibits and in the aisles.

The industries associated with medicine which provided the technical exhibits were also unanimous in their tribute to the arrangements and to the quality of the session. Many had failed to anticipate the immense audiences and began to exhaust their supplies by the third or fourth day, so that they were compelled to communicate with their home offices for additional samples, registration cards, pamphlets and even pencils. Many of the exhibitors had utilized the occasion to present historical demonstrations of progress in medicine's attack on disease. Possibly a compilation of the illustrations and the histories thus prepared may be gathered for a permanent pictorial history of medical progress.

General Medical Meetings

The great ballroom of the Atlantic City convention hall provides seating for 5,000 to 6,000 persons. The number in attendance on the general medical meetings was sufficient at all times to require that capacity. Such speakers as Florey, Seddon and Pickering no doubt did much to attract the audience, but the panel discussions and the papers reporting recent progress in medicine in many fields repaid many times those who attended.

At one of the sessions on Tuesday those present had opportunity to hear a message delivered in person by the Secretary of War, Robert P. Patterson, and the Assistant Secretary of the Navy for Air, John Nicholas Brown, who then proceeded to speak at a luncheon of the House of Delegates. Here the Secretary of War told of the plans for the advancement of the status of physicians in the armed forces, and the Navy representative discussed particularly the medical problems associated with aviation in war.

Opening Session

Many hundreds were turned away from the opening general session held on Tuesday night, June 10. The capacity audience assembled early to hear the magnificent concert of the Philadelphia Festival Orchestra under the direction of Alexander Hilsberg. Each of the selections was greeted by an ovation. The perfection of the performance is a tribute to the greatness and fame of this musical assemblage. At the conclusion of the concert the orchestra presented a distinct novelty —a march dedicated to the victory at Iwo Jima, composed by the President of the Association, Dr. Edward L. Bortz. Then came the program, which included not only the address of the President on "The Objectives of the American Medical Association," published in THE JOURNAL last week, but also presentation of the distinguished invited guests—more than 60 in number—who had come from all parts of the world, representing scientific progress in various medical specialties, the medical organizations of their countries or their governments. The great hall was decorated with the flags of all nations. The announcement by the chairman of the Board of Trustees, Dr. R. L. Sensenich, that honorary fellowship was awarded to each of these distinguished physicians was greeted by a rising of the entire audience in tribute to our guests.

The Foreign Visitors

As has been mentioned, more than 60 distinguished foreign physicians attended the meeting as invited guests who participated in programs of the general medical meetings and the scientific sections, and also those delegated by the governments of various nations and by the medical associations. Several of the physicians who attended were ambassadors of their governments to the United States. Others held a variety of governmental appointments. During the sessions of the House of Delegates the proceedings were interrupted from time to time for the introduction of these guests. The delegates from the British Medical Association, which included the chairman of their council, their secretary, their editor and the chairman of their Committee on International Relations, presented to the House of Delegates a gavel and a block made from the wood of a tree that had grown in Tavistock Square, now site of the home of the British Medical Association, but formerly occupied by the home of Charles Dickens. It was under this tree that he wrote many of his great novels. The delegate from China presented to the House a scroll painted on silk with a tribute to the advancement of medical science as a result of the efforts of American medicine. Many of the representatives of foreign governments presented brochures and scrolls especially prepared for the occasion. From Denmark came a medical book published in the earliest days of printing; from Switzerland a medal especially designed to commemorate the occasion, and indeed from every representative a special resolution or memorial congratulating the Association on 100 years of medical progress. On June 12 the Medical Services Foundation tendered a luncheon to the invited guests from abroad, at which Dr. Harry Guy Dain of the British Medical Association and Dr. Sven Forssman, representing Sweden, spoke of the importance of international relations in the advancement of medical care.

During the session, the House of Delegates approved participation of the American Medical Association in the World Medical Association and also cooperation with the Pan-American Medical Federation. Thus the Centennial Session served to give great impetus toward international relationships in medical science.

Again at the President's reception on Thursday night our distinguished foreign guests stood in three great reception lines, where visitors to the convention had opportunity to shake them by the hand, to meet them personally and to exchange a few words of personal greeting.

Scientific Sections

The program of the scientific sections was printed in the Convention Number of THE JOURNAL, May 3, and no doubt did much to attract the tremendous number of physicians who attended the meetings of the sections. Each of the scientific programs included at least one representative of a foreign country, several included two or three, and in addition an address delivered by a great leader of American medicine on one hundred years of progress in the specialty concerned. There were several symposiums and joint meetings of sections. More than 2,000 physicians attended the panel discussion on "Recent Advances in Treatment," which was a joint meeting of the Sections on Internal Medicine and Experimental Medicine and Therapeutics, this being held on the concluding day of the session. The great audience sat for several hours and submitted hundreds of questions, which were answered by the eight leaders in the field of medicine who participated in the panel.

President's Reception

Distinctive for the President's reception at this convention was the participation of two "name" orchestras, those of Tommy Tucker and Eddie Lane, who provided music alternately and continuously to a vast and colorful assemblage of physicians and their ladies. The three reception lines which greeted the visitors included a representative of the local committee and respectively the retiring President, the President and the President-Elect of the Association and of the Woman's Auxiliary. Included also, as has already been mentioned, were the invited guests of distinction and their wives. Testimony to the pleasure of the Fellows of the Association in meeting personally these representatives of American and foreign medicine was the length of the queues which formed and which for hours passed from one line to the next.

Fraternity, Alumni and Honorary Dinners

Throughout the session, but particularly on Wednesday and Thursday nights, dinners were held by alumni associations of our great medical colleges, by the great medical fraternities and by various honorary societies and other organizations, which attracted great numbers of convention visitors. One dinner of note was that given by the Passano Foundation to the officers and trustees of the Association, at which the Passano Award was given to Selman Waksman for his discovery of streptomycin and at which tribute was tendered to him by Sir Howard W. Florey. The dinner of the alumni association of Jefferson Medical College attracted between 600 and 700 guests. Alpha Omega Alpha at a dinner attended by hundreds conferred honorary membership on the invited guests. Many of the great industrial groups associated with the medical profession provided cocktail parties, receptions and dinners during the week. The W. B. Saunders Company tendered a dinner to the Board of Trustees and officers of the Association, at which there was an official presentation of the History of the Association, which they have published. Mead Johnson & Company provided a great dinner to celebrate awards for the exhibits of art, including painting, etching and sculpture.

Woman's Auxiliary

The Woman's Auxiliary of the American Medical Association now has more than 30,000 members. It has a potentiality for service to the American Medical Association in the field of public relations which will no doubt be utilized to the utmost in future plans. During the Centennial Celebration the organization held frequent meetings, luncheons and dinners distinguished by fine programs and maximum attendance. The headquarters of the Woman's Auxiliary is now permanently established in the headquarters office of the Association, and the Board of Trustees has planned for regular conferences with the directing bodies of the Auxiliary for complete coordination of effort.

Publicity—Press and Radio

Throughout the annual session there were broadcasts over the national chains and over local stations which kept the nation constantly aware of the great centennial meeting. At the Monday night dinner of the House of Delegates the Mutual Broadcasting System duplicated one of the broacasts in its series on "Stephen Graham: Family Doctor." The American Broadcasting Company provided a nationwide broadcast descriptive of the exhibits in which the President of the Association and the editor described the technical and scientific expositions. The chairman of the Board of Trustees, the President of the Association, Dr. Bortz following his inauguration and many others spoke at various times over nationwide networks. Some of the addresses will be published in forthcoming issues of *Hygeia.*

The press representatives were tendered a luncheon on the Saturday preceding the session, at which time they were provided with abstracts of the most important papers and with information concerning the special functions of the week. All were invited to attend the dinner to the associated industries and professions. Two press rooms were in continuous operation—one in the convention hall and the other in the Traymore Hotel, which housed the meetings of the House of Delegates. Daily articles were spread throughout the nation by representatives of the Associated Press, United Press, International News and by syndicated writers, as well as by individual representatives of many great newspapers and news magazines. Many periodicals of national circulation have celebrated the centennial by pictures related to the medical profession on their covers and by feature articles.

House of Delegates

Unfortunate perhaps were members of the House of Delegates, who were continuously in session from June 9 through June 12 except for one morning, at which time, incidentally, at least half of the membership of the House were occupied in reference committees. Such flavor of the session as they were able to gather was dependent on the visits to the House of Delegates by the distinguished invited guests and by the functions which took place at night. The problems most prominently confronting the House of Delegates concerned the future of the general practitioner, the reorganization of staffs of hospitals to provide for a service in general practice, the utilization of the total medical profession for any future military emergency, plans for the promotion of voluntary insurance against the costs of sickness and hospitalization, the provision of a supplemental meeting of the House of Delegates during the winter months and in association therewith a two day single general session designed particularly for the general practitioner, this to be arranged under the joint auspices of the Board of Trustees and the Council on Scientific Assembly. Using the technic of the propagandists Senator James E. Murray tried to divert the publicity interest from the advancement of medical science to his campaign for socialization of medicine. With the ineptness characteristic of the actions of this group the mass of publicity material sent to Atlantic City came directly into the hands of officers of the Association. The House of Delegates replied to Senator Murray unanimously, expressing again its opposition to his proposals. So comprehensive is the work of the American Medical Association that the reference committees charged with the report of the Board of Trustees and the Secretary, with the recommendations of the officers and with medical legislation and public relations took the entire available time of the members of the reference committees charged with examination of reports and action on resolutions in this field. Special reports on rural health, on convalescent care and that of the Committee on Emergency Medical Service were long and detailed and occupied many hours of time of members of the House. The executive session was concerned particularly with the final report of an interim committee on the public relations of the American Medical Association.

The proceedings of the House of Delegates will be published in THE JOURNAL during the next few weeks. Readers of THE JOURNAL are advised to follow the text of these proceedings as closely as possible, since the actions taken by the House of Delegates are vital to the further progress of the medical profession. The proceedings include, moreover, the beautiful messages presented to the House of Delegates by the President of the United States, by our invited guests and by officials of our own government.

The History of the Association

Through extraordinary efforts by the publisher, the History of the Association, which includes a general account of its progress, the lives of the presidents with a photograph and a signature for each, and a record of the growth of each of the councils, bureaus, publications and various agencies of the Association, was made available on Monday, June 9. The wide distribution of this work to libraries and to the public generally throughout the world will serve as a permanent memorial of one hundred years of progress of the American Medical Association. During these one hundred years the Association has reached in membership and in fellowship, in the number and quality of its publications, in its councils, bureaus and other departments, in its service to the medical profession, a recognized position of leadership in all the world.

As was said in the opening paragraph of this editorial, the celebration of the centennial was epochal. Fifty-years ago Dr. Nicholas Senn predicted that the one hundredth year would see a membership of perhaps 100,000 and would witness inventions and discoveries beyond the conception of his day. As was said by Dr. Edward L. Bortz, in his president's address, "His vision has proved correct." The centennial celebration brought the message of progress in addresses, in exhibits, in information to the public and in tribute rendered in music, in art, in religion and in science.

FLUOROSCOPIC DIAGNOSIS OF GASTRIC CANCER

In the early stages cancer of the stomach produces few or only slight symptoms. Many, perhaps most victims of gastric cancer do not seek medical advice before the cancer has advanced beyond surgical cure. For various reasons delay in diagnosis often occurs even if the patient is under medical care; in general the prognosis remains distressingly dismal. With the means at hand the only way to change the outlook is removal of the cancer much earlier than is now usual. This means of course that the cancer must be diagnosed in the early stages, even before it causes any symptoms.

The best if not the only practical method of excluding asymptomatic gastric cancer at present is fluoroscopy of the stomach, followed if indicated by x-ray, gastroscopic and other studies, as introduced by St. John, Swenson and Harvey.[1] By fluoroscopy they found 2 cases of early gastric carcinoma and 1 of lymphosarcoma in 2,413 persons in the cancer age, all apparently well and without any obvious gastrointestinal disturbances. In his important article on gastric cancer problems Barrett [2] points out that evaluation of this method will require examination of larger groups than 500 healthy people.

In their review of the diagnosis and the results of surgical excision of gastric cancer, Abrahamson and Hinton [3] urge that routine fluoroscopic and x-ray examinations of persons in the cancer age should be carried out more and more as the only means now available for the presymptomatic diagnosis of cancer of the stomach. Such studies should be included in periodic examinations in military and veteran services, in industries, of applicants for health and life insurance, and as a matter of routine on the hospital entrance of all patients above 40 years of age. They also urge that facilities be made available for fluoroscopy of the stomach of private patients over 40 in all economic groups. This suggestion is of course especially applicable to diagnostic and preventive cancer clinics.

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[1] St. John, F. B.; Swenson, P. C., and Harvey, H. D.: An Experiment in the Early Diagnosis of Gastric Carcinoma, Ann. Surg. **119:** 225 (Feb.) 1944.

[2] Barrett, Morris K.: Avenues of Approach to the Gastric Cancer Problem, J. Nat. Inst. Cancer **7:** 159 (Dec.) 1946.

[3] Abrahamson, R. H., and Hinton, J. William: Gastric Carcinoma: A Comparative Review of the Origin, Diagnosis and End Results in 583 Patients, Surg., Gynec. & Obst. **84:** 481 (April) 1947.

Current Comment

THE PRESIDENT-ELECT, DR. ROSCOE LLOYD SENSENICH

In recognition of his long and outstanding service to the American Medical Association, Dr. Roscoe Lloyd Sensenich was elected by the House of Delegates to the position of President-Elect at the Centennial Celebration in Atlantic City. Dr. Sensenich has been Chairman of the Board of Trustees of the American Medical Association since 1945, has been a member of the Board of Trustees since 1937 and was a member of the House of Delegates continuously from 1931 to 1937. On frequent occasions he has represented the Association in public hearings before committees of Congress. Dr. Sensenich graduated from Rush Medical College in 1905, served internships at the Presbyterian and St. Joseph hospitals in Chicago under Dr. D. W. Graham and Dr. Nicholas Senn, and then did graduate work at medical centers in the United States and abroad. A native of Indiana, he is chief of the Department of Internal Medicine at the Memorial Hospital, South Bend, in which city he has resided for many years. He is a member of the staff of St. Joseph Hospital, president of the board of St. Joseph Tuberculosis Hospital, director of the South Bend Medical Laboratories and was a member of the Advisory Committee on Services to Crippled Children of the Indiana State Department of Public Welfare. He is a specialist certified by the American Board of Internal Medicine, a fellow of the American College of Physicians and a member of the Central Society for Clinical Research. He is a past president of St. Joseph County Medical Society, the Indiana State Medical Association and the Indiana Tuberculosis Association. During World War I Dr. Sensenich was a major in the Medical Corps, serving as chief of the medical service of an army general hospital; during World War II he was a member of the National Committee on Allocation of Medical Personnel to the Armed Forces, of the committee which cooperated with the National Advisory Council on Physical Fitness and of the Advisory Committee of Selective Service. During his incumbency in official positions in the Association Dr. Sensenich has devoted himself enthusiastically to its work. He has traveled widely to speak to state and county medical societies and has participated in conferences with other medical and related organizations and with leaders in many spheres of activity. His report with Dr. Ernest E. Irons on the relation of the roentgenologist, pathologist and anesthesiologist to the work of the hospital was a fundamental document in this disturbing situation. His election to the position of President-Elect is recognition of the efficiency that he has given to every activity in which he has participated.

Roscoe L. Sensenich, M.D.
President-Elect of the American Medical Association

TONSIL STUMPS

Tonsillectomy is the most frequent surgical procedure in the United States. Since it is made in many instances on an ambulatory basis and often by physicians without specialized surgical training, many physicians apparently consider it an operation requiring a minor degree of surgical skill. The results of analysis of the rate of recurrences of tonsillar growth after tonsillectomy indicate that tonsillectomy should command all the respect of a major operation.[1] The incomplete removal of tonsillar tissue and the subsequent formation of infected tonsil stumps are rather common. The Spuths[2] recently reported the presence of tonsil stumps in 80 per cent of 285 tonsillectomized patients. Instead of being relieved through tonsillectomy of their foci of infection, many patients continue to absorb bacteria and toxins from the tonsillar tissue left in the throat and are often systemically much worse off than prior to their operation. While there is drainage of infectious and toxic material from the external surface of the tonsils before tonsillectomy so that only a part of such harmful matter is absorbed into the organism, this route of escape becomes obliterated after tonsillectomy. for the infectious and toxic material contained in the usual tonsil stumps are covered by scar tissue. It is resorbed in its entirety through the lymphatics and veins and may cause, in addition to fatigue, heart palpitations, vague muscular pains, secondary infections and allergic complications in remote organs (polyarthritis, nephritis, endocarditis, asthma, chronic phlebitis). Sometimes the diagnosis of tonsil stumps cannot be made by an inspection of the tonsillar region because the retained tonsil tissue may be buried beneath a thick layer of scar tissue. However, as inflamed tissues, the presence of which is usual with tonsil stumps, are sensitive to pressure, tonsil stumps can be detected with reliability by exerting pressure either directly on the tonsillar scar tissue or externally from the angle of the lower jaw in the direction of the tonsillar fossa. Tonsils when functioning normally are protective organs and should not be removed. Definitely infected tonsils and especially tonsil stumps should be radically removed under general anesthesia and with adequate surgical technic and skill.

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[1] Cooke, R. A.: Allergy in Theory and Practice, Philadelphia, W. B. Saunders Company, 1947, p. 152.

[2] Sputh, C. B., Jr., and Sputh, C. B., Sr.: The Tonsil Stump and Its Removal, J. Indiana M. A. 39: 401 (Aug.) 1946.

DISTINGUISHED SERVICE MEDAL

At the Centennial Session of the American Medical Association in Atlantic City, June 9-13, Dr. Henry Asbury Christian, Hersey professor of theory and practice of physic, emeritus, at Harvard Medical School, Boston, was nominated to receive the citation and the Distinguished Service Medal of the American Medical Association. Dr. Christian was born in Lynchburg, Va., in 1876. After graduating from Johns Hopkins University School of Medicine, Baltimore, in 1900 he was appointed assistant pathologist at the Boston City Hospital and from 1903 to 1907 taught pathology at Harvard Medical School. In 1908 he became Hersey professor of the theory and practice of physic, serving actively until 1939. Dr. Christian was dean of Harvard Medical School from 1908 to 1912. In 1942 he was recalled at Harvard and in 1943 served as clinical professor of medicine at Tufts College Medical School. From 1910 to 1939 he was physician in chief at the Peter Brent Brigham Hospital and from 1907 to 1912 was also physician in chief at the Carney Hospital. He was on the staff of Beth Israel Hospital in Boston, was a major in the medical reserve corps of the U. S. Army from 1918 to 1921, and for one year was resident chairman of the division of medical sciences of the National Research Council. Dr. Christian served the American Medical Association as secretary of the Section on Pathology and Physiology from 1903 to 1905, as chairman of the section from 1905 to 1907 and as a delegate from that section in 1909. In 1916-1917 he was secretary of the Section on Practice of Medicine and a delegate from this section in 1926 and 1927. He was president of the American Society for Clinical Investigation in 1919, of the Interstate Postgraduate Medical Association of North America in 1931 and of the Association of American Physicians in 1935. He is a member of many learned societies both here and abroad and has received honorary degrees from various universities.

Henry Asbury Christian, M.D.
Awarded Distinguished Service Medal

CHEMICAL BURNS OF THE HUMAN CORNEA

On the basis of 500 cases treated for chemical eye burns, McLaughlin[1] has observed that certain chemicals have a delaying action. Such chemical compounds frequently cause a loss of vision due to opacification of the cornea and adhesions of the conjunctiva following a symptom free period of several hours after accidental contact. The most notable observation is change in corneal structure produced by all alkaline and a few neutral organic compounds, but not by acidic compounds or those neutral chemicals which experience shows to be relatively harmless. The change in the corneal structure, as observed with the high power of the biomicroscope, reveals the presence of areas of opacity in the superficial layers of the corneal epithelium. The opaque areas are seen to be stained a faint green by fluorescein when observed by direct illumination. Studies by Carpenter and Smyth[2] suggest that the foreign compound initially is physically adsorbed on protein structures of the corneal epithelium. Following this a portion of the adsorbed chemical denatures cellular protein, resulting in necrosis. The remainder is liberated slowly with its chemical nature unchanged, to diffuse from the original site of adsorption into previously unaffected tissue. Instead of a delaying effect there is therefor progressive action which may spread to involve the entire depth of the epithelium down to Bowman's membrane, at which point irreparable damage to the tissue results. The greater number of the chemicals that behave in this way are alkaline. Attempts at neutralization of the acid substances failed in animal experiments[2] to give any amelioration of injury. The treatment that suggested itself in these cases was denudation or mechanical removal of the involved cells before a progressive action could be initiated. Immediate first aid, followed by long flushing with water and denuding where indicated, gave most gratifying results. Thus, of the 500 cases treated 456 (91.2 per cent) healed in forty-eight hours with no loss of vision; 37 (7.4 per cent) healed slowly but without loss of vision; 7 cases, or 1.5 per cent, healed with a residual loss of vision. McLaughlin emphasizes that this loss of vision was the result of inadequate preliminary care or such complicating factors as infected teeth or tonsils.

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[1] McLaughlin, R. S.: Chemical Burns of the Human Cornea, Am. J. Ophth. **29**: 1355 (Nov.) 1946

[2] Carpenter, C. P., and Smyth, H. F., Jr.: Chemical Burns of the Rabbit Cornea, Am. J. Ophth **29**: 1363 (Nov.) 1946.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 9-13, 1947

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 9

The House of Delegates convened in the Rose Room of Hotel Traymore, Boardwalk at Illinois Avenue, and was called to order at 10:30 a. m. by the Speaker, Dr. R. W. Fouts.

Preliminary Report of the Reference Committee on Credentials

Dr. G. Henry Mundt, Chairman, stated that 143 delegates had registered up to the present time and that the registration was steadily increasing.

Roll Call

The Speaker announced that a quorum was present and requested the Secretary to call the roll, which was done.

Distinguished Service Award

Dr. R. L. Sensenich, Chairman of the Board of Trustees, presented a report of the Board as follows:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees.

In accordance with chapter VI, section 5, of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order: Dr. Isaac Abt, Chicago; Dr. Alfred Blalock, Baltimore, and Dr. Henry A. Christian, Boston.

The Speaker appointed as tellers Dr. J. Wallace Hurff, New Jersey, Chairman; Dr. Mather Pfeiffenberger, Illinois; Dr. Jesse D. Hamer, Arizona; Dr. Guy W. Wells, Rhode Island, and Dr. Francis W. Savage, Minnesota.

The tellers spread the ballot and the Secretary announced that one hundred and fifty-four votes had been cast, of which Dr. Abt received fifty-three, Dr. Blalock thirty-one and Dr. Christian seventy. He added that one hundred and sixty-six delegates had answered the roll call.

The Speaker announced that since no one had received a majority of the votes cast, the House would proceed with a second ballot on which the name of the one receiving the least number of votes would be omitted.

The tellers spread the ballot, and the Secretary announced that one hundred and sixty-three votes had been cast, of which Dr. Abt received sixty-three and Dr. Christian one hundred.

The Speaker declared Dr. Henry A. Christian, Boston, who had received the majority of the votes cast, to be elected by the House of Delegates to receive the Distinguished Service Award of the American Medical Association.

Special Report of Board of Trustees

On request of the Speaker, the House of Delegates by unanimous consent granted permission to the Board of Trustees to present a special communication:

Communication from Dr. Olin West, Nashville, Tenn.: Dr. George F. Lull, Secretary, presented the following communication from Dr. Olin West, former Secretary and General Manager:

June 5, 1947

Dr. R. W. Fouts,
Speaker, House of Delegates,
American Medical Association,
Atlantic City, New Jersey.

Dear Doctor Fouts:

At this time when the American Medical Association is about to celebrate its one hundredth birthday my thoughts are all of the Association and of those who must establish its policies, those who are chosen to administer its affairs and the great body of physicians who compose its membership. The deepest and dearest desires of my heart are all for the continued and unbroken success of the Association in its efforts to serve and promote the great cause for which it has worked unceasingly for a century—the cause of medicine and its service to humanity.

It is one of the greatest disappointments of my life that I am denied the privilege of attending the great Centennial Celebration, of looking in on the meetings of the House of Delegates and of the Scientific Assembly, of viewing the exhibits and of greeting and shaking the friendly hands of many of those whom it has been my pleasure to see at annual sessions year after year.

I cannot refrain from asking you, as Speaker of the House of Delegates, to convey to the members of that body, the officers of the Association, the members of its Councils and Committees and its administrative personnel an expression of my high regard and of my gratitude for their many helpful kindnesses to me during the years when it was my privilege to be associated with them in efforts to carry on the great work of a great organization.

With unswerving adherence to the principle for which the Association has always stood and with steadfast devotion to the highest ideals and the worthiest professional traditions, and through the efforts of those who will succeed the men and women who now are serving and those who have served before them with such devotion, we may all expect with confidence that the next hundred years will be best until the third hundred has been completed.

May the Centennial Celebration be a glorious occasion!

Sincerely yours,
Olin West.

Dr. E. L. Henderson, Trustee, presented the report of a special committee appointed by the Board of Trustees, as follows:

In view of the fact that Dr. Olin West had been elected President-Elect by the House of Delegates at the annual session held in San Francisco in July 1946, and that he served for approximately nine months and was compelled to resign on account of ill health, the committee of the Board recommends that one of the medals presented to retiring Presidents be appropriately engraved and presented to Dr. West.

E. L. Henderson, Chairman.
John H. Fitzgibbon.

On motion of Dr. Louis A. Buie, Section on Gastro-Enterology and Proctology, seconded by Dr. H. B. Everett, Tennessee, and carried, the recommendation of the special committee of the Board was adopted.

It was moved by Dr. E. H. Cary, Texas, seconded by several and carried, that the Secretary be instructed to send to Dr. West a suitable telegram, expressing the sentiment and feeling of the members of the House of Delegates for him and that the telegram be arranged to be sent as a permanent resolution of our gratitude.

Adoption of Proceedings of Supplemental Session in Chicago, 1946

On motion of Dr. George W. Kosmak, New York, seconded by several and carried, the proceedings of the supplemental session of the House of Delegates held in December 1946 were adopted as printed and sent officially to members of the House.

Address of Speaker, Dr. R. W. Fouts

The Vice Speaker, Dr. F. F. Borzell, Pennsylvania, presided while the Speaker of the House read his address, which was referred to the Reference Committee on Reports of Officers and which reads as follows:

Mr. Speaker, Members of the House of Delegates and Guests:

At this Centennial Celebration of the American Medical Association, may I first tender my tribute to those who preceded me in this honored office. The previous speakers of the House of Delegates of the American Medical Association have included Dr. Hubert Work, a Secretary of the Interior and a former President of the American Medical Association; Dr. Dwight H. Murray of Syracuse, N. Y., whose untimely death prevented his occupancy of the office for more than an exceedingly short space of time; Dr. Fred C. Warnshuis, a secretary of the Michigan State Medical Society and later of the California State Medical Society; Dr. Nathan B. Van Etten, a former member of this House and later President of the American Medical Association, and Dr. Harrison H. Shoulders, a secretary of the Tennessee State Medical Society and now President of the American Medical Association. As I call to mind the integrity, the loyalty and the dignity with which they filled this office, I feel that the standard established by them may well be emulated by all who follow.

For many years the President of the American Medical Association presided over this representative body. As the responsibilities and interests of the Association grew, the House of Delegates decided to elect its presiding officer, who was designated as the Chairman. Shortly thereafter the name was changed to Speaker.

Those who occupied the position in the formative years were accustomed to make addresses in which they discussed problems currently facing the Association and made recommendations with reference to future policies and activities. Without doubt, some of these suggestions contributed in great measure to the advancement of the affairs of the Association and the attainment of its objectives.

However, after some years it became apparent to the House of Delegates that these functions were inherent in the office of the President and President-Elect, so that by custom and practice the Speaker of the House of Delegates now limits his opening address to problems dealing with the conduct of the representative body itself and with the customary tribute to those former members of the House of Delegates who have died during the preceding year.

At previous meetings of the House of Delegates I have suggested certain changes in its conduct. These were referred to the Reference Committee on Rules and Order of Business, which recommended their adoption, and the House has seen fit to give its unanimous approval to them. These recommendations have included the restriction of certain areas in the meeting place to delegates alone and the conduct of elections by ballot. The introduction of these changes has seemed to improve both the efficiency of the action of this House of Delegates and the manifestation of its wishes.

There comes before the House of Delegates at this session a proposed revision of the Constitution and By-Laws. As Speaker, I should call your attention particularly to that section of the revision which deals with the composition of the House of Delegates during an executive session and with the limitation on the attendance at such sessions. By its very nature, an executive session of the House of Delegates is concerned with matters vitally important to the life and welfare of the Association. It would therefore seem fitting that such considerations be conducted with the greatest degree of decorum and without the possibility of extraneous influences manifesting themselves before the House of Delegates shall have had opportunity to indicate by its vote the decision it wishes to make.

NEW MEMBERS

Several physicians are making their first appearance as members of this House at this meeting. In order that they may be properly identified, I shall ask them to rise and to remain standing as their names are called. I want to extend to these new members a hearty welcome and to assure each one prompt recognition when he rises to participate in the discussion of any question or other deliberation of this body.

IN MEMORIAM

The Speaker announced that it was now fitting that the House listen to the calling of the names of those who formerly held membership in the House of Delegates and who are no longer with us and then read the list as follows (the dates following the names indicate years of service in the House or as officers of the Association):

Charles G. Abell, Vermont, 1935-1936.
Reuben B. Anderson, Texas, 1934-1935; 1946.
John Andrew, Colorado, 1938-1939; 1941-1944.
Thomas E. Carmody, Colorado, 1927-1928.
Ernest D. Chipman, San Francisco, Section on Dermatology, 1915-1916.
James T. Christison, St. Paul, Section on Diseases of Children, 1918; Minnesota, 1934-1938.
Roland C. Connor, Isthmian Canal Zone, 1926.
A. Bennett Cooke, Tennessee, 1911-1913; member Judicial Council, 1911-1918.
Hatch W. Cummings, Texas, 1930.
Thomas Dorbandt, Texas, 1926.
Judson D. Dowling, Alabama, 1919; 1921-1922.
Wells P. Eagleton, New Jersey, 1924-1926; 1939-1940; 1942-1944.
James M. Flynn, New York, 1938-1941; 1943-1946.
Alfred I. Folsom, Texas, 1933.
William Hale, New York, 1944-1945.
William D. James, North Carolina, 1926-1927.
William S. Lindsay, Kansas, 1919-1920.
Frank R. Mount, Oregon, 1945.
John W. Preston, Virginia, 1927-1931.
Dennett L. Richardson, Rhode Island, 1913.
H. Joseph Rock, South Dakota, 1904; 1907-1908.
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F. Leslie Sullivan, New York, 1944-1946.
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Richard Frank Werner, Wisconsin, 1911.
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Elbert G. Wood, Tennessee, 1930-1946.

The House observed a moment of silence in tribute to the deceased physicians.

REFERENCE COMMITTEES

In the appointment of reference committees, your Speaker has endeavored to give just representation to every state, taking into consideration the representation accorded each state on the various Councils and those members who have served on interim committees. Members who have duties in addition to their functions as delegates have likewise been spared the added burden of extra committee work.

The Speaker requested authorization to appoint three extra reference committees, one on Executive Session, one on General Practice of Medicine and the third on Emergency Medical Service. It was moved by Dr. Walter E. Vest, West Virginia, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, that the Speaker be authorized to appoint the extra reference committees requested.

Reference Committees

The personnel of all reference committees as appointed by the Speaker is as follows:

SECTIONS AND SECTION WORK

Roy B. Henline, Section on Urology, Chairman.
Edgar V. Allen, Section on Experimental Medicine and Therapeutics.
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Lowell S. Goin, California.
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RULES AND ORDER OF BUSINESS

James Stevenson, Oklahoma, Chairman.
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George A. Woodhouse, Ohio.

MEDICAL EDUCATION

George W. Kosmak, New York, Chairman.
Joseph D. McCarthy, Nebraska.
Thomas S. Cullen, Maryland.
William D. Stovall, Wisconsin.
A. W. Adson, Minnesota.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 9-13, 1947

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 9

The House of Delegates convened in the Rose Room of Hotel Traymore, Boardwalk at Illinois Avenue, and was called to order at 10:30 a. m. by the Speaker, Dr. R. W. Fouts

Preliminary Report of the Reference Committee on Credentials

Dr. G. Henry Mundt, Chairman, stated that 143 delegates had registered up to the present time and that the registration was steadily increasing.

Roll Call

The Speaker announced that a quorum was present and requested the Secretary to call the roll, which was done.

Distinguished Service Award

Dr. R. L. Sensenich, Chairman of the Board of Trustees, presented a report of the Board as follows:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees.

In accordance with chapter VI, section 5, of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order: Dr. Isaac Abt, Chicago; Dr. Alfred Blalock, Baltimore, and Dr. Henry A. Christian, Boston.

The Speaker appointed as tellers Dr. J. Wallace Hurff, New Jersey, Chairman; Dr. Mather Pfeiffenberger, Illinois; Dr. Jesse D. Hamer, Arizona; Dr. Guy W. Wells, Rhode Island, and Dr. Francis W. Savage, Minnesota.

The tellers spread the ballot and the Secretary announced that one hundred and fifty-four votes had been cast, of which Dr. Abt received fifty-three, Dr. Blalock thirty-one and Dr. Christian seventy. He added that one hundred and sixty-six delegates had answered the roll call.

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Speaker, House of Delegates,
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E. L. Henderson, Chairman.
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On motion of Dr. Louis A. Buie, Section on Gastro-Enterology and Proctology, seconded by Dr. H. B. Everett, Tennessee, and carried, the recommendation of the special committee of the Board was adopted.

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Frank R. Mount, Oregon, 1945.
John W. Preston, Virginia, 1927-1931.
Dennett L. Richardson, Rhode Island, 1913.
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REFERENCE COMMITTEES

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Lowell S. Goin, California.
Scott Lord Smith, New York.

RULES AND ORDER OF BUSINESS

James Stevenson, Oklahoma, Chairman.
William F. Costello, New Jersey.
James Beebe, Delaware.
Raymond L. Zech, Washington.
George A. Woodhouse, Ohio.

MEDICAL EDUCATION

George W. Kosmak, New York, Chairman.
Joseph D. McCarthy, Nebraska.
Thomas S. Cullen, Maryland.
William D. Stovall, Wisconsin.
A. W. Adson, Minnesota.

LEGISLATION AND PUBLIC RELATIONS

Thomas P. Murdock, Connecticut, Chairman.
Thomas A. McGoldrick, New York.
William M. Skipp, Ohio.
Lloyd Noland, Alabama.
Forrest J. Pinkerton, Hawaii.

HYGIENE AND PUBLIC HEALTH

Walter E. Vest, West Virginia, Chairman.
James P. Wall, Mississippi.
Walter P. Anderton, New York.
Leonce J. Kosminsky, Arkansas.
James A. Crabtree, U. S. Public Health Service.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Britton E. Pickett Sr., Texas, Chairman.
L. G. Christian, Michigan.
Allen H. Bunce, Georgia.
Homer Lee Pearson Jr., Florida.
Alfred S. Giordano, Indiana.

REPORTS OF OFFICERS

James R. Reuling, New York, Chairman.
Edward N. Roberts, Idaho.
James Q. Graves, Louisiana.
William H. Halley, Colorado.
Deering G. Smith, New Hampshire.

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Elmer Hess, Pennsylvania, Chairman.
Thomas F. Thornton, Iowa.
Allen G. Rice, Massachusetts.
Albert A. Gartner, New York.
Theodore H. Harwood, Vermont.

CREDENTIALS

G. Henry Mundt, Illinois, Chairman
A. P. Nachtwey, North Dakota.
H. B. Everett, Tennessee.
Charles F. Strosnider, North Carolina.
Raymond F. Peterson, Montana.

MISCELLANEOUS BUSINESS

James Z. Appel, Pennsylvania, Chairman.
Stephen R. Monteith, New York.
John W. Cline, California.
Edward H. McLean, Oregon.
Hugh P. Smith, South Carolina.

EXECUTIVE SESSION

Leland S. McKittrick, Massachusetts, Chairman.
Rollo K. Packard, Illinois.
Edgar P. McNamee, Ohio.
Charles L. Shafer, Pennsylvania.
Howard R. Dudgeon, Texas.
Clark Bailey, Kentucky.
H. B. Mulholland, Virginia.

GENERAL MEDICAL PRACTICE

Wingate M. Johnson, North Carolina, Chairman.
Thomas K. Gruber, Michigan.
A. R. McComas, Missouri.
Howard E. Griffin, Section on General Practice of Medicine.
H. G. Hamer, Indiana.
E. Vincent Askey, California.
Forrest L. Loveland, Kansas.

EMERGENCY MEDICAL SERVICE

Charles H. Phifer, Illinois, Chairman.
Herbert P. Ramsey, District of Columbia.
James R. McVay, Missouri.
Frank L. Cole, U. S. Army.
Morton D. Willcutts, U. S. Navy.
Thomas A. Foster, Maine.
George P. Johnston, Wyoming.

TELLERS

J. Wallace Hurff, New Jersey, Chairman.
Mather Pfeiffenberger, Illinois.
Jesse D. Hamer, Arizona.
Guy W. Wells, Rhode Island.
Francis W. Savage, Minnesota.

SERGEANTS AT ARMS

Frank E. Reeder, Michigan, Chairman.
H. Russell Brown, South Dakota.
Moreton J. Thorpe, Nevada.

Address of President

The Speaker resumed the chair and declared the next order of business to be the address of President Harrison H. Shoulders.

Dr. Shoulders delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker, Members of the House of Delegates and Guests:

For the last nine years it has been my duty and privilege to address this House of Delegates at its opening session. The realization that this is my last scheduled appearance before you stimulates emotions of satisfaction and regret.

This House of Delegates has been gracious and generous to me through all these years. For these considerations I am grateful beyond my power to express. Serving the Association in several different capacities has been a rich experience. This is especially true with respect to my service as President-Elect and as President.

I have been afforded the opportunity to meet with the Board of Trustees each quarter and with the Executive Committee of the Board each month. These privileges have enabled me to become familiar with the efficient and devoted services which these men render to this Association as well as to members of the medical profession at large.

I have also had opportunity to become more familiar with the operation of the several departments, councils and bureaus of the Association and better acquainted with the persons who carry on the many activities of this Association. And I want to say now, as a matter of opinion and conviction, that the affairs of this Association are in good order. They are well administered by capable persons who are loyal to the principles established by this House of Delegates.

By the gracious hospitality of many state and local medical societies in various parts of the country, I have had the privilege of meeting many members and Fellows in their home environments. I have discussed with them, and have become better acquainted with, their local problems and their points of view.

I have had the opportunity to meet with many nonmedical organizations, notably the American Legion and various farm groups. The leaders of these organizations are concerned with the same problems which are of deep concern to the medical profession. I have also observed on the part of those groups an increasing respect for the attitudes and policies of this Association in matters concerned with medical care.

These experiences and many others which I might mention have greatly enriched my life and given me a broader understanding of the many problems concerned with medical care and an acquaintance with many different points of view, both professional and nonprofessional.

These experiences have also increased my appreciation of the philosophy expressed by the great physician-philosopher Galen about eighteen hundred years ago to the effect that "Every organism is a biologic whole and every part of it is related to every other part." That philosophy applies to this organization with the same force and aptness as it does to a single organism.

This meeting is dedicated to the celebration of the hundredth birthday of this Association. It is unnecessary for me to discuss the various steps that have been taken in achieving the progress of medicine in this period, for several reasons. For instance: A history of the Association has been written and is ready for distribution. The Council on Scientific Assembly has arranged for the presentation of several addresses dealing with the progress that has been made in the many different branches of medicine. The Bureau of Exhibits has arranged many displays designed to portray something of this progress. Furthermore, it is not possible to describe and portray in the limited time available all the progress that has taken place in the science and art of medicine in this period. It is also impossible to appraise accurately what this medical progress has meant to the progress of civilization. Suffice to say that the present state of civilization could not have been achieved without the aid and benefit of medical progress.

In the contemplation of the progress and achievements of medicine there is one fact which stands out prominently, and that is that the changes which have taken place in the knowledge, technics and tools of medicine have not brought about a change in the philosophy of medicine. It has remained the same. There has been no need for change. The philosophy of medicine has been, and still is, a philosophy of progress, a progress which is restricted only by prudence and caution. It requires that the value of the new be tested and proved before it is adopted. It is a philosophy of service. It places service to humanity above all other considerations. It is a philosophy of freedom. It recognizes the dignity and importance of human individuality and that it is in an atmosphere of freedom that this individuality finds opportunity for its highest forms of expression in happiness and achievement.

It seems to me it would be appropriate for this House of Delegates at this Centennial Celebration to take action to rededicate the Association to the philosophy which has inspired and guided it throughout the first century of its existence.

The problems which were encountered by our predecessors varied widely in character and importance, but the method of approach to their solution has remained the same. It is characterized by diligence in the search for knowledge and truth, by diligence and perseverance in the acquisition of skills for applying knowledge to the needs of mankind. With this knowledge came wisdom—wisdom in the use of knowledge and skill.

The problems which face medical practitioners today are different in character from those which our predecessors encountered. Yet the fundamental principles they used still apply. It is important for us to remember that environments, technics and tools may change but that fundamental principles do not change. They are eternal.

Paradoxical as it may seem, many of the problems which are of immediate concern to members of the medical profession are due, in large measure, to the progress that has taken place in the science and technology of medicine. It has always been true that progress in any line brings new problems in its wake. This is especially true of the progress that has taken place in this field. These new problems are chiefly economic in character.

When appendicitis was treated largely by the administration of opium pills and the application of poultices to the abdomen, the cost of administering such treatment was low but the resulting mortality was high. When the physician acquired an understanding of the disease and perfected a technic for its proper treatment, the mortality from the disease went down to a low level but the cost of treatment went up. When diabetes was treated largely by diet and the administration of codeine, the cost of such treatment was low but the mortality was high. The diabetic patient lingered in discomfort for a relatively short while. But when the members of the profession acquired an understanding of the disease and developed a specific method for its treatment and management, diabetic patients were given an almost normal life expectancy in comfort and usefulness. Thus the problems in medical economics have been brought to the forefront.

Economics is a subject which is widely discussed but poorly understood. The simplest definition of the subject, it seems to me, is this: "Economics is a study of the means by which the people obtain the goods and services they need and/or desire."

Economics obtained long before finance existed. In reality, finance is nothing more or less than a tool of economics. Barter between individuals or nations is an economic, not a financial, transaction. Medical economics is concerned, of course, with the means by which the people obtain the medical services they need and/or desire. It is concerned not only with the financing of medical care but with its quality and availability.

For some years the Association has devoted a great deal of attention to many phases of this question. The report of the Council on Medical Service will indicate the measure of effort that has been exerted and the remarkable progress that has been made toward the solution of that phase of the problem which has to do with the financing of medical care.

The phase of the problem which is concerned with the quality and availability of the medical care the people need and/or desire is more complicated and more difficult of solution. There are many different opinions as to the cause or causes which have operated to bring it about. There are also many different opinions as to the remedy or remedies that should be applied to it.

There are areas in the United States in which it is difficult for persons to obtain the type and quality of medical service they need and/or desire. These areas in the main are thinly populated, and the number of persons involved is not large in proportion to the total population of the nation. These problems also have arisen as a result of the progress that has taken place in the science and technics of medicine and as a result of the changes that have occurred in the whole pattern of American life. The slightest study of the subject is sufficient to convince any one that the deficiencies in the availability of medical care are limited largely to the field commonly referred to as "general practice." It is generally considered that 85 per cent of the conditions for which persons seek medical advice can be diagnosed and treated properly and effectively by a good general practitioner. But only about 60 per cent of physicians are general practitioners. The availability to the population of the various services rendered by specialists is more nearly, if not completely, adequate, under modern methods of transportation than are the services of general practitioners. It is apparent therefore that the immediate and most urgent needs are concerned with increasing the availability of the services of general practitioners.

There are many different opinions as to the possible cause or causes of this maladjustment and the possible remedy or remedies which should be applied:

1. It is urged in some quarters that the number of medical graduates is too small and that it should be increased by many thousands. The evidence presented so far in support of this contention does not convince one that such action would solve the problems immediately or later.

2. It has been said that the cause of the maldistribution of physicians and services is due largely to financial considerations on the part of physicians. The evidence in support of this assertion is not convincing, and there is much evidence to indicate that such considerations are not factors of great importance.

3. It is insisted that the present program of medical education, both undergraduate and postgraduate, is of such character as to place too much emphasis on the education and training of specialists and too little emphasis on the education and training of general practitioners. It is insisted with emphasis that the postgraduate training given in most hospitals approved for the training of interns and residents is designed to satisfy the requirements of specialty boards rather than to meet the needs of general practitioners.

It is urged also that the contacts which the student has in medical school and in his postgraduate training stimulate in him an appreciation of the importance of a specialty and diminish his appreciation of the importance of the services of a general practitioner. This particular contention finds support in the results of many experiments that have been conducted for the purpose of securing more general practitioners in smaller communities. Financial aid extended to medical students on the condition that they would engage in practice in small towns or rural areas for a period of years after the completion of their education and training has not been effective to the degree expected. It seems that something happens to the ambitions and interests of such students between the time they enter the medical school and the time they complete their intern or resident training which affects an alteration in their attitudes, ambitions and outlook toward general practice.

The field of medicine is large. It has been expanded by progress. No one person can master the entire field. There is need for specialists, and there is need for a program of training which will qualify specialists. There is need also for general practitioners in even larger numbers than exist at present and there is need also for a program of education and training that will meet their needs.

It is obvious that to accomplish the distribution of physicians according to a fixed ratio to the population would not in and of itself accomplish a satisfactory distribution of medical services. Other factors are to be considered, such as the availability of the several special services which are required for complete medical care and the availability of these services as well as the services of general practitioners.

Specialization has been constructive in bringing about better medical care. It will continue to do so if kept in proper relation to the important and vital branch of general practice. It becomes destructive in its effect when the number of specialists is too large in proportion to the number of general practitioners. It was reported to me that the State Board of Medical Examiners for one state last year asked that each applicant for a license state the type of practice in which he intended to engage. The replies revealed that only 7 per cent intended to engage in general practice. There can be no doubt that a need exists for the restoration of the family physician, or general practitioner, to the position of importance and prestige which he once occupied and which he deserves to occupy today.

The painting by Sir Luke Fildes called "The Doctor" was painted by command of Queen Victoria to commemorate the devoted service of a family physician to the sick child of one of her servants.

In a recent issue of the *Saturday Evening Post* (April 12, 1947, p. 30) under the heading "Norman Rockwell Visits His Family Doctor" there appears a story which every physician and every layman in this country should read. In text and drawings the author describes and portrays something of the life and service of a general practitioner and something of the esteem in which he is held in his community. His place is still high in many communities. It is still high in the hearts of many persons, but too many such places are vacant. I dare say that there is nothing the matter with the public relations of the medical profession in any community that is served by a general practitioner of the type described by Mr. Rockwell.

It seems to me that the whole field of medical education and medical service deserves special study by a special committee of this Association. I therefore recommend that this House of Delegates take action to request the Board of Trustees to appoint and finance a special committee of whatever size is deemed necessary for the purpose of studying all the factors which affect the production and distribution of the type and quality of medical care which the people need and/or desire. In particular such a *committee could: (1) define the term "general practitioner,"* or "general physician," on a functional basis; (2) determine whether or not there is need for a large increase in the number of medical graduates and, if so, its extent; (3) study the present program of medical education and training, both undergraduate and postgraduate, to determine whether or not the content and administration of the program is properly adjusted to the present day needs of the people; (4) study the possibility and feasibility of utilizing smaller community hospitals in a program for the training of general practitioners and the possibility of approving such institutions for such training when a teaching program is properly organized and administered; (5) study the means by which communities in need of additional services may be aided; (6) study such other questions as the committee itself may determine to be necessary in arriving at sound conclusions concerning the entire field of medicine, and (7) propose a long range program designed to overcome present insufficiencies and to meet future needs.

The public relations of this Association have been affected unfavorably by conditions which exist, notwithstanding the fact that the Association is without authority to direct or influence the formation and execution of policies of medical schools and hospitals except to the extent of approving those institutions with programs and facilities which meet certain standards and of disapproving those whose programs do not. This Association does not possess, and does not seek, the power to compel a physician to render service at a place or of a type that is not congenial and satisfactory. Nor does it want any government agency to possess and exercise such powers.

I submit as my opinion that the public relations of this Association are intimately concerned with these particular problems and issues, and that the public relations of the Association will be far more favorably influenced by an effort to solve these problems, which are of such concern to the physician and to the patient, than by a public relations program per se, however expertly administered.

There are many other problems facing medicine. There always will be. There would be no challenge to genius if there were no problems. It is by the solution of problems that progress is brought about. I repeat a statement made many times by many Fellows of this Association, that the medical practitioner is qualified by education, knowledge, experience and idealism to solve these problems. The medical profession in cooperation with the people, on a voluntary basis, will solve these problems, if they are solved at all, on a basis that conforms to the highest aspirations of both groups.

In conclusion, I wish to express my complete faith in the courage, wisdom and idealism of this House of Delegates.

Address of President-Elect

The Speaker called on Dr. E. L. Bortz, *President-Elect,* who, after announcing that 125,000,000 stamps were that day being released to the American public in recognition of the distinguished services of medicine to humanity, delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

When you conferred the highest honor within your power on Dr. Olin West one year ago, it was a recognition of the distinguished service which he had rendered to organized medicine. His understanding of medical problems and the medical needs of the nation and his executive ability to carry out your mandates were repeatedly demonstrated during his long years of service. The turn of events which brought his resignation has elevated the vice president to the high position of President-Elect. I am deeply conscious of the significance of this elevation.

For many years I have been interested in medical education. It has been my privilege to be a member of the Council on Scientific Assembly which is responsible for the general meetings and also collaborates with the sections in drawing up the program for the annual session.

The superb resources of American medicine have brought medical education to its present state of efficiency. Indeed it may be emphasized that the principal aim of this Association is the maintenance of the highest possible standards of professional training for members of the medical profession, thereby to afford the best possible service to the American public.

EXTENSION OF SCIENTIFIC PROGRAM

The medical schools and special organizations, such as the American College of Physicians and American College of Surgeons, are extending their programs in particular fields. The time is appropriate for the American Medical Association to consider seriously the possibility of an additional scientific session planned for general practitioners of the nation. Such a program might be a two day general session held at the time of the semiannual meeting of the House of Delegates. Specific details could readily be arranged by the Council on Scientific Assembly in collaboration with the Section on General Practice of Medicine.

The membership of the Association and its various important activities have grown so that relatively few cities offer adequate facilities for the annual session. As time passes the size of the Association and the scope of its activities will grow still further. At the present session a large number of our members are not in attendance because of the unavailability of housing space.

Therefore may I respectfully urge that this House take up the problem of utilizing the semiannual meeting for additional scientific instruction.

A further point of merit would be a change of meeting place for the semiannual session. For example, were the nation divided into geographic districts, say eight or twelve in number, the House of Delegates at its semiannual session might convene in the New England area one year, at which time a two day scientific session for the general practitioners would be held; the following year it might elect to meet in some other areas as the Midsouth or Midwest or Far West or South. In this way a rotation of meeting places would bring the excellent resources of the Association to particular areas and furnish, at least for the membership in that particular area, opportunities for study that may not yet have been fully utilized. Collaboration with state medical societies in areas in which the meetings would be held could be readily worked out; it would seem that this scientific session might be fused with the scientific programs of the states involved. The suggestion has the merit that this development would, in a way, take off in part the pressure of the large annual session and, at the same time, extend additional instruction to a larger number of the Association members. I hope the House of Delegates will study this proposal.

AFFILIATION OF MEDICAL STUDENTS

Another point which needs study is the closer affiliation of neophytes of medicine, the third and fourth year medical students. This group should be brought into the medical family at the earliest possible time and given the privilege of more active participation in the activities and privileges of the Association. From this group will come the physicians of the future. Indifference on the part of the Association to this group may be corrected by affiliate membership, the reestablishment of a student section in THE JOURNAL and the encouragement of presentation of scientific papers at the county, state or even national level. There might even be a student section of the scientific assembly established for their benefit. Medicine should recognize its offspring—the coming generation. The benefits to be derived from bringing them into closer contact with organizational activities should develop leaders at an earlier stage in the professional careers of medical practitioners.

May I respectfully propose that the House authorize the Secretary, in collaboration with the Councils and other bureaus, to prepare an attractively illustrated booklet which will contain a description of the various activities carried on by the American Medical Association and a brief statement of the significance of these activities in behalf of the preservation of the nation's health and in support of a progressive program of medical education. In the spring of each year, or at any other time that classes are graduated from medical schools, the American Medical Association would send one of these booklets to each graduate. The young physicians of the nation would then have a guide to assist them in a clearer understanding and better appreciation of the organization that is protecting the profession which represents their life work. At present there is an utter lack of appreciation on the part of medical students and younger physicians of the vast amount of important work which is being carried on by this Association in behalf of the physicians throughout the land.

PUBLIC RELATIONS

The public relations activities of the Association need further clarification. Since its creation a century ago, the Association has been continuously active in campaigning for a better understanding of health problems and the control of disease on the part of the general population. The antagonism of charlatans, quacks and cults is evidence of the effectiveness with which the Association has waged its battle against the forces of ignorance and destruction.

Public relations is the problem of interpreting the objectives of the medical profession in terms acceptable to the public. The cooperation and support of the laity is absolutely essential in a modern program for the maintenance of health and the control of disease. Each physician has the responsibility to keep his clientele informed of the aims toward which organized medicine is working. In this respect each physician may be regarded as a public relations contact, or better still human relations contact, which the profession in general should utilize.

QUALIFIED SPOKESMEN

Organized medicine needs more experienced representatives who may appear before lay groups and legislative bodies. These spokesmen should emphasize that the energetic program of the Association is in the public interest and for the protection of all members of the population. Too frequently the general public and at times the press also receive the impression that the medical practitioner is motivated by selfish interests and indifference to the public weal. Nothing could be further from the facts. A vast amount of convincing data is available through the bureaus and councils of the American Medical Association which will demonstrate clearly that physicians are leaders in the field of social progress and in the control of disease. During the last hundred years the human life span has extended from forty years in 1847 to approximately sixty-seven years in 1947. It is impossible to mention all the epochal contributions which medical science has made and organized medicine has fostered in the interests of a more abundant life for the people of our land.

Speakers' bureaus for the training of those who are willing to serve their profession should be organized in every county medical society. Adequate material will be furnished these bureaus by their state and national organizations.

THE WOMAN'S AUXILIARY

The Woman's Auxiliary of this Association was founded twenty-five years ago, so on this happy occasion the Auxiliary is celebrating its Twenty-Fifth Anniversary. Congratulations are in order. The fair ladies are favored by nature in their understanding of social relations and in their intense loyalty to this great profession. The Auxiliary represents probably the most important instrument in the field of public relations which organized medicine has, and yet its value has been for the most part overlooked. In many ways the Woman's Auxiliary can explain to the public the ideals and objectives for which medicine stands. A word of caution to the members of the Auxiliary as to Association members: a well informed mind using statements based on factual data available from the Association files is essential before any statements are made to public groups. The members of the Woman's Auxiliary should utilize the publications of the various bureaus and should seek counsel from the headquarters staff in order that a clearer understanding may exist of the issues at stake. Armed with this information the Woman's Auxiliary may play a determining role in its contacts with women's organizations, ladies of the press, religious groups and, not least in importance, the women members of legislatures. The Woman's Auxiliary is facing a period of expanding opportunity.

THE NURSING CRISIS

Within the past few years a serious crisis has developed in the nursing field. A questionnaire issued by the American Surgical Association indicated that the quantity of nursing talent available was 60 per cent of what it should be, and the quality was estimated as down to 75 per cent. It must be admitted that the nurses have many real grievances today. While special groups in the field of public health, industrial work, teaching and administration are rapidly moving toward more stabilized hours of work, better compensation and programs for social security the status of the private duty nurse and the general floor nurse in the hospital is unsatisfactory. Long hours, irregular employment, lack of any pension or security program and indifference on the part of groups which should be cognizant of the nurses' needs has caused a serious shortage in one of the noblest of the nation's professions. It is high time that physicians study the various ramifications of these issues and exert their influence in support of the objectives which the members of the nursing profession are now striving to attain.

I hope that this House will move that the President name a committee of five, to be known as the Committee on Nursing Problems. This committee would investigate the present objectives of the nursing profession, the standards of education, the time involved for training, the various curriculums, the supply of nurses and quality of services rendered, remuneration, participation in the determination of administrative policies and the question of security benefits. This committee would further act as a liaison with the various nursing organizations and would obtain information of significance to serve as the basis of a report to the House of Delegates at its next meeting. This Association should be able to make a definite contribution in behalf of its close allies—the nurses.

ACTIVITIES OF COUNCILS AND BUREAUS

Each member of this House should be clearly informed concerning the many activities of the departments, bureaus and councils in the headquarters of the American Medical Association. In addition to the many publications issued at regular intervals, the large staff of competent investigators and their assistants is carrying on studies of the greatest importance in the field of medical education, public instruction and the distribution of physicians. Problems of public health, rural medicine, health insurance and related fields are being studied by highly qualified experts.

The accomplishments of the Council on Medical Education and Hospitals have been widely heralded. Improvements in the training of physicians and in hospital service have been brought about in many instances through the influence of this council.

The Council on Physical Medicine is conducting studies in the realm of atomic energy and the application of radioactive substances in the field of medical research; the Council on Pharmacy and Chemistry and that on Foods and Nutrition have extensive programs for the investigation of a number of products in their respective fields. The field of Industrial Health is being examined by that council so that recommendations for the improvement of conditions under which industrial employees work may be extended to industries throughout all sections of the country.

Work of the Council on Medical Service and its contributions in the field of professional relations, special studies and assignments and the programs of regional conferences have been of the greatest benefit to organized medicine. It has published a reliable directory of plans for the various forms of voluntary health insurance. Before issuing its stamp of approval each plan is carefully examined and flaws when present are pointed out. Publications from this council are available to any one who is interested in making a contribution to the problem of health insurance.

One of the most active bureaus supported by the Association is that on Legal Medicine and Legislation. Wise counsel from the director of this bureau has been an invaluable aid in evaluating the significance of the many legislative activities bearing on the practice of medicine as they appear at regular intervals in the national and state legislatures. This council has been most cooperative with the state medical societies which have required information from time to time.

Attention should be drawn to the recently created Bureau of Medical Economic Research, which is under the direction of Dr. Frank G. Dickinson, distinguished economist, who recently joined the staff. This bureau has a far reaching research program for the examination of the supply and demand problem, the distribution and cost of medical service. Many investigations are under way. The data already collected and analyzed indicate convincingly that the plan of action which the Association has followed during the past several years is in accord with the actual needs of the nation. From time to time constituent medical societies will be furnished important statistics that may be used in state and national legislatures for illuminating health problems under discussion.

MEDICAL PREPAREDNESS

The Committee on National Emergency Service has studied the data collected from some 25,000 questionnaires and letters sent in by members of the Association. These physicians for the most part have voiced their opinion of medical service in time of war and have offered suggestions which, if implemented, will lead to higher efficiency of medical service in the event of a future catastrophe. The American Medical Association will actively cooperate with governmental officials on the highest civilian level to work out a program that will, it is hoped, be formulated for prompt medical service if the need should arise.

A NEW HOME FOR THE AMERICAN MEDICAL ASSOCIATION

The rapid expansion of activities in the various fields of medical education and the promotion of health programs for the nation has necessitated a decided increase in personnel and equipment at the headquarters of the American Medical Association. Already the present home of the Association is bulging at the seams and space is at a premium. During the next twenty-five years even greater activity with some increase in personnel will be necessary.

The House of Delegates must take under advisement a building program. Adequate time should be taken to study the medical needs of the nation as they will appear in future years. With this in mind a structure should be raised, a cathedral of health, if you will, dedicated to the high service of health maintenance, the prevention of disease and the extension and enrichment of human life. The American Medical Association has never been as powerful and influential as it stands today. From all quarters of the land its counsel is sought, its recommendations asked for and its approval desired. It is moving in forward directions. The American Medical Association is on the march to more and greater accomplishments. The time is appropriate for the House of Delegates to survey its present status and draw up adequate plans for the future.

On motion of Dr. E. S. Hamilton, Illinois, seconded by several and carried, the House recessed at 12:30 p. m. to reconvene at 2 p. m.

Monday Afternoon, June 9

The House of Delegates was called to order at 2:10 p. m. by the Speaker, Dr. R. W. Fouts.

Reports of Officers

REPORT OF SECRETARY

The Secretary, Dr. George F. Lull, presented his report as printed in the Handbook of the House of Delegates, requesting the delegates from the constituent associations personally to introduce the resolutions contained in his report. The Speaker referred the report of the Secretary to the Reference Committee on Reports of Board of Trustees and Secretary.

On motion of Dr. L. J. Kosminsky, Arkansas, duly seconded and carried, consent was given unanimously to interrupt the regular proceedings of business to introduce some foreign guests.

Addresses of Major General Raymond W. Bliss and Rear Admiral Clifford A. Swanson

Dr. E. L. Henderson, Trustee, introduced Major Gen. Raymond W. Bliss, Surgeon General of the United States Army, who presented the following address:

As an humble member of the medical profession it is a great privilege to be here in Atlantic City this week. It is intensely stimulating to be associated with my colleagues and in listening with them to the expositions and discussions by the leaders in medicine on the current thoughts in medical knowledge.

I am honored to speak to you as the representative of army medicine. What is the status of army medicine and where is it headed?

Army medicine, the Army Medical Department, is at this time in one of the critical periods of its existence. The current and prospective mission of the Medical Department is many times greater than it was prior to World War II. However, the means of the Medical Department to accomplish this mission have not increased but have actually diminished. Because of many reasons we are wofully short of the small nucleus of doctors necessary for our regular corps. We must, first of all, rebuild our regular Army Medical Corps. I believe that the plans being carried to completion toward this end are founded on a professionally sound and solid basis. They are being developed with the accepted advice from and complete cooperation with the leaders in civilian practice.

One of these ways to this desired objective is the bill now before Congress about which I am sure the Secretary of War, Mr. Patterson, will speak to you. I cannot endorse this legislation too strongly. I consider its passage essential.

There is under consideration unification of the armed services. Whatever the outcome of that, we must certainly have a unification of effort by full cooperation and by every coordination in the use of the respective means of all the government medical services, Army, Navy and Public Health and the Veterans Administration, in intimate conjunction with the means of the best in civilian medicine, if we are all to function in the most effective manner.

We must, of course, draw on civilian resources. Fortunately these resources are available. It is our responsibility to make full use of them.

In the Army we have made a beginning this past year to do, with the help of civilians, what we could not possibly have done alone—to keep the quality of our professional care as high as possible—to develop a residency training program so that the army doctor could grow professionally—to supervise and keep under constant appraisal the work of all our medical installations, and by our study and research keep part of an eye toward the future. We have started; we will continue.

In the past, the Army Medical Department has made significant contributions to the progress of medicine—witness the names and work of Beaumont, Reed, Sternberg, Gorgas. We have every reason to expect that it will make similar contributions in the future. But to accomplish this and to discharge its responsibility to the Army, the Medical Department must become part of the major stream of American medicine. That is where the Medical Department is headed.

Dr. Henderson then introduced Rear Admiral Clifford A. Swanson, who addressed the House as follows:

First, I want to offer the Navy's acclaim and congratulations to the American Medical Association, which has just attained its one hundredth anniversary. To have become a centenarian is a much greater distinction for an institution than for a man. A man might attain that age without justification—so far as his neighbors and associates can see—but an institution—at least in America—can survive and grow only because the people want it. The American Medical Association has held its strength and vitality through all the economic and social changes of the last hundred years because it has upheld the standards of medical practice and medical education. Through its leadership and its many publications it has sustained a plane of medical practice which both the profession and the population at large will continue to demand and which they know they can be assured of only by the continued strength of the American Medical Association.

Among the many problems that confront the Medical Department of the Navy today there are several in which the general medical profession has a distinct interest; there are some that must be shared and faced mutually by, and in their solution, with mutual benefit to, the civilian profession and the Navy Medical Corps.

One of the first and most serious of these is the matter of atomic weapons, particularly defense against them and the medical features of this defense.

About a half century ago, when the American Medical Association was only a half century old, the work of Roentgen, Becquerel and the Curies in radioactivity and then the epochal pronouncement of Einstein that matter can be transformed into energy to the tune of his fundamental law that $E = MC^2$ started us on a long march that reached a world shaking climax at Hiroshima and Nagasaki two years ago. Until those fateful days in August 1945 the world and the medical profession at large knew nothing of the medical implications of an atomic explosion because, until then, none but those of the inner circles of atomic bomb production knew that there was even such a thing as an atomic bomb. Since then, however, knowledge of the biologic effects of atomic weapons has rapidly accumulated and has been widely disseminated. There is now in progress in the two Japanese cities a survey of biologic effects which may continue for years in order to give us the long range picture. Much more closely controlled studies have been possible with the Bikini animals, and this work may also continue for some years at the Naval Medical Research Institute.

As every one is now well aware, civilian casualties in atomic warfare can reach huge proportions and will be of a clinical pattern that was little known before 1945. Problems of evacuation, of treatment, and the great public health problem of radioactive contamination of large areas of human habitation as demonstrated by the underwater explosion at Bikini are matters that cry for answers and extensive planning, both by military and by civilian medical authorities.

There are unprecedented industrial hazards in the manufacture and handling of fissionable materials. The safety records established by those responsible for safety precautions and regulations in the manufacture of the bombs, and during the explosions in the presence of some forty thousand people at Bikini, are really phenomenal; in fact, those safety records were perfect. They show the possibility of achieving an incredible degree of safety even when surrounded with hazards of unimaginable potentialities, As the scale and intricacy of manufacture are increased and as the uses of fissionable materials are multiplied there will be larger industrial medical tasks to perform in devising safety measures and in the constant education of personnel as to the observance of the precautions that must be established.

But even, we are happy to say, such an ill and terrifying wind as a war has blown some good. There is indeed little, if anything, good that can come out of a war, but of one thing we can be sure—it always furnishes a tremendous impetus to scientific advances. And one great by-product has come to us in a whole new array of radioactive isotopes that may prove to be of high clinical value. This is a field whose exploration by medical research workers is still in the pioneer stage but which may open up a new medical world of fruitful returns. In the Navy this work is being directed by the newly formed Division of Atomic Defense in the Bureau of Medicine and Surgery.

The Navy is always working on plans to meet possible future disasters. In caring for civilian casualties in future wars there may be many occasions when the situation will call for the combined and coordinated efforts of civilian and military medical personnel. As an illustration in this connection it is of interest that in the recent disaster at Texas City, Texas, which attracted national attention, the lives of a considerable group in the rescue party were probably saved because a medical officer promptly evacuated the injured and medical personnel from the first aid station, which shortly afterward was engulfed by the flames of an exploding oil tank. This officer's war experience probably assisted him in making the decision, as he was a veteran of the Pacific campaign.

One of our most acute and pressing problems in the Navy today is that of obtaining and of holding medical officers. Having witnessed the general shortage of doctors and nurses and the consequent understaffing of civilian hospitals in recent years, you will understand what it means to have to spread thinner and thinner the medical personnel that is required to carry on a heavy medical program. You will understand too some of the reasons for our present shortage in the Navy. Medical education has become a long and expensive process. Consequently, the medical officer in the Navy begins his career considerably older—and poorer—than officers of similar rank in other branches of the Navy. He has already spent more money on and devoted more years to his education than one does in any other profession. To correct this situation we have designed some legislation which is now in Congress and which, of course, we hope will receive favorable action there. It provides for a substantial increase in compensation and thus, if passed by Congress, will offer a much needed incentive for young medical men to consider entering the Medical Corps of the Navy as a career. But we must offer them, and we are offering them something as vital, as financial incentive, and that is the opportunity for professional advancement. We are offering internships and residency training in our naval hospitals; training which meets the approval of the A. M. A. Council on Medical Education and, for purposes of credit toward certification by the various specialty boards, residency training in a number of medical and surgical specialties, including obstetrics and gynecology, of a quality and scope that is approved by those boards. Also we are now carrying out a program of unprecedented size in sending medical officers to extensive postgraduate courses at various of the great universities and medical centers of this country.

I should like at this point to touch on the problem of unification of the medical services of the armed forces. Both General Kirk and I have appeared before committees of the Congress in support of the National Security Act of 1947, commonly known as "the Armed Forces Unification Bill." I am sure we are in close agreement as to the principle of attaining several desirable objectives which we feel are most worthy as far as the medical services are concerned.

I believe these objectives to be:

(*a*) To provide the best possible medical services for the armed forces with the total means available.

(*b*) The most efficient utilization of Medical Department personnel—physicians, dentists, nurses and other assisting personnel—in order best to carry out the overall mission of providing the medical services required for the armed forces in peace and war.

(*c*) The realization of all possible economies in the use of funds, facilities, installations and personnel which are compatible with acceptable and modern standards of medical services for the armed forces.

(*d*) The balancing of the medical needs of the armed forces in relation to the total medical resources of the country.

(*e*) To promote and maintain the highest possible professional caliber of the medical personnel of the national defense establishment.

(*f*) To insure that the medical aspects and the medical implications of any future war are taken into full consideration at all policy-forming levels and at all stages of planning in the national defense structure.

It seems to me that the chief difference between the plan which was proposed by General Kirk and my concept lies only in the organization methods by which we propose to accomplish these objectives. When all the realities and ramifications of the problem are taken into consideration, I believe that the most workable method of bringing about the desirable ends I have just enumerated is by working through the agencies which are provided for in the proposed National Security Act. As a logical part of their functions as prescribed in the bill, these agencies, i. e. the Joint Staff, the Munitions Board and the Research and Development Board, under the direction of the President and the Secretary of National Defense, would be expected to discharge the responsibility of establishing a pattern of close team work between the medical services of the armed forces, just as they would perform similar functions in respect to the other fields of military endeavor. I believe it is only reasonable to expect that each of these agencies in its own sphere would want and would have a medical subboard or medical committee, which I have chosen to call a "medical component," to assist and advise it in all medical matters and in all problems having substantial medical implications. I believe the medical components of the three agencies to which I have just referred should each be composed of the Surgeons General of the respective branches of the armed forces, or their appropriate deputy medical representatives, together with a civilian medical representative where appropriate.

At the higher level I have advocated that there also be a medical component to assist and advise the National Security Resources Board in the medical aspects of that board's prescribed function to advise the President concerning the coordination of military, industrial and civilian mobilization; further, that this latter medical component or council at the national level should be composed chiefly of representatives of the civilian medical profession at large, with a minority of associated military medical representatives.

I sincerely believe that the acceptance of such a concept as I have outlined will not only insure medical participation in military planning and in the determination of national defense policy at all levels but will also be a long step forward in recognition of the great importance which medical matters must henceforth be accorded in providing for the national security in time of critical national emergency.

It should be of interest to the entire medical profession to know that the Secretary of the Navy and the Navy Department have sanctioned and concurred in my concept of the overall medical plan which I envisage would be brought into being as a natural consequence of the enactment of the National Security Act of 1947.

What might be called the overgrowth of specialism in medicine has posed another serious problem to the Medical Corps of the Navy. The Navy has many specialists in all fields of medicine and surgery and we realize that they are all needed, but the naval surgeon must always be a good general practitioner who can face the ordinary emergencies of medical practice fully equipped to deal with them. The Navy after all is a seagoing organization, and a considerable number of our naval doctors must be with the forces afloat or at overseas stations. A large ship such as a battleship or carrier may easily have from 1,500 to 2,500 officers and men on board. Two or three doctors to form a medical staff must deal with most of the problems that a physician is expected to need in a community of that size. If they are in the middle of the Pacific and a surgical emergency arises, they cannot send the patient around the corner to a surgeon. True enough, these patients at a later date may be transferred to a hospital where specialists of every sort are on hand. But a great deal of active medical and surgical practice must be carried on directly by the medical man on the ship. We need, as you see, to have many well trained and capable general practitioners.

From three to five years of general practice has always been regarded as a sound basis on which to begin specialization. It has been said that the average general practitioner in civil life is a specialist in obstetrics. The average naval surgeon we like to think of as a general practitioner who is a specialist in traumatic surgery and preventive medicine. Many of our leading specialists in the Medical Corps have come through this preliminary training in the field of general practice, and we feel that they are better specialists for it and certainly they are better medical officers. It is surprising how well a radiologist can take out an appendix or an ophthalmologist can take care of a pneumonia patient when a general surgeon or an internist is not available.

But now the trend seems to be that the newly graduated doctor, as soon as he has completed his internship, feels he must enter immediately on his residency training for specialization. As a medical man I believe this is wrong.

This tendency, it appears, has been fostered in considerable degree by the growing influence of the specialists' boards. Now the one consuming aim of the young doctor, from the time he graduates from medical school, is to rush toward the day when some specialist board will certify him. Everything else—so it seems—such as the matter of becoming a good and useful practitioner in his community (or in one of the government medical services) fades to a level of secondary importance.

There is no doubt that the specialist boards have rendered a great service to medicine. Doubtless they have done much to raise the standards of medical education and specialist practice. But if the boards have the effect of driving every medical graduate into some specialty they are doing the profession and the citizenry a disservice. We are suffering from this specialism stampede in the Navy and I suppose that civilian practice is similarly feeling it effects.

And I should like to leave with you this parting thought: that we might well take stock of this situation and return to the more conservative formula of superimposing specialty training on a broader foundation of general clinical knowledge.

Reports of Officers

REPORT OF BOARD OF TRUSTEES

Dr. R. L. Sensenich, Chairman, presented the Report of the Board of Trustees as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the Report of the Committee on National Emergency Medical Service, which was referred to the Reference Committee on Emergency Medical Service.

SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES

Dr. Sensenich announced that the Board would submit a supplementary report in executive session and then submitted the following supplementary report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Mr. Raymond Rich and Mr. Swart have resigned, and the Board has accepted their resignations as immediately effective. The Board of Trustees in 1946 employed Raymond Rich Associates to make a survey of the activities of the American Medical Association. This survey was reported to the House of Delegates at the session in San Francisco in July and at the same time the Board indicated actions already taken to make effective some of the recommendations. At the December session a further consideration was given to the entire report, and the House of Delegates made certain specific recommendations. In the meantime, the Board of Trustees has been concerned with the budgets and the expansion of the activities of various departments, councils and bureaus, including the Division of Public Relations. During the past six months most of the activities of the Division of Public Relations have been concerned with the centennial of the Association. Mr. Raymond Rich was employed as a consultant for this period. The Board of Trustees has authorized the General Manager to conduct further investigations as to the next steps in the public relations activities of the Association. The Board proposes to arrange for suitable public relations counsel. When the activities in connection with the Centennial come to an end, a redistribution of present personnel may be feasible, an increase of personnel will be made where necessary and additional funds will be made available. These facts will permit more intensive promotion of the public relations of the Association with reference to its national health program. For the remainder of the present session, Mr. John Bach will be in charge of the Press Room, and the General Manager and the Editor will advise on questions related to the House of Delegates and the scientific program respectively.

REPORT OF JUDICIAL COUNCIL

Dr. Edward R. Cunniffe, Chairman, presented the Report of the Judicial Council as published in the Handbook, which was referred to the Reference Committee on Legislation and Public Relations.

SUPPLEMENTARY REPORT OF JUDICIAL COUNCIL

Dr. Cunniffe presented the following supplementary report of the Judicial Council, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

This report pertains to the resolution adopted at the meeting of the House of Delegates in San Francisco in July 1946, providing for a revision of the Principles of Medical Ethics, which was referred to the Judicial Council.

The Principles of Medical Ethics were first written for the physicians of England in 1803 by Dr. Percival, and in 1847 at the meeting of the American Medical Association held in Philadelphia Dr. Isaac Hays was appointed chairman of a committee which was instructed to formulate Principles of Medical Ethics for the American Medical Association. Dr. Hays reported the consummation of this assignment at the meeting of the American Medical Association the following year. In the presentation of this document he followed very closely the Principles of Medical Ethics as laid down by Percival some sixty years earlier.

These Principles were modified somewhat in 1880 and since then a few additions have been made to them. But with very little change in their context, they have served the American Medical Association for practically one hundred years. Modifications and additions have been written in the language of several different periods, and the Council feels that this language should be rewritten so that it may be more easily interpreted.

However, we must weigh carefully each change in the structure of this revision on account of its great importance in relation to the conduct of members of the medical profession.

Under the old, but slightly modified, Principles of Medical Ethics adopted in 1848 the medical profession has progressed, has attained its present high position and has been responsible for great scientific achievement. The Council will not recommend changes in these Principles without the careful study and the mature deliberation which the problem merits. It is a work which must proceed with great caution. As Winston Churchill has said, "It has been my experience in great affairs that none of the fine accomplishments have ever been made other than slowly."

Realizing the importance of this matter, the Council at different times has requested those who introduced the resolution and any others who wished to offer suggestions to communicate with it and has offered the assurance that these communications would be gratefully received. Despite these appeals, only three letters have been received. In two, it was suggested that the Principles of Medical Ethics remain as they are, and in the third the Council was requested to provide laws or codes instead of principles to govern the conduct and activities of physicians.

The Council desires to make a sound revision which will not only have permanent value but will provide for adjustments which will fit changing conditions. There are many important factors involved in the consideration of this problem, and the Council again appeals to all those who are interested to send to it suggestions which are considered to possess value. These suggestions will receive serious consideration. Particularly will the Council appreciate suggestions concerning principles rather than laws or codes.

The Council is now studying that phase of the Principles of Medical Ethics which pertains to those high ideals which should motivate the conduct of the physician in relation to his patients and in relation to other physicians rather than that phase which deals with economics or ethics. It does not believe that a sound revision of the Principles of Medical Ethics of enduring value can be made hurriedly.

The Council feels that a more specific or detailed report should not be made until its task is nearer completion, and this statement is offered as a progress report only. It is submitted with the suggestion that the approval of the House of Delegates be granted for a continuance of this important study by the Council.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman.
LLOYD NOLAND.
JOHN H. O'SHEA.
LOUIS A. BUIE.
WALTER F. DONALDSON.

REPORT OF COMMITTEE ON CENTENNIAL CELEBRATION

Dr. Edward R. Cunniffe, Chairman, presented the following report concerning the program for this Centennial Celebration:

I am sure that you are all aware that a commemorative stamp has been granted by the government, which was issued today and is at hand and available at a desk in the lobby of this hotel. I should like to call your attention to the fact that 125,000,000 of these stamps have been printed, that 80,000,000 stamps have been ordered by the various postmasters in the United States, and that there are 2,000,000 stamps in Atlantic City today.

It is customary when a commemorative stamp is issued that a certain ceremony be followed, and that will happen tonight at the dinner of the House of Delegates, when Assistant Postmaster General Lawler will be presented to the House and will make a short address in presenting an album with the stamps to Dr. Shoulders, your President, who will respond in behalf of the Association. This will not take very long. It will be a very short ceremony.

The stamp, of course, is a painting of an old picture called "The Doctor." I don't know who ordered the painting, but the physician who is shown in this painting was a physician to Queen Victoria and also to King Leopold of Belgium. We will have the original working drawing of this painting on exhibition sometime during the week. It is the property of Dr. Donald Guthrie of Sayre, Pa., and he has sent it down with a description of the events that concern the painting. The painter wanted to show the physician, not as a physician to royalty, but rather as one to the poor, and that is the reason it has been selected for this stamp.

The program continues tomorrow night with a general meeting, and that meeting will open with a musical program, to be followed by an invocation to be given by Rev. Mortimer Sullivan. Then announcements, if necessary, will be made by the chairman of the local committee and the chairman of the Centennial Committee. Following that, the chairman of the Centennial Committee will introduce foreign guests. The installation of the President will follow, after which there will be a presentation of the Distinguished Service Medal by Dr. Bortz, followed by the introduction of more foreign guests by the President.

Dr. Sensenich, Chairman of the Board of Trustees, will then present the President's Medal to the retiring President, Dr. Shoulders, and also make the awards of Honorary Fellowships to foreign guests.

I forgot to say that Dr. Bortz will present the Distinguished Service Medal to Dr. Christian.

On Thursday night the President's Ball will be held in Convention Hall, Wednesday night being given over to the fraternities and societies for their meetings and dinners. At the President's Ball music will be furnished by two famous orchestras providing dance music. There will be three reception lines, one headed by Dr. and Mrs. Shoulders, Dr. David B. Allman, chairman of the local committee, Mrs. Allman and ten foreign guests; the second line, by Dr. and Mrs. Bortz, Dr.Hilton S. Read, the deputy chairman of the local committee, and Mrs. Read and ten foreign guests; and the third line, the President-Elect and his wife, if he is not a bachelor, Dr. Royal Schaaf, president of the Medical Society of New Jersey, and Mrs. Schaaf and ten more foreign guests.

I think I would be remiss if I did not say a word about the fact that "The History of the American Medical Association" is now ready and on sale. It is very well worth while, and I am sure the men will take a great interest in securing copies and taking them home with them.

I also want to say at this time, because I probably will not have a chance to come before you again, that the committee has worked hard in formulating this program, with the exception of the chairman. I have just the honor to report their hard work to you, because it has been very easy for me. I must say that, without the help of Dr. Fishbein, Dr. Lull and Miss Niehoff, this could not have been accomplished. There have already been two days of this program, the dinner on Saturday night and the services yesterday morning, which I think have been fairly successful. I want to say that we appreciate very much the work which they have done, and without them we could not have done anything. Thank you very much.

REPORT AND SUPPLEMENTARY REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

Dr. Edward L. Bortz, Chairman, presented the report of the Council on Scientific Assembly as published in the Handbook and the following supplementary report:

REQUEST FOR SECTION ON PHYSICAL MEDICINE

The Council on Scientific Assembly has received a request from the Council on Physical Medicine for the establishment of a Section on Physical Medicine.

RESOLUTION ON CONFERRING HONORARY FELLOWSHIPS

Resolved, That the House of Delegates authorize the Board of Trustees to confer Honorary Fellowships on (*a*) those distinguished guests in attendance at this session who are official representatives of foreign governments, (*b*) official representatives of foreign medical associations and (*c*) all distinguished guests who have been invited to present papers before the General Scientific Meetings and the sections of the Scientific Assembly.

Dr. Bortz reported that action on the resolution would be needed at once if it is the will of the House to confer Honorary Fellowships on the distinguished foreign guests.

It was moved by Dr. L. G. Christian, Michigan, and seconded by Dr. Thomas S. Cullen, Maryland, that the House resolve itself into the Committee of the Whole. The motion was lost on a rising vote.

Dr. James R. Reuling, New York, moved that the usual order of business be suspended and action on this resolution be taken at this time, and the motion was seconded by Dr. Mather Pfeiffenberger, Illinois. After discussion, Dr. Reuling withdrew the motion and substituted another motion, with the intention of a twenty-four hour notice, to elect the invited foreign guests Honorary Fellows at the meeting the next day and the substitute motion was seconded by Dr. Thomas S. Cullen, Maryland.

The Vice Speaker, Dr. F. F. Borzell, suggested that with the presentation of the following proposed amendment to the By-Laws and its adoption the next day the question would be answered:

Amend the section of the By-Laws referring to Honorary Fellows to read:

"Honorary Fellows: Physicians of foreign countries who have risen to preeminence in the profession of medicine and who are in attendance at the session may be elected to Honorary Fellowship by the House of Delegates on the nomination of the Council on Scientific Assembly. The several sections may make recommendations to the Council on Scientific Assembly regarding individuals for such nomination.

Dr. Holman Taylor, Texas, moved to amend the motion by suggesting that the revised By-Law quoted by Dr. Borzell as a part of the proposed revised Constitution and By-Laws be voted on before the suggested revision of the entire Constitution and By-Laws is considered. The suggested amendment of Dr. Taylor was seconded and carried, after which the Speaker declared that amendment before the House for action the next day on the Report of the Reference Committee on Amendments to the Constitution and By-Laws.

PROGRESS REPORT OF COMMITTEE ON NATIONAL EMERGENCY MEDICAL SERVICE

Dr. E. L. Bortz, Chairman, presented the report of the Committee on National Emergency Medical Service as printed in the Handbook, including the revised part of the report as follows, which was referred to the Reference Committee on Emergency Medical Service:

Revised Portion of Report of the Committee on National Emergency Medical Service

On the basis of studies of questionnaires returned and of letters from key individuals, and after eliciting the considered opinions of representatives of the Army, Navy, United States Public Health Service, the Veterans Administration, Federal Security Agency, the Secretary of the Interior and the Advisory Medical Committee to the Secretary of War, and after a thoughtful review of the events of medical participation in World War II, and in consideration of the current developments in modes of warfare, the Committee at this time desires to present to the Board of Trustees for transmission to the House of Delegates the following recommendations:

I. That the President of the United States of America and the Congress be respectfully urged:

(*a*) That in war and in peace the Surgeons General of the armed forces have the authority and responsibility for participation, with commensurate rank and at the level of the chiefs of staff and the chiefs of naval operations of the armed forces, in all military and naval planning, organization and operations as these relate to medical, health, sanitary and welfare services; and for the assignment and utilization of medical and allied personnel at home and abroad.

(*b*) To require that the Secretary of War and the Secretary of the Navy and such other cabinet officers as may be charged with responsibility for our national defense give consideration to possible civilian requirements in a total war in the planning, location and construction of military hospitals, and that they reexamine their organizational tables and other procedures used during World War II in order to avoid (1) the medical overstaffing of units; (2) the wasting of the time of doctors of medicine in the performance of nonprofessional duties; (3) the removal of an excessive number of doctors of medicine from civilian hospitals and from civilian practice; and (4) a rather widespread failure to make assignments, determine rank and provide for the rotation of doctors of medicine on the basis of their professional qualifications, experience and age.

II. That the American Medical Association go on record as favoring the creation of a National Emergency Medical Service Administration as a continuing function of government, such administration to consist of representatives of the Advisory

Board for Medical Specialties, American College of Physicians, American College of Surgeons, American Dental Association, American Hospital Association, the Catholic Hospital Association, American Medical Association, American Nurses Association, American Public Health Association, American Veterinary Medical Association and Association of American Medical Colleges.

The Administration *shall* be charged with the responsibility at all times (1) for effecting plans for total mobilization of the medical and allied resources of the nation; (2) for the procurement and allotment of medical and allied personnel in case of a national emergency; (3) for the coordination of civil and military medical and allied services in times of threatened or actual national emergency, provided that in the exercise of this function there shall be added to the administration the following members:

The Surgeon General, U. S. Army.
The Surgeon General, U. S. Navy.
The Surgeon General, U. S. Public Health Service.
The Air Surgeon.
The Medical Director, Veterans Administration.
A representative of the National Research Council.
A representative of the American Red Cross.

III. The experience of the American medical profession in the armed forces during the recent conflict and an examination of the effect of total war on civilian populations require that we participate in continuous study, planning and supervision of the adequacy of medical, health and sanitary services for the civilian population during emergencies, and the adequacy of medical, health and sanitary services in the armed forces. The survival of the United States can hinge on this action. Scientific knowledge has accelerated warfare to the point that a nation cannot wait until disaster is approaching to prepare for such horrible events. The responsibility, therefore, demands that the American Medical Association establish forthwith a permanent and authoritative body to deal with this problem.

The Committee recommends that the Board of Trustees of the American Medical Association be authorized by the House of Delegates to create and appoint a standing committee to be designated as the Council on National Emergency Medical Service.

IV. Finally, it is recommended that the present Committee on National Emergency Medical Service be discharged.

Respectfully submitted,

Edward L. Bortz, Chairman.
Harold S. Diehl.
Perrin H. Long.
Harold C. Lueth.
O. O. Miller.
James C. Sargent.
V. C. Tisdal.

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. H. G. Weiskotten, Chairman, presented the report of the Council on Medical Education and Hospitals as printed in the Handbook, which was referred to the Reference Committee on Medical Education.

SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. H. G. Weiskotten, Chairman, also presented the following supplementary report, the first section of which was referred to the Reference Committee on General Medical Practice and the rest of the report to the Reference Committee on Medical Education:

I. Upholding Prestige of General Practitioners

Considerable thought has been given to devise ways of upholding the prestige of general practitioners so that they may be encouraged to provide the citizens of our country with the kind of medical care which they are peculiarly qualified to furnish and for which there promises to be continued need.

The establishment of a Section on the General Practice of Medicine by this House in 1945 was an important step forward. Interest in this section was at once apparent, as shown by a registration of 939 at the 1946 Scientific Assembly and by the attendance of these registrants at the various meetings. This House has also expressed its approval of the organization of sections on general practice in state and county medical societies.

In spite of this, certain hospitals have inaugurated as a matter of policy limitation of their staff appointments to physicians certified by specialty boards or holding membership in certain special medical societies. Such a policy is contrary to the principles of the Council and seems unsound. In publications which have dealt with hospital standards, the Council has expressed repeatedly the need for a hospital staff of high quality; it has never mentioned certification by a specialty board or membership in a special medical society as an important credential.

Certain institutions have assured for themselves the inclusion on their staffs of properly qualified general practitioners by the intramural establishment of "General Practice Sections." An excellent description of how such a section actually operated over a period of eight years in a 450 bed hospital appeared on pages 15 through 16 of the May 3, 1947 issue of The Journal. Reprints of this article will be distributed by the Council to every registered hospital in the United States.

On the whole, so much uncertainty appeared to exist in the minds of many boards of trustees of hospitals about the propriety of establishing such sections as to lead this House at its meeting in San Francisco a year ago to adopt a significant resolution. This was reported favorably by the Reference Committee on Medical Education and adopted by the House; part of this resolution is quoted:

> Whereas, Many hospitals have not established general practice sections in their visiting active staffs, and their governing heads are doubtful whether such action has the approval of the bodies which set up the rules and regulations for the approval of their hospitals for interns and residents; therefore be it
>
> *Resolved*, That hospitals should be encouraged to establish general practitioner services. Appointments to a general practice section shall be made by the hospital authorities on the merits and training of the physician. Such a general practice section shall not per se prevent approval of a hospital for the training of interns and for residencies. The criterion of whether a physician may be a member of a hospital staff should not be dependent on certification by the various specialty boards or membership in special societies.

Copies of this resolution have been sent to the American College of Surgeons, the American College of Physicians, the American Hospital Association, the Protestant Hospital Association, the Catholic Hospital Association and to each hospital registered by the Council.

To carry forward further the intent of the resolution, the following report was published by the Council in The Journal, page 95, in the May 3, 1947 issue:

"At the direction of the House of Delegates of the American Medical Association some years ago, the Council on Medical Education and Hospitals formulated standards for the establishment of American boards for the certification of specialists and for the conduct of hospital residencies providing training in the various special fields of medicine. The aim was to improve the quality of training at this level of medical education. The physician responsible for directing such hospital training should himself have had training and experience approximately equivalent to that required of certification applicants, whether or not he is actually certified. But it was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians, as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients as judged by the professional staff of the hospital and not on certification or special society memberships.

"In this opinion the Council has the full concurrence of the Advisory Board for Medical Specialties, which represents all of the American Boards in the specialties. At the February 1947 meetings of the Advisory Board it was unanimously voted to adopt as the sentiment and policy of the Advisory Board the recent resolution passed by the American Board of Surgery, which reads:

> "'The American Board of Surgery is not concerned with measures that might gain special privileges or recognition for its certificants in the practice of surgery. It is neither the intent nor has it been the purpose of the Board of Surgery to define requirements for membership on the staffs of hospitals. The prime object of the Board is to pass judgment on the education and training of broadly competent and responsible surgeons—not who shall or shall not perform surgical operations. The Board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.'

"Since February, several separate American boards in the various specialties have taken similar action. The Council on Medical Education and Hospitals of the American Medical Association is completely in accord with this principle."

The Council now asks authority to use still another lever to carry forward the intent of the resolution. It recommends that section 3, paragraph 6, of the "Essentials of a Registered Hospital" now reading "6. Staff sections, such as medicine, obstetrics and surgery, should be organized as may seem wise" be amended to read "6. Staff sections, such as medicine, obstetrics, surgery, general practice, etc., should be organized as may seem wise."

This amendment is proposed in the belief that even so small a change in wording of the Essentials may be of help in promoting the intent of the resolution adopted by this House a year ago.

The desirability of doing this is plain. The establishment of an American Board of General Practice is being discussed by the Section on the General Practice of Medicine, by the Council and by the Advisory Board for Medical Specialties. The wisdom of establishing such a specialty board at this particular time is debatable. Wider realization and greater use of the contributions which skilful general practitioners can bring to hospitals may make superfluous the need for their certification by a specialty board.

Mimeographed copies of this report are available for every member of the House.

II. Revision of Essentials of Approved Residencies and Fellowships

This document, which sets forth the regulations applying to hospitals offering advanced training to physicians, was originally approved by the House in 1928. Periodically, it has been revised. The present revision brings the document up to date. It is forty-three pages in length and would require an hour and a half to read.

In the light of discussions yesterday at the "Grass Roots" conference, the House would be interested in the following statement in the Revised Essentials regarding the staff of a residency hospital:

"There should be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from approved medical schools acceptable to the Council on Medical Education and Hospitals. The particular specialties in which residents are being trained should be represented on the staff by well qualified, experienced and proficient physicians, *whether or not they may be certified in a specialty or hold membership in special societies.*"

REPORT AND SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL SERVICE

Dr. E. J. McCormick, Chairman, presented the Report of the Council on Medical Service as printed in the Handbook, which was referred to the Reference Committee on Miscellaneous Business, except the portion relating to legislative matters, which was referred to the Reference Committee on Legislation and Public Relations.

Dr. McCormick also presented the following supplementary report of the Council, which was referred to the Reference Committee on Miscellaneous Business:

Important developments in the field of medical service have taken place since the completion of the Council's annual report. Several of these are of such moment as to require additional comment at this time.

United Mine Workers Health and Hospital Fund

In the annual report the Council gave a short résumé of the situation to date, made mention of the Boone survey and outlined briefly a possible plan of action.

Specific recommendations were withheld pending the release of the Coal Mines Administration's (Boone) survey. This survey and its findings have now been made public in a three hundred page report entitled "A Medical Survey of the Bituminous-Coal Industry." To provide the delegates with a summary of the survey, the Councils on Medical Service, Industrial Health and Medical Education and Hospitals have prepared a 6,000 word résumé of the principal points and the recommendations. This résumé appears in the June 7 issue of The Journal, copies of which are available to each delegate. While the résumé does not do justice to the excellence, the scope and the objectivity of the survey, it does present the highlights and conclusions in a form sufficiently condensed so as to enable every delegate to become acquainted with the survey.

The Council recommends to the House of Delegates:

1. That a statement be prepared congratulating Rear Admiral Joel T. Boone and his survey teams on the survey, its objective approach, its scope, and its unbiased conclusions and recommendations. (Copies to be sent to the Secretary of the Interior and the Coal Mines Administrator.)

2. That a statement be prepared for the United Mine Workers Union and the bituminous coal operators' associations noting their assistance to and cooperation with the survey teams; calling attention to the fact that here is an opportunity for labor, management and medicine to work together on a positive approach to the solution of the health problems of a specific segment of the population; pointing out the plan mentioned in the Council's annual report, and requesting that formal conferences be held with representatives of the American Medical Association (Councils on Medical Service, Industrial Health and Medical Education and Hospitals).

3. That other interested groups, such as the Association of Coal Mine Physicians, American Hospital Association, American Dental Association and American Nurses Association, be called together to discuss possible approaches to the health problems of the miners and to act jointly with the American Medical Association in conferences with both the mine workers' unions and the mine operators.

Veterans Administration Home Town Medical Care Program

Undoubtedly most of the delegates are aware of the Veterans Administration Home Town Medical Care Program. Under this program the veterans were to receive medical care for service connected disabilities from physicians of their own choice, physicians were to serve for fees agreed on through their state medical societies, and every effort was to be made to provide the veterans with the same medical care received by civilians. Up to the present time some thirty-eight state medical societies have worked out agreements with the Veterans Administration for the purpose of providing the veteran with the same care he would receive as a private patient. To this decentralized, free choice program the Veterans Administration agreed.

There are now indications that new factors have arisen that have resulted in the Veterans Administration altering its policy. It would seem now that its policy is to set up more and more clinics manned by Veterans Administration doctors and require veterans to go to such clinics where available. Further, the Veterans Administration has prepared a schedule of fees which, while supposedly an attempt to arrive at a standard nomenclature, does contain a maximum fee for each service and has all of the ear marks of a nationwide schedule of fees.

The Council recommends to the House of Delegates:

1. That the Council on Medical Service be authorized to set up a conference for the purposes of arriving at a definite policy with regard to the Veterans Administration Home Town Medical Care Program.

2. That representatives from each of the state medical societies and representatives of the Veterans Administration be invited to this conference to present their views, experiences and opinions.

3. That, following this conference, the Council on Medical Service in collaboration with the Board of Trustees and representatives selected by the state societies be authorized to meet with representatives of the Veterans Administration to effect solution of any existing problems.

American Cancer Society Program

At the December meeting of the House of Delegates the Council presented a report on the American Cancer Society Service Program and recommended its approval. Approval was voted by the House.

To acquaint the state and county medical societies with the service program and their position in developing a local program, the Council has prepared a News Letter giving a résumé of the various activities open to county societies under the service program. Experience is now accumulating and problems are developing. While under the service program the county medical society has full authority to approve or disapprove any or all activities, it has become evident that uniform policies with reference to certain parts of the program might be of assistance to the county societies. Such policies, of course, must be developed from the experiences of programs actually in operation.

With this in mind the Council recommends and is preparing a study of the extent and experience of the programs now in operation and will report its findings to the profession. If policy changes or additions seem necessary, they will be reported to the Board of Trustees.

Cash Sickness Benefits

A study of cash sickness benefits was authorized in July 1946 but was not referred to the Council until March 1947. The Council has inquired briefly into the status of disability insurance providing temporary cash benefits for time loss due to nonoccupational disabilities. We find that there is much controversy concerning this type of insurance, particularly when it comes about as a result of either federal or state legislation. At the present time two of the states, Rhode Island and California, have adopted compulsory disability benefit laws. In general they follow the same pattern. They differ, however, in that Rhode Island sets up a monopolistic state fund for the purpose of supplying benefits, while the California law permits either the employer or a group of employees to establish a voluntary plan as a substitute for coverage under the state plan. Many defects seem to have become apparent in the Rhode Island program, and it seems to be the consensus that it provides only a negative lesson in that it shows certain features not desirable in a law but gives no experience to prove that even with these eliminated its operation would be satisfactory. The California plan has not provided sufficient experience to determine its worth.

The Council finds that some thirty-two "cash sickness" bills have been introduced this year in the legislatures of thirteen states. Twenty-two of these bills have failed to pass, one passed both houses but was vetoed by the governor, and nine are still under consideration.

The Council also points out that the action of Congress in amending the recent provision of the Railroad Retirement Act to provide disability benefits for railroad employees will likely serve to focus and intensify the interest of state legislators in compulsory disability benefit laws. There has, of course, been a rivalry between the state and federal governments in the field of unemployment compensation benefits, and a renewed drive for state legislation may well be expected. If this drive materializes the state medical societies will need aid in devising policies, and this will require a knowledge of developments under existing programs.

We must not forget that this type of compulsory program may well lead to expansion of social security legislation along the lines suggested by Senators Murray and Wagner and Representative Dingell. Therefore its benefits and defects must be reviewed in the light of principle as well as temporary accomplishment. The Council mentions this preliminary study of cash sickness benefits to call attention to its importance and to inform the delegates that a detailed study will be made so that the state medical societies will be in a position to meet possible future legislation.

Hospital Construction Act

The Council on Medical Service is watching the developments following the enactment of the Hospital Construction Act and urges all state associations to keep abreast of these developments.

The definition of health centers should be reviewed at this time by the House of Delegates. At the December meeting of the House of Delegates the Council was authorized to "prepare a suitable definition of a health center or of health centers of varying types." Dr. Dean F. Smiley, Consultant on Health and Physical Fitness of the Bureau of Health Education, has completed a study of health centers for the Council. A brief summary of the conclusions is available to members of the House of Delegates. The following summary of Dr. Smiley's report is referred to the House of Delegates without comment for its consideration:

Summary of Dr. Dean F. Smiley's Report

1. At least fourteen different functions have been assigned the health center since 1912.

2. Of these fourteen functions it is recommended that only five (communicable disease control efforts, sanitation, maternal-infant-child-hygiene measures, vital statistics and health education) be generally included under the title of public health center as that title is used in the Hospital Survey and Construction Act of 1946.

3. It is recommended that public health centers be established as needed (the Hospital Survey and Construction Act of 1946 definitely limits the number of such centers in thickly populated states to 1 per 30,000 people, in states having a population of less than 12 persons per square mile to 1 per 20,000 people) and in close proximity to hospitals and medical schools (if any) in base hospital service areas, intermediate hospital service areas and rural hospital service areas and that they be integral parts of base medical centers, district medical centers and community medical centers. It is, however, recommended that at every level the public health center be kept administratively independent.

4. Public health centers to serve as headquarters for county and multi-county public health units are much more urgently needed than are rural public health centers serving as extensions of county and multi-county public health units.

5. It is recommended that in rural communities of 4,000 to 18,000 in need of sick beds but not large enough to afford a 50 bed general hospital, "community clinics" of 10 to 40 beds be provided by hospital authorities rather than "public health and medical service centers" provided by public health authorities. However, administratively independent public health centers may to advantage be housed in the community hospital or community clinic.

6. In those rural communities where bed service is available from neighboring community hospitals and the urgent need is for facilities for public health and *diagnostic facilities* it is recommended that the public health center shall provide facilities not only for the traditional six point public health service but also for clinical laboratory service and limited x-ray service. Offices for the part time use of the practicing physicians of the community should also be included if the physicians so desire.

7. In the interests of economy and administrative efficiency it would appear generally wise to avoid combining medical service functions, hospitalization functions, welfare and social service functions or recreational functions with public health functions in the public health centers projected under the terms of the Hospital Survey and Construction Act of 1946. The public health center should, however, include facilities for meeting effectively any responsibility laid on the public health department by the local community.

Respectfully submitted,

E. J. McCormick, Chairman.
H. H. Shoulders.
Roger I. Lee.
Louis H. Bauer.
Alfred W. Adson.
Walter B. Martin.

Thomas A. McGoldrick.
Thomas R. McVay.
Raymond L. Zech.
George F. Lull.
Thomas A. Hendricks,
Secretary.

ADDRESS OF REAR ADMIRAL JOEL T. BOONE

During the presentation of the supplementary report, Dr. McCormick requested and received approval of the House to hear the following address of Rear Admiral Joel T. Boone:

Mr. Speaker, Dr. McCormick, Members of the House of Delegates of the American Medical Association: I haven't had an opportunity to prepare, other than to jot down a few thoughts last night, what I might say if you were gracious enough, having been forewarned, to invite me to appear before you.

For the second time in six months I have been highly honored by this very distinguished body by invitations to address it. I am inexpressibly grateful for your tribute to an agent of medicine who has tried with a serious conscientiousness to apply his professional talents to an ailing patient, the bituminous coal industry. Furthermore, he has observed the omissions of public health (that does not mean the United States Public Health Service, I want to say) and the failure to apply preventive medicine and industrial medicine. Also he regrets he has seen medicine practiced to reflect no credit on the healing art, and very gratifyingly he has seen wonderful examples of the practice of medicine in certain areas of the bituminous coal mining area.

Happily, all the members in the family of coal were not ill, as some may have claimed. Owing to adherence to health concepts and practices, some of the members of that family were robust, vigorous and examples of a high degree of healthfulness.

Yesterday, Sunday, fittingly this convention started off with a religious note sounded in which a trio of exhorting voices were raised to inspire men. These men were worthy representatives of Almighty God. Dr. Hutchison, Rabbi Liebman and Monsignor Sheen elevated men's minds and souls to determine consecration to greater service to mankind. Each of these eloquent speakers knit the practice of medicine to the pattern of religion.

Would that I possessed a fraction of their power to bring to you a message from the group who made the medical survey of the bituminous coal industry as the director of that group. Of that survey I wish to say that the results obtained are those of a team and not of an individual. Each member of the group made his contribution.

As the appointed head of the mission, I approached my job as the physician. The survey was conceived and pursued as a medical problem, and never once did I lose sight of the fact that I was in my chosen role as the common practicing physician. In approaching the problem, I knew that I first had to make a diagnosis of the malady before I could possibly think in terms of a remedy.

In the preparation of our report we sought not to popularize ourselves by avoiding criticism. We had a responsibility and a goal of producing and presenting factual data and, in doing so, determined to be impartial. We did not straddle. As a physician, I knew that the diagnosis, the symptom complex, must be relieved.

Cooperation was attained quite readily, because I said to management and I said to labor "You may fight and row over wages and hours, but most certainly, gentlemen, health is a common concern."

We are indebted to management and labor and, as a representative of the medical profession, I feel very keenly our indebtedness as well to the state, federal and local authorities for their assistance and demonstrated cooperation. We could not have had more cooperation than we had, and we could not have attained the results we did without it.

Of course, we met with discouragement many times, and there were periods when I must say frankly that I felt frustrated. The challenge to success was omnipresent. As naval officers we were given a unique mission, a broad mission. We were definitely on the spot. Some of the members of this Association in Chicago at the headquarters said to me very frankly last summer and last fall that they were very gratified they did not have the responsibility.

For the first time in history, a national survey of a basic industry under governmental auspices was ordered to be conducted, and the Navy was given the assignment. The reaction has been beyond one's fondest expectations. It is gratifying, I assure you. But the disclosures present great challenges which must be embraced and successfully met. I have confidence that there is adequate leadership in industry—and I apply it not to the coal industry but to industry as a whole—and in my own profession, to overcome all the obstacles to the attainment of improved health for those individuals who contribute to the nation's welfare in the production of coal. With the coal industry as a means to an end, through it all industry, mechanical and agrarian, may be benefited and the health of the nation as a whole thereby raised to a higher level than we tolerate too complacently today.

Saturday I was asked to contribute to your Council's deliberations as to what to do, and I felt quite inadequate in a few moments to advise them. I would be very happy to cover the subject sometime as to my own ideas, if they have any value whatsoever, based on the experience in this survey. Among those recommendations I would like this one to stand out in italics, if possible. It appears under the section on Medical Care and Hospitalization:

"That an outstanding and recognized leader of the civilian medical profession be appointed a member of any trusteeship established, the purpose of which is for the medical care and hospitalization of miners and their dependents."

The other day, by a strange coincidence, I was invited by the president of the United Mine Workers of America to have luncheon with him. I was a bit apprehensive when I accepted, although I wanted to have a chance to talk to him to see how he felt about the report, because I thought there might be others present and it wouldn't be the relationship that we have as a physician with a patient alone. He personifies, in a way at least, the part of the patient.

After he had congratulated me much more fully than I expected, I said "I am surprised, Mr. Lewis, since I castigated your organization as I did."

He said to me "I don't mind what you said about our organization. You are one group that we felt we could have confidence in, that you would be factual, and I am satisfied because you have exposed the situation to public gaze."

Then I put up some challenges to him. I cannot repeat them all, but I would like to say to this group that I said to him "If you are going into the field of medicine, my advice to you, for the first time that you do, is to acquire the services and to get the advice of organized medicine, to get one of the most outstanding leaders in the profession of medicine to be your adviser and then pay him comparably to what you pay your legal talent. I understand you pay them as high as any other organization in the United States."

I might say also that after I had thanked him for the luncheon in a note later I said to him "You have gained great points for labor in wages and hours, but at your age in life, as you are coming to the end some years from now, you can overcome a lot of opposition to you and feeling toward you, and you could perform not only a great service to your union but to your country, if you gave yourself to the promotion of health. Until you champion preemployment, preplacement examinations, to which the union has shown opposition, you are not assuring yourself of the stability, mental competence and physical stamina of the individual who operates the machine. Mining has become very highly mechanized now, and you are failing in a great responsibility."

I said "If you come out and praise preplacement and preemployment examinations, all the opposition will be dissipated."

He said "I will do it," and I hope he will.

On Sunday I was congratulated several times, and one of my friends in this group was very fulsome in his congratulation. Then he said "I wonder whether anything will be done about it" and that gave me a thought. The profession of medicine can be a determining and a compelling force that there will be something done about it. Medicine is the guardian of the health of this nation, and we can't afford to permit known and disclosed serious and dangerous factors opposing health to continue to exist without something being done about it.

The other day, among many articles I have seen in magazines referring to this report of ours, I read one in the *Saturday Review of Literature* for May 10, and I understand that it is the first time this fine magazine has ever given any recognition to a governmental report. The writer was Mr. Starr, formerly on General MacArthur's staff, now in civil life. Among other things, he said:

"Public opinion will back this report if its contents are known and popularized by radio, play and movie. The presumption of effective democracy is that human beings can be persuaded. The minority can convince the majority if they have the facts on their side, but our powers of persuasion are not yet equal to the size of the case for improving the miner's lot. So far, the battle sectors of health and housing have not been manned in effective strength. This report is a valuable munition. Its criticisms and constructive recommendations are immediately practicable."

Gentlemen, in conclusion, if I may repeat from our report, the last paragraph reads:

"The report of the medical survey of the bituminous coal mine industry presents convincing evidence that the serious problem of improving the health of the miner, assuring him of better living conditions, enabling him to provide for his family through his own initiative and efforts and making him a more responsive and responsible citizen of his community, is a valuable problem if labor, management and the medical profession cooperate and work conjointly with a united interest and sincere devotion to a common cause: the good of large numbers of people in a basic industry. Health is a common concern of all groups. Working together for its promotion can help immeasurably to weld the bonds of human interrelationship."

Dr. McCormick expressed the desire and thought of the Council on Medical Service that Admiral Boone, members of the House of Delegates and physicians generally interested in this report appear before the reference committee and make any additional suggestions which they may have to make.

REPORT OF JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Dr. Ernest E. Irons, Chairman, presented the following report of the Joint Committee for the Coordination of Medical Activities, which was referred to the Reference Committee on Miscellaneous Business:

During the past year the Joint Committee for the Coordination of Medical Activities, formerly the Committee on Postwar Medical Service, has continued its discussions in well attended meetings. It is well understood by all members of the Joint Committee and by the organizations they represent that its work is advisory only. However, through its free and open discussions of many diverse problems confronting American medicine, the Joint Committee exercises a considerable influence toward the accomplishment of desirable objectives.

The Joint Committee is made up of officially appointed committees of the American Medical Association, the American College of Surgeons and the American College of Physicians and of liaison members representing the following organizations:

Advisory Board for Medical Specialties.
American Dental Association.
American Hospital Association.
American Pharmaceutical Association.
American Red Cross.
Association of American Medical Colleges.
Catholic Hospital Association.
Federation of State Medical Boards.
Federal Security Agency.
Office of the Surgeon General, United States Army
Bureau of Medicine and Surgery, United States Navy.
United States Public Health Service.
Veterans Administration.

The American Red Cross and the American Pharmaceutical Association were added to the liaison membership during the past year. Until the Procurement and Assignment Service and the War Manpower Commission were dissolved after the war, those government agencies also were represented on the Committee.

Since the report of the Committee was made to the House of Delegates in San Francisco, various matters have been discussed. Following a discussion regarding the postwar shift of the physician population, particularly with respect to rural areas, the American Medical Association's Bureau of Information undertook a survey to determine the conditions and distribution of medical care in the rural areas of the country. The initial report on this survey appeared in The Journal of the American Medical Association for May 17, 1947.

Important subcommittees of the Joint Committee have been active and have made informative reports which have been published in The Journal from time to time as a part of the minutes of meetings of the Joint Committee. Among these have been reports of the Subcommittee on Surplus Medical and Hospital Supplies, and on Graduate Education for Physician Veterans. The latter committee is still at work and has had frequent and cordial contact with officials of the Veterans Administration. Reports have been presented on licensure, mostly with respect to the licensure of physician veterans. The problem of licensure of foreign graduates also has been considered. A subcommittee on National Legislation for a Department of Health has been studying the various bills introduced into the Eightieth Congress which would establish in one manner or another a department or division of health in the federal government.

At its meeting in February 1947 the Joint Committee heard a statement from the American Red Cross concerning its proposed blood bank program. The Joint Committee found itself in agreement with the Board of Trustees of the American Medical Association, which endorsed the program in principle on the basis of community need and administration and of agreement by the local county medical society concerned.

A recent report had to do with the shortage of nursing personnel and with a plan sponsored by the American Hospital Association in cooperation with the National Nursing Council whereby a nurse recruitment program may be instituted.

A subcommittee on the Needs and Better Recognition of the General Practitioner has done considerable exploratory work. At the most recent meeting, April 26, 1947, this committee presented a report and recommendations which will appear shortly in The Journal.

The Joint Committee continues to be a forum in which the problems of American medicine can be discussed.

Respectfully submitted for the Committee,

Ernest E. Irons, Chairman.

REPORT AND SUPPLEMENTARY REPORT OF COMMITTEE ON RURAL MEDICAL SERVICE

Dr. F. S. Crockett, Chairman, presented the report of the Committee as contained in the Handbook and the following supplementary report, which were referred to the Reference Committee on Hygiene and Public Health:

On page 116 of the Handbook we reported the second annual conference with the major farm groups. Acting on the suggestions made at that time, your committee asked and received authority from the Board of Trustees to invite the American Farm Bureau Federation, the National Grange, the Farmers Educational and Cooperative Union and the National Cooperative Milk Producers Federation to appoint members to act in an advisory capacity to this Committee.

On May 24 the Committee met with its advisers to explore ways and means of getting action on the community or trade area basis. It was agreed that the formation of health councils should be undertaken on the state level and their development on the local level at the earliest possible moment. Their value in organizing sentiment for better health standards and initiating necessary measures to secure them cannot be duplicated by any outside organization.

Health councils requiring broad community participation would open the way for closer cooperation between the profession, farm and other groups and make possible any other desirable activity, such as prepaid medical and hospital plans, construction of hospitals or diagnostic centers, the bringing and holding of professional personnel, and so forth. It was the opinion of our advisory members that the organized farm groups would welcome the initiation of health councils and other health activities by the medical profession.

It was further agreed that news releases containing material pertaining to rural health should be sent from time to time to the farm organizations represented on this committee, this material to be used at their discretion in their publications to stimulate interest in rural community health problems

Discussion of medical cooperatives developed some interesting points of view. *It seems the action of the House of Delegates* last December, asking the Board of Trustees to formulate minimum standards necessary for good medical care, such as might be set up by consumer groups for example, medical cooperatives, would be welcome Our advisory members could not speak authoritatively for the cooperatives but in their opinion such a move by our profession might go a long way in creating a more friendly attitude

In the opinion of all our advisory members, the annual conference has been successful in convincing our farm friends of our interest in their health problems and should be continued. They *will meet with us next October in planning the next* conference.

Respectfully submitted,

F. S. Crockett, Chairman.
E. J. McCormick.
Victor Johnson.
C W. Roberts.
L W. Larson.
Fred A Humphrey.
Carll S. Mundy.
N. H. Gardner
J Paul Jones.
H. B. Mulholland.
Allen T. Stewart
James F. Doughty.
George F Lull

REPORT OF COMMITTEE TO STUDY REVISION OF CONSTITUTION AND BY-LAWS

Dr. F. F. Borzell, Chairman, presented to the House of Delegates the proposed revised Constitution and By-Laws, a copy of which had been sent prior to the session to each delegate, with the statement that some minor changes had been inserted to which he would call attention He stated that under the present Constitution and By-Laws the proposed revised Constitution would have to lie over until next year and began to indicate the modifications in the proposed revised By-Laws.

After discussion, it was moved by Dr T. K. Gruber, Michigan, *seconded by Dr. Thomas S. Cullen, Maryland, and carried that* this be read by title except such changes as Dr. Borzell desired to offer. Dr. Borzell began reading amendments to the revision but the delegates did not have copies with them and Dr. Borzell moved that the order of business be changed so as to include this report just previous to the beginning of the reports of the reference committees the next day The motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried

REPORT OF COMMITTEE ON MILITARY RANK

Dr. B. R Kirklin, Chairman, presented the following report, which was referred to the Reference Committee on Miscellaneous Business:

You have heard from the Surgeons General of the Army and Navy that bills are now before Congress which provide for increased rank and pay for the medical officers of the two services. They also stated that these bills have the blessing of the War and Navy departments

Therefore, since the purposes for which this Committee was created have been attained, as far as is possible at this time, the members of your committee recommend that the committee be discharged

Respectfully submitted,

B. R. Kirklin, Chairman
Hugh P. Smith.
Grover C. Penberthy.
Elmer Hess.

NEW BUSINESS

Resolution on Treatment of Plastics for X-Ray Visualization

Dr. Holman Taylor, Texas, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, There are about 15,000,000 children who play with toys that are made of plastic, rubber and other material which does not show in either x ray pictures or the fluoroscope, and for which reason they are a distinct hazard when swallowed; and

Whereas, Dr B H. Vaughan of Port Arthur, Texas, has started a campaign to have a federal law passed to require manufacturers of such toys to incorporate some harmless substance into the material from which they are made that will make them visible in x ray pictures; therefore be it

Resolved, That the State Medical Association of Texas go on record as endorsing the movement, and that our delegates to the American Medical Association be urged to introduce this resolution in the House of Delegates of that organization at its next session.

Resolution on Need of a Greater Income for Medical Schools

Dr Robert E Schlueter, Missouri, presented the following resolution, which was referred to the Reference Committee on *Medical Education*:

Whereas, Some medical schools are in need of a greater income to maintain their present high standards of instruction and scientific medical research; and

Whereas, It is actually impossible to increase the tuition fees sufficiently to secure the required funds, and

Whereas, Certain *schools of medicine are considering the organization* of clinics for the practice of medicine and surgery on a profit making basis in order to attain this end, and

Whereas, Such clinics would be in direct competition with the graduates of the medical schools involved as well as with all other practicing doctors of medicine, therefore be it

Resolved, That the House of Delegates of the American Medical Association *be requested to instruct the Council on Medical Education* and Hospitals to study this problem and find the proper means for combating this critical situation, which might even require an appeal to existing foundations or the creation of a new national voluntary foundation for the specific purpose of subsidizing approved medical schools which require financial assistance

Resolutions on Hospitals Entering Into the Practice of Medicine

Dr. Walter E. Vest, West Virginia, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, *There is a growing tendency among hospitals to enter into* and encroach on the practice of medicine, especially in the fields of pathology, clinical laboratory work, anesthesia and diagnostic roentgenology, and

Whereas, In all the states the practice of medicine is legally a franchise granted by the state to an individual after rigid technical training and due examination; and

Whereas, The practice of medicine involves an individual personal service which in the nature of things cannot be performed by an organization or corporation, and

Whereas, *In an increasing number of* hospitals, lay boards have gradually taken over the policies of the hospitals and have dictated to the medical staff not only problems of management but those of nursing and medical care as well; therefore be it

Resolved, By the House of Delegates of the West Virginia State Medical Association, that we go on record as condemning this tendency, especially as to setting and collection of fees by hospitals, and be it further

Resolved, that our delegates to the American Medical Association be instructed to present these resolutions to the House of Delegates of the American Medical Association at the coming session in Atlantic City with the request that the Council on Medical Education and Hospitals be instructed to include in the standards for hospital recognition these basic principles.

1. That all fees for medical service be set by and collected for by duly licensed doctors of medicine, and
2. That all policies and practices involving treatment, nursing and *medical service be approved by the medical staff before being put into* effect

Resolution on Establishment of a Section on Diseases of the Chest

Dr. Walter E Vest, West Virginia, presented the following *resolution,* which was *referred* to the Reference Committee on Sections and Section Work

Whereas, There are approximately 2,500 physicians and surgeons in the United States engaged *in the practice of diseases of the chest;* and

Whereas, This specialty has made notable progress in advancing the knowledge of diseases of the chest during the past ten years, and

Whereas, A total of 388 chest specialists registered at the annual session of the American Medical Association held at San Francisco, July 1-5, 1946; and

Whereas, The registration exceeded this total in but four of the seventeen sections of the American Medical Association, i e Internal Medicine, Surgery, General and Abdominal, Obstetrics and Gynecology, and the General Practice of Medicine, and

Whereas, Diseases of the chest constitute *a very large and important* segment of the entire volume of medical practice; therefore be it

Resolved, By the House of Delegates of the West Virginia State Medical Association, that our delegates to the American Medical Association be instructed to present this resolution in the House of Delegates at the coming session in Atlantic City, with the request that a Section on Diseases of the Chest be established in the Scientific Assembly of the *American Medical Association*

Resolutions on Rebates

Dr. William Weston, Section on Pediatrics, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, Complaints have been made from time to time by individual members of the American Medical Association and by constituent associations of the existing practice of accepting rebates by members, and especially has this practice been emphasized in regard to oculists and opticians in which it has been charged that many oculists conspire with opticians by accepting rebates on prescriptions for glasses, and

Whereas, The knowledge of this practice has become so widespread that it has been the subject of criticism by the lay press and by politicians unfriendly to the American Medical Association, and

Whereas, The American Medical Association through the House of Delegates has officially condemned all rebate practices in whatever shape or form they may exist and has distinctly expressed the opinion that such practices are in violation of the ethics of the American Medical Association, therefore be it

Resolved, That the House of Delegates reiterate its condemnation of this practice by any member accepting rebates, and be it

Resolved, That the Secretary of the American Medical Association communicate this action to the various county societies forming the constituent associations and request that members accepting rebates be removed from the role of membership, unless such member or members promise to desist from such practice in the future and that the secretaries of the various county societies communicate their action in this matter to the Secretary of the American Medical Association

William Weston.
David Scannell.
O H. Weaver.
J B Lukins
E. S. Hamilton.
Robert Hayes
Floyd S Winslow.
B. E. Pickett Sr.
George W. Kosmak.
K. S J. Hohlen.
Holman Taylor.
Elmer Hess
H. B. Everett.
W. A. Coventry.
Oscar O Miller.
Ralph Todd
J P Pratt.
J C Sargent
Walter E Vest.
Wingate M. Johnson.
J. Q Graves
Lloyd Noland.
Val F. Fuchs
James R McVay.
J. Smith.
Thomas S Cullen
Louis A Buie

Resolution on Indoctrinating Medical Students with Philosophy and Ethics of Profession

Dr. T. K. Lewis, New Jersey, presented the following resolution, which was referred to the Reference Committee on Medical Education:

Whereas, The new social philosophy being evolved in this country has confronted organized medicine with many vital and perplexing problems, and

Whereas, The burden of meeting these problems and at the same time retaining those attributes which experience has taught are vital in maintaining the standards of medical care is now being borne almost entirely by the more mature members of our profession, and

Whereas, It is recognized that the doctor of tomorrow, who is the student of today, will be the future standard bearer of our profession, and

Whereas, There is a formative period of six to eight years wherein as student and intern he receives his scientific training and lays the foundation for his professional philosophy, and

Whereas, We believe that, to prepare properly the physician to carry on the work now being performed by organized medicine, his curriculum should be supplemented by a program that would indoctrinate him with the philosophy and ethics of our organization, which program should emphasize the relationship to and the responsibility of the doctor in meeting the social problems now confronting our profession, therefore be it

Resolved, That the American Medical Association inaugurate a program which will systematically contact every medical student in each approved medical school, also those recently graduated now serving internship or other postgraduate training, said program being designed to supplement his scientific training with such facts and information as will fulfil the desires incorporated in this resolution. Preference should be given to a brief recognized course of instruction within the curriculum of each approved medical school, or by any other practical means deemed proper by the American Medical Association.

Resolution on National Health Policy

Dr. T. K. Lewis, New Jersey, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health:

Whereas, It is possible and likely that some form of national health policy will come into being; and

Whereas, The American Medical Association recognizes the need of supplying the professional and administrative leadership at the local level necessary to furnish public health services and adequate medical care to the people of the nation, therefore be it

Resolved, That the following principles be promulgated under the leadership of the Board of Trustees, or appropriate Council.

1 Each component society will appoint the necessary committees to study the public health and medical care problems concerned, to supervise projects relevant to these problems

2 Each component society pledges itself to maintain a high standard of professional skills among the medical personnel assigned to these projects, and to supervise such activities with a view toward maintaining high scientific standards and preventing personal exploitation.

3 Each component society invites and welcomes the active participation in its scientific programs by the qualified medical and nonmedical personnel of the appropriate health and welfare agencies

4. The health and welfare agencies will render genuine cooperation with each component society in the implementation of these projects

5 The health and welfare agencies will select their part time medical personnel from lists furnished by, or with the approval of, each component society.

6 The health and welfare agencies will clear through each component society any grievances concerning medical personnel

7. The health and welfare agencies will protect the private practitioner and family doctor by discouraging treatment in preventive clinics and by returning to the family doctor any cases not suitable for examination or care at the health or welfare agency

8 The health and welfare agencies will not profit financially by the labors of any medical personnel working there

9 Each component society and the health and welfare agencies will seek the cooperation of dental, nursing and pharmaceutical organizations in a program fashioned to accord with these principles

10 Each component society and the health and welfare agencies will maintain continuing liaison with each other to implement these principles

Resolutions on Medical Care of Veterans

Dr James R. McVay, Missouri, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

Whereas, The Congress of the United States enacted in 1946 Public Law No 293, which provided for the medical care of veterans and authorized the employment of professional personnel by the director of the Veterans Administration; and

Whereas, The provisions of Public Law No 293 give permission to the director of the Veterans Administration to employ personnel whose qualifications for administering medical care are limited because of educational attainments, and

Whereas, The medical personnel accepted for commission in the Medical Corps of the United States Army and the United States Navy was limited to those who were qualified as Doctors of Medicine; therefore be it

Resolved, By the House of Delegates of the Missouri State Medical Association, assembled in the eighty ninth annual session, that it disapproves of the employment of any person who claims to be educated in the healing arts for the medical care of veterans eligible to the benefits as provided by the acts of Congress for the medical care of veterans when said person was not acceptable to the Medical Corps of the United States Army and the United States Navy for commission as a medical officer; and be it further

Resolved, That the Sections of Public Law No 293 giving such permission should be repealed, and be it further

Resolved, That these resolutions be presented by the delegates from the Missouri State Medical Association to the House of Delegates of the American Medical Association at the next annual session of the House of Delegates of the American Medical Association

Resolutions on Teaching of Medical Economics in Medical Schools

Dr. James R. Reuling, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

The House of Delegates of the Medical Society of the State of New York at its annual meeting on May 7, 1947 directed that the following resolutions be introduced.

Whereas, The training of medical students is to a great extent under the direction of full time teachers, many of whom have not been engaged in the private practice of medicine and may not be acquainted with the viewpoint of the practitioner of medicine on socioeconomic problems; and

Whereas, At a previous meeting of the House of Delegates of the American Medical Association, it was requested by the House that courses in economics be established in medical schools as soon as feasible; and

Whereas, Such program was delayed by the onset of war; therefore be it

Resolved, That the American Medical Association through proper channels take active steps to insure the presentation to all medical students in the United States of the viewpoint of the practitioner of medicine on socioeconomic problems, and be it further

Resolved, That the American Medical Association assist in the preparation of material and the securing of speakers, or in any other way that is deemed necessary to further the institution of such a program at the earliest possible date

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. James Q. Graves, Louisiana, and carried, the House went into Executive Session to listen to a special report.

The House reconsidered a motion admitting officers and executive secretaries of state medical societies into Executive Session

On motion of Dr. E Vincent Askey, California, seconded by Dr. E. S Hamilton, Illinois, and carried, only delegates and officers of the American Medical Association were allowed in Executive Session.

The House convened in Executive Session at 5:15 p. m. and reconvened in Regular Session at 6.15 p m.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by several, the House recessed at 6:15 p. m to reconvene at 9 a. m, Tuesday, June 10.

(To be continued)

Washington Letter

(From a Special Correspondent)

June 18, 1947.

Senate Committee Approves Health, Education and Security Department

The Fulbright-Taft bill to create a Department of Health, Education and Security in the federal government, headed by secretary of cabinet rank, was approved by the Senate Expenditures Committee. The bill calls for appointment of three undersecretaries to head up the three principal divisions of the department. The department's duty would be "to promote the general welfare of the people of the United States by aiding and fostering progress throughout the nation in the fields of health, education and public welfare and related services, contributing to individual, family and community well being." No authority would be given in the legislation to any federal official to exercise control over the operation of any state or local health, education or welfare agency. The new department would include the Federal Security Agency and its constituent units the U. S. Public Health Service, the Food and Drug Administration, the U. S. Office of Education, the Social Security Administration and several lesser agencies. Spokesman for the California Medical Association Dr. Lowell S. Goin expressed agreement with general principles of the bill but took issue with a number of provisions. He pointed out that there was confusion in the words "health" and "medical care," explaining "It seems to me that the federal government, if sincerely interested in health and welfare of the people, might well turn its attention to some of these other problems rather than attacking the minor fraction of the problem called medical care."

Commission Advocates Filling "Gaps in Medical Care"

President Truman's Advisory Commission on Universal Training advocated compulsory training of all young men as part of a security program to cost billions of dollars. Proposed was a $1,750,000,000 a year universal training plan for 18 year olds. Rapid demobilization of the armed forces was criticized, and it was pointed out that "our military forces" are now a hollow shell. Called for in the overall security program was "a strong, healthy, educated population." The commission "strongly urged passage of legislation to fill the gaps in medical care and education benefits for the entire nation as quickly as possible."

Fines in Artificial Limb Industry

Associated Justice Alexander Holtzoff assessed fines from $100 to $1,000 on five corporations and three individuals in the artificial limb industry who pleaded nolo contendere, or no contest, to charges aired in a District of Columbia court. All the defendants had previously been found guilty on the same charge by Federal Judge Bower Braddus of Oklahoma City in the same court on May 14, 1946, with a subsequent appeal upheld in the U. S. Court of Appeals. Fines were imposed as follows: J. E. Hanger Company of Washington, D. C., $500; subsidiaries of the Hanger Company in Illinois, $500; Texas, $500; Indiana, $250, and Missouri, $500; McCarthy Hanger, president of the Missouri firm, $1,000; Joseph F. Branham, vice president of the Illinois firm, $500, and Hugh H. Hanger, said to own a separate business in Philadelphia, $100.

Helps to Coordinate Eyesight Saving Plans

The Federal Security Agency's Office of Vocational Rehabilitation announced that federal and private efforts to aid persons who have poor eyesight but are not totally blind will be coordinated through the National Society for the Prevention of Blindness. Similar cooperative agreements have been made with eighteen other organizations interested in specific problems of physically handicapped persons.

Washington Hospitals Plan to Moderize

Should the bill introduced last week to authorize approximately 15 million dollars for modernization of the capital's hospitals be enacted, most Washington private hospitals are reported to be planning remodeling or expansion. Representative Mary T. Norton, Democrat of New Jersey, introduced the measure as an amendment to the 1946 Washington Hospital Center Act.

General Bradley Praises Work of Volunteers

Veterans Administrator Omar Bradley informed his agency's Voluntary Service National Advisory Committee that the work of volunteers is making it possible for World War II veterans to leave hospitals in better mental and physical condition than did World War I veterans. He said that the work of almost three hundred different voluntary service groups is "helping the patients in our veterans' hospitals toward an early recovery."

Richard F. Allen Slated to Head Foreign Relief Program

Legislators have disclosed that President Truman favors the appointment of Richard F. Allen, a Red Cross vice chairman, as head of the general foreign relief program which Congress has been giving final attention. The director of the project would be in charge of distributing medicine, food, clothing, fuel and other necessities to five European countries and to China.

Cancer Council Recommends Forty-Eight Grants

The National Advisory Cancer Council has recommended forty-eight cancer research grants to laboratories, hospitals and universities throughout the country, totaling $700,000 in value. Georgetown University, Warwick Memorial Clinic and Dr. Walter R. Kirner of the National Research Council, all in Washington, D. C., were recommended for $70,000 of the total. The grants are dependent on 1948 Congressional appropriations to the U. S. Public Health Service.

Homes for Paralyzed Veterans

The Senate Banking Committee heard witnesses testify in favor of legislation, opposed by the Veterans Administration, to provide specially built homes for paralyzed war veterans. Thirteen paraplegics were wheeled into the hearing room. Mrs. Robert Moss, wife of a crippled patient at Halloran Hospital, Staten Island, N. Y., pleaded for the special homes and declared that in standard homes paraplegics are "complete invalids." Another witness said the only alternative is "hospitalization for life." General Bradley, Veterans Administrator, told the committee in a letter that "if an exception were made in the case of paraplegic veterans . . . it would be difficult to deny similar consideration to other seriously disabled groups, such as blinded veterans, those suffering from serious heart and lung conditions, and many others."

Dr. Ross T. McIntire Heads District Health Council

Dr. Ross T. McIntire, former U. S. Navy Surgeon General and White House physician, has been named chairman of the Washington Metropolitan Health Council, succeeding Dr. Herbert P. Ramsey, chairman from the council's inception in 1944. Dr. McIntire promised to make the council a "real force in the metropolitan area." Howard Strong, former head of the Health Division, U. S. Chamber of Commerce, was named vice chairman. Appointments must be approved by the Council of Social Agencies.

Arlington Hospital Site

A Norfolk, Va., court order has been signed giving possession of the 25 acre Nevius Tract in Arlington County to the Veterans Administration as the site for its new Washington area veterans hospital.

Coming Medical Meetings

Alaska Territorial Medical Association, Fairbanks, July 28-30. Dr. William J. Blanton, Juneau, Secretary.

American Orthopedic Association, Hot Springs, Va., The Homestead, June 27-30. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Maine Medical Association, York Harbor, Marshall House, June 22-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

GOVERNMENT SERVICES

ARMY

ARMY AWARDS AND COMMENDATIONS

Major General Norman T. Kirk

The United States of America Typhus Commission Medal has been awarded to Major Gen. Norman T. Kirk, Surgeon General of the Army, whose services were thus summed up in the citation: He rendered exceptionally meritorious service in connection with the work of the United States of America Typhus Commission from June 1, 1943 to June 30, 1946. Thoroughly comprehending the problems of typhus on a worldwide scale, he contributed in every way possible through his advice, special knowledge, high position and command of facilities to the effective operation of the commission in the United States and in all theaters overseas. By fostering investigations of rickettsial diseases and their control, General Kirk aided directly in achieving the new victory over typhus. Dr. Kirk graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1910 and entered the military service May 22, 1913.

Major General Paul R. Hawley

The awarding of the Distinguished Service Medal to Major Gen. Paul R. Hawley, medical director of the Veterans Administration, was accompanied with a citation calling attention to his exceptionally meritorious service as chief surgeon, communications zone, European Theater of Operations, from June 1944 to May 1945. His primary responsibility for the health of more than three million American military personnel was made doubly heavy by the care his command exercised over certain civilian populations, prisoners of war and Italian service units. He established a medical service that reached far forward to the battle lines to give superior attention to the wounded and rapidly evacuate them to areas where they could be speedily treated by completely modern methods. Through his unprecedented system it was possible to set a record of saving the lives of 96 out of every hundred wounded soldiers. The supervision of 318 hospitals and convalescent units, the evacuation of more than half a million casualties from the army areas and of nearly 200,000 to the United States was a task requiring the utmost coordination and superior management. Through his extensive professional knowledge and the aggressive, unremitting manner in which he applied it, General Hawley provided outstanding medical service to the armed forces in the European theater and made an important contribution to the war effort. Dr. Hawley graduated from the University of Cincinnati School of Medicine in 1914 and entered the military service in 1916.

Brigadier General Edward A. Noyes

The Legion of Merit has been awarded to Brig. Gen. Edward A. Noyes, M. C., U. S. Army, who, while serving as service command surgeon, Fifth Service Command, from July 1944 to December 1945, initiated exceptional medical practices and procedures at a time when casualties from overseas were overloading all hospitals and the patient personnel at the Convalescent Hospital increased fourfold in four months. He developed facilities for recreation, physical reconditioning and vocational training, instituted special treatment for neuropsychiatric and improved handling of paralyzed patients, and inaugurated at Fort Knox Rehabilitation Center a successful group therapy treatment program. Dr. Noyes graduated from the University of Oregon in 1913 and entered the military service in September 1915.

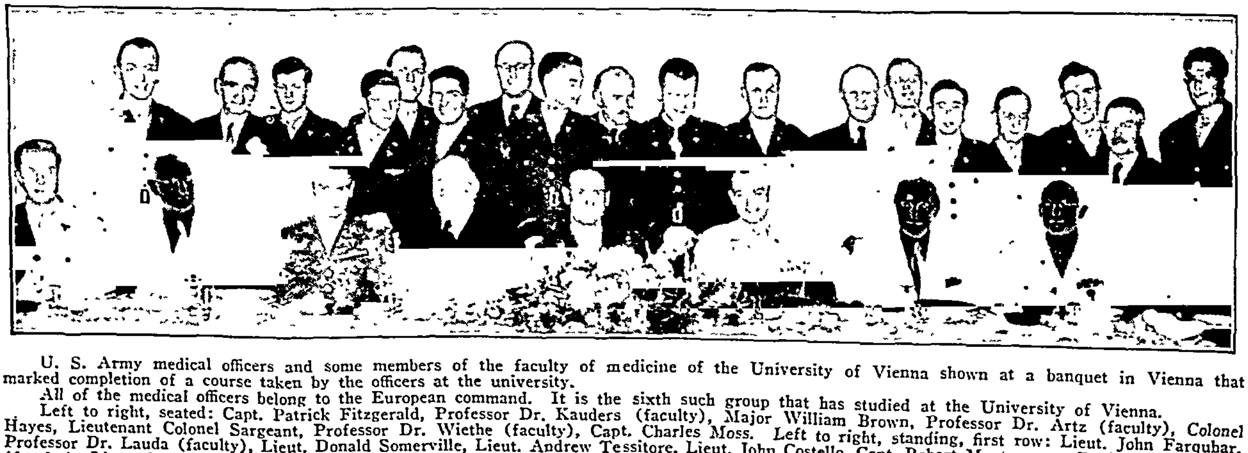
Colonel Wilford F. Hall

The Oak Leaf Cluster to the Legion of Merit has been awarded to Col. Wilford F. Hall, M. C., U. S. Army, who as surgeon of the Army Air Forces Personnel Distribution Command from July 1944 to May 1945 administered the physical reconditioning and educational programs in the Air Forces convalescent hospitals. By diligent application of his exceptional professional knowledge and superior judgment he played a leading role in rehabilitating combat veterans and making many of them available to the continental air forces and commands where they were vitally needed as replacements. Dr. Hall graduated from Washington University School of Medicine, St. Louis, in 1928 and entered military service in July 1928.

Lieutenant Colonel Everett W. Ryan

The Legion of Merit has been awarded to Lieut. Col. Everett W. Ryan, M. C., A. U. S., of Charleston, Miss., for exceptionally meritorious conduct in the performance of outstanding service as chief of preventive medicine section and medical inspector for the United States Army forces in the South Atlantic from September 1942 to September 1945. His superior judgment, long-range planning and inspired leadership are credited in the citation for succeeding in bringing about a most successful preventive medicine program during this period. The remarkable freedom from disease for our forces serving in an equatorial and subequatorial climate, in spite of almost unsurmountable environmental obstacles, was due in a great measure to the outstanding performance of duty of Lieutenant Colonel Ryan. Dr. Ryan graduated from the University of Louisville School of Medicine in 1934 and entered military service in May 1942.

MEDICAL OFFICERS COMPLETE GRADUATE COURSE



U. S. Army medical officers and some members of the faculty of medicine of the University of Vienna shown at a banquet in Vienna that marked completion of a course taken by the officers at the university.

All of the medical officers belong to the European command. It is the sixth such group that has studied at the University of Vienna.

Left to right, seated: Capt. Patrick Fitzgerald, Professor Dr. Kauders (faculty), Major William Brown, Professor Dr. Artz (faculty), Colonel Hayes, Lieutenant Colonel Sargeant, Professor Dr. Wiethe (faculty), Capt. Charles Moss. Left to right, standing, first row: Lieut. John Farquhar, Professor Dr. Lauda (faculty), Lieut. Donald Somerville, Lieut. Andrew Tessitore, Lieut. John Costello, Capt. Robert Montgomery, Professor Dr. Chiari (faculty), Lieut. Robert Kiley, Professor Dr. Lindner (faculty). Left to right, standing, second row: Lieut. James Gilboy, Capt. William Doremus, Professor Dr. Fellinger (faculty), Professor Dr. Antoine (faculty), Capt. Stephen N. Jones, Lieut. Robert Williams, Lieut. John Morris, Lieut. James Keehan and Capt. Carl Kundert.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Drs. Pottenger and Evans Receive Tuberculosis Awards.—Dr. Francis M. Pottenger, Monrovia, former vice president of the state board of public health, has received the medal from the California Tuberculosis and Health Association in recognition of his outstanding services in tuberculosis work. Dr. Pottenger was a guiding force in the organization of the Southern California Anti-Tuberculosis League, and its past president. Dr. George H. Evans, Berkeley, received a similar award. Both he and Dr. Pottenger are the only living members of the first committee appointed in 1904 by the California Medical Society to begin a study of tuberculosis in California.

Honorary Degrees for $25.—A copy of the following letter to a doctor of naturopathy in Dallas, Texas, has been received from the Texas State Board of Medical Examiners:

> THE UNIVERSAL EDUCATIONAL GUILD
>
> 6411 Hollywood Blvd. Hollywood 28, California.
>
> April 1, 1946.
>
> Dr. ————————, B.A., N.D.
> Dallas 4, Texas.
>
> Dear Doctor:
>
> In answer to your questions concerning the Guild please note the following: We are able to assist you in obtaining such Honorary degrees as Ph.N., M.N., Ps.D., Ph.D., LL.B., LL.D. et cetera. And from such schools as the following: The Southern College of Naturopathic Physicians and Surgeons; the Memphis College of Naturopathy; the Southern College of Psychiatry; the College of Drugless Healing; the American Health Association; "B.A., B.S., M.S., D.Sc., Ps.D., Ph.D.," and so on. The total cost to you for either of these degrees will not be more than $25.00 as all these institutions of learning are Members of the Guild and have agreed upon the above mentioned. The N.D.Sc. can also be obtained. If you desire to secure your M.S. (Honorary) this too can be arranged. The cost is the same. It will be impossible for non-Members to receive either of these Honorary degrees. As was mentioned in our previous letter that should you fail to receive perfect satisfaction while a Member of the Guild we shall return your Membership dues plus the 8% interest. I will personally assist you in preparing the necessary thesis for either of the Honorary degrees. I am often referred to as a "Ghost Writer." Granting you understand this term you will also realize that you may be sure of obtaining the degree of your choice. The necessary educational qualifications on your part doesn't matter. For you must understand that Honorary degrees are not based upon the same prerequisite academic training. When considering the cost of grading your thesis or examination (of Honorary nature) and the printing and mailing of your Diploma approximately $25.00 will have been spent on same.
>
> I have been engaged in this work for eleven years and so far of the 2254 Members who have joined during these years not one has so far requested his Membership withdrawn from our files.
>
> Then, too, Doctor, you must remember that we offer you other fine Services.
>
> Your only obligation to the Guild will remain the same as it has been for the past 11 years: $10.00 to join and $2.00 each year to belong.
>
> It will be a pleasure to hear from you again Doctor ———.
> With best wishes, I am,
>
> Very sincerely yours,
> /S/
> Dr. N. W. Nichols, M.D., N.D., Ph.D.
> President.
>
> NN:K
>
> P.S. I am a licensed D.C., D.O., M.D., N.D.
> Also, a member of the Bar—LL.B., LL.D.
> Hold my Ph.D. in Pholology, Philosophy, Bible, et cetera.

COLORADO

Establish Rheumatic Fever Library.—The Colorado Rheumatic Fever Library has been established at the University of Colorado School of Medicine, Denver, in an effort to assemble in one place all that has been written on the subject of rheumatic fever. Efforts will be made to collect all available reprints or photostatic and typewritten copies of them. The material will be cross indexed and assembled in bound volumes by years. The collection will eventually be made available to all workers in this field. Libraries, medical journals and those writing in the field of rheumatic fever can assist by contributing papers relating to the subject. The library has been made possible through the financial assistance of the Ladies Auxiliary of the Rocky Mountain Screen Club and the services of volunteers working under the direction of the Denver Area Rheumatic Fever Diagnostic Service. Information may be obtained by writing Dr. Ward Darley, Dean, University of Colorado School of Medicine and Hospitals, 4200 East Ninth Avenue, Denver 7.

ILLINOIS

Pioneer Woman Doctor Awarded Medal.—The Henry County Medical Association last month awarded a gold medal to Dr. Hattie B. Meliak, Kewanee, who has practiced medicine in that city for fifty years.

Spotted Fever in Illinois.—Three cases of spotted fever have been reported in southern Illinois, according to Dr. Roy Harrell, state district health officer. Health officials have issued warnings to avoid tall grass, weeds and undergrowth where the ticks could be picked up.

Society News.—The Peoria Medical Society heard Dr. Myron D. Miller, Washington, D. C., Tuberculosis Control Division, U. S. Public Health Service, discuss "Recent Developments in Management and Control of Tuberculosis" at its meeting May 20.

Chicago

Filth in Some Soft Drink Bottling Plants.—The advisory committee of the Chicago-Cook County Health Survey released on June 15 a report on a survey of twenty-eight of the city's fifty carbonated beverage and seven bottled water plants. The investigators made the study in February 1947, and the report was prepared by the U. S. Public Health Service as a part in its audit of health conditions requested by Chicago and Cook County governmental agencies. Much of the 175 million pints of soft drinks which Chicagoans drink each year is said to be manufactured under insanitary conditions and operating methods. Among the sanitary defects listed in the report are the following: 1. The surroundings of nine of the plants surveyed were described as filthy. 2. Toilet facilities in eleven plants were either lacking, in need of repair or dirty, and twenty-four of the plants did not have cleaning and washing facilities. 3. In many of the plants personal cleanliness was neglected and employees' clothes were dirty. In most cases employees were wearing their regular clothes and had not been furnished with washable outer garments to be used only for plant duty. 4. The methods used in handling, storage and preparation of ingredients were deplorable. 5. Dirty floors were noticed in ten of the plants, and in fifteen the walls and ceilings were badly in need of repair. 6. The storage and handling of caps, corks and other closures in dirty bins was very common. 7. In only one plant were the bottles properly protected with overhead shields from the bottle washer to the filler in order to prevent contamination. 8. Lack of covers on syrup tanks to prevent contamination from dust, flies and vermin was evident. 9. Several plumbing connections which would allow waste water to siphon back into drinking water supply were noticed in various plants. (All the carbonated beverage plants used the municipal water supplies in making their beverages.)

The majority of the defects in the six bottled water plants surveyed were similar to those found in the carbonated beverage plants. In addition, however, the investigators pointed out other insanitary conditions. For example, the practice of shipping water from out of state to Chicago in thirty gallon steel drums for rebottling presents a public health problem. These drums collect dust around the pouring hole, which can easily contaminate the water unless sufficient precautions are taken. Some of the plants surveyed were using a special spout for handling this water, but it was either not of a sanitary type or was handled improperly and given no bacterial treatment. Sanitary inspections of bottling plants located outside Chicago have never been made by local authorities, and this failure is due to a lack of proper city ordinance and to inadequacy of the inspection staff. The survey found also that the lack of suitable legislation covering the public health aspects of this important industry on both state and local levels is deplorable. Neither the city of Chicago nor the state of Illinois has modern ordinances on this subject. The survey recommended that an ordinance be adopted, at once, similar to that of the sanitary code of the American Bottlers of Carbonated Beverages, providing for the regulation of sanitation and distribution of all phases of the beverage and bottled water industry.

LOUISIANA

Intestinal Tumors of Dysenteric Origin.—In the paper by this title in The Journal, April 5, page 994, one of the footnotes is as follows: "From the Southern Baptist Hospital and Lakeshore Hospital, New Orleans." The director of the Touro Infirmary, New Orleans, writes that 2 of the cases quoted were patients in Touro Infirmary and that two of the six cuts in the article are from the records of Touro Infirmary.

Appoint New Professors.—The School of Medicine, Louisiana State University, New Orleans, has announced the following appointments: Dr. James D. Rives, formerly clinical professor of surgery, as professor and head of the department of surgery. Dr. Rives succeeds Dr. Urban Maes, who has retired and has been appointed professor emeritus. Drs. Joseph A. Danna and Narcisse F. Thiberge have also reached the age of retirement and have been appointed clinical professors emeritus of surgery and medicine, respectively. Dr. Sidney S. Chipman, formerly in the practice of pediatrics at Norwalk, Conn., and during the past year a student in the School of Public Health, Yale University, will be associate professor of pediatrics on a full time basis. Dr. Chipman will be director of the postgraduate extension program in pediatrics in the state of Louisiana on a joint appointment of the state university and the state board of health.

MASSACHUSETTS

State Medical Election.—At a meeting of the Massachusetts Medical Society, May 20-22, the following officers were elected: Drs. Edward P. Bagg, Holyoke, president; Daniel B. Reardon, Quincy, president-elect; Charles J Kickham, Boston, vice president; Joseph Garland, Boston, secretary; Eliot Hubbard Jr., Cambridge, treasurer, and Norman A. Welch, Boston, assistant treasurer.

Duncan Reid Appointed Professor of Obstetrics at Harvard.—Dr. Duncan E. Reid, Boston, will become William Lambert Richardson professor of obstetrics at Harvard Medical School, Boston, and obstetrician in chief to the Boston Lying-In Hospital on July 1, to succeed Dr. Frederick C. Irving, who resigned both positions Dec. 31, 1946. Dr. Reid has been on the staff of the Lying-In Hospital since 1933 and on the staff of Harvard Medical School since 1935. He received his medical degree from Northwestern University Medical School, Chicago, in 1932 and served as an intern and resident in the Passavant and St. Luke's Hospital of that city before going to Boston. His research in the field of obstetrics covered such subjects as pregnancy complicated by hypertension and albuminuria, the treatment of vomiting in early pregnancy, cardiac asthma and acute pulmonary edema as a complication of the toxemias of pregnancy and the treatment of prolonged labor.

MICHIGAN

Appoint Superintendent of Sanatorium.—Dr. W. Leonard Howard has been appointed medical superintendent of Wm. H. Maybury Sanatorium at Northville. A graduate of Queens University Faculty of Medicine, Kingston, Ont., he has been medical director of the American Legion Hospital, Battle Creek, for more than nine years and for the last five years has been medical director and superintendent of the Arthur S. Kimball Sanatorium. Maybury, an 846 bed sanatorium, is one of two institutions in the Detroit municipal sanatorium setup and one of the largest tuberculosis hospitals in the country. Dr. Howard succeeds Dr. Henry S. Willis, resigned.

MINNESOTA

State Medical Meeting at Duluth.—The annual meeting of the state medical association will be held June 30 to July 2 at the Duluth Hotel, Duluth, under the presidency of Dr. Louis A. Buie, Rochester. Out of state speakers include Drs. Robert E. Gross, Boston, specialist in heart surgery; George E. Shambaugh Jr., Chicago; Marcy L. Sussman, New York, who will deliver the annual Russell D. Carman Lecture in radiology; T. Benedict Massell, Boston; John R. Neffe, National Research Council, Philadelphia; Joseph G. Molner, Detroit; Haven Emerson, New York; Dean Smiley and Fred V. Hein, Chicago, of the American Medical Association. Twenty round table luncheons will be held at 12:15 Tuesday and Wednesday at which recent developments in scientific medicine will be discussed. "Rural Health—A Joint Responsibility" is the subject for discussion following the annual meeting. The first annual A. J. Sanford Lecture will be delivered by Dr. Elexious T. Bell, department of pathology, University of Minnesota, Minneapolis, on "The Pathology of Diabetes Mellitus." At the annual banquet Tuesday at 7 p. m. Fifty Club certificates and pin and the Southern Minnesota Medical Association Medal for the best individual scientific exhibit will be presented. All physicians who served in World War II are invited to a luncheon meeting at 12:30 Monday in the Tally-Ho Room, Holland Hotel, sponsored by the Society of Medical Veterans in Duluth.

MISSISSIPPI

State Medical Election.—At the annual meeting of the Mississippi State Medical Association in Biloxi, May 6-8, Dr. Reuben B. Caldwell, Baldwyn, was made president-elect. Dr. Paul G. Gamble, Greenville, is president. Registration for the meeting was about 380. Among the visitors were Dr. George F. Lull, Secretary and General Manager of the American Medical Association; Mr. C. P. Laranz, secretary-manager of the Southern Medical Association, and Dr. Rudolph Matas, New Orleans. The 1948 meeting is to be held in Jackson next May.

NEW JERSEY

Passaic County Society Celebrates Centennial.—Passaic County Medical Society celebrated its centennial in Paterson May 20-21. The scientific program included Dr. Irvine H. Page, director of research, Cleveland Clinic, Cleveland, who spoke on "Modern Concepts and Medical Management of Arterial Hypertension"; Dr. T. Duckett Jones, assistant professor of medicine, Harvard Medical School, Boston, "Diagnosis and Management of Acute Rheumatic Fever"; Drs. Milton J. Raisbeck, associate professor of medicine, and Samuel A. Thompson, associate professor of surgery, both of the New York Medical College, New York, "Practical Problems in Coronary Disease." The speaker at the centennial banquet was Dr. Max M. Peet, department of surgery, University of Michigan Medical School, Ann Arbor, on "The Surgical Treatment of Hypertension."

NEW YORK

Diabetes Association.—On April 13 the Rochester Regional Diabetes Association was formulated as a subdivision of the American Diabetes Association. Dr. Charles B. F. Gibbs, who heads the new society, organized the first diabetes clinic at Rochester General Hospital in 1925 and served as its chief for twenty years. He is a past president of the Rochester Academy of Medicine and chief of the Diabetes Clinic at Strong Memorial Hospital. Dr. Bernard A. Watson, Clifton Springs, N. Y., was named first vice president and Dr. David F. McGarvey second vice president. Dr. H. Raymond Drysdale, Rochester, is secretary-treasurer.

Atomic Energy Commission Study in Japan.—Dr. John S. Lawrence, associate professor of medicine, and Dr. Herman E. Pearse Jr., associate professor of surgery, at the University of Rochester School of Medicine and Dentistry, Rochester, have been assigned by the Atomic Energy Commission to a three month study in Japan in connection with the atomic bomb casualties at Hiroshima and Nagasaki. They left Rochester on June 2. Dr. Lawrence was attached to the wartime atomic medical research project at the School of Medicine and Dentistry under the Manhattan Engineer District for nearly four years. Dr. Pearse was a member of the radiological safety task force under Col. Stafford L. Warren, formerly professor of radiology at the Rochester Medical School and chief of the medical section of the Manhattan Project, in the atomic bomb test at Bikini last year.

New York City

Personal.—Dr. Milton B. Plotz has been elected attending physician, Kings County Hospital, Brooklyn, Long Island College of Medicine Division, and visiting physician, Bushwick Hospital, Brooklyn.

Warn Against Contaminated Shellfish.—A warning that shellfish taken from Jamaica, Pelham and Eastchester bays are contaminated and should not be eaten was issued June 6 by Health Commissioner Israel Weinstein. Shellfish taken from the polluted waters of these bays are likely to cause typhoid and other serious intestinal diseases. Swimming also is prohibited. Additional health department inspectors have been assigned to the areas to enforce the health department's sanitary code.

OHIO

State Medical Election.—At the annual meeting of the Ohio State Medical Association in Cleveland last month Dr. Ralph L. Rutledge, Alliance, became president and Dr. Arthur A. Brindley, Toledo, was chosen president-elect. Cincinnati was selected as the convention city for 1948.

Belgian Professor Gives Hanna Lecture.—The fifty-first Hanna Lecture of the Academy of Medicine of Cleveland was delivered by Dr. Norbert Goormaghtigh, professor of pathology, University of Ghent, visiting professor, Commission for Relief in Belgium, May 12 in Cleveland. His subject was "The Anatomical Basis of the Autonomy of the Renal Circulation." The Hanna Lectures were established in 1913 by Dr. George W. Crile in honor of Mr. H. Melville Hanna, an industrialist of Lisbon, Ohio, primarily to take advantage of the presence in this country of distinguished scientists for lectures on subjects of interest to medicine.

PENNSYLVANIA

District Society Meetings.—The Eighth Councilor District of the Medical Society of the State of Pennsylvania will hold its annual meeting June 25 at the Kahkwa Club west of Erie. The speaker will be Dr. Armando Trabuco, urologist of Argentina. During the afternoon session the president of the state society will present fifty year testimonials to the honor guests, Drs. Clyde L. Williams, Linesville; John Ackerman, Erie; Charles E. McCune, West Springfield; David A. Brown, Greenville; Willard B. Campbell, Harrisville; Judson C. Cooley, Sandy Lake; George W. Kennedy, Sharon, and Charles H. VerMilyea, Russell. The Third, Fourth and Twelfth Councilor Districts will meet at the Hotel Sterling, Wilkes-Barre, on June 25. On the scientific program will be Dr. Charles L. Brown, Philadelphia, "Differential of Hyperthyroidism"; Dr. Thaddeus L. Montgomery, Philadelphia, "Management of Toxemias of Pregnancy"; Dr. Louis H. Twyeffort, Philadelphia, "Psychiatric Problems Encountered in General Practice"; Dr. Monroe J. Romansky, Washington, D. C., "The Current Status of Penicillin Therapy—Uses and Abuses," and Dr. Irving J. Wolman, Philadelphia, "The Rh Factor." Fifty year testimonials will be presented to Drs. Calvin J. Balliet, Lehighton; John E. Fretz, Easton; Rossitter J. Lloyd, Olyphant; Agnes Sholly Knights, Selunsgrove; John K. Love, Easton; John R. Dyson, Hazelton; Frederick W. Roberts, Plymouth; John E. Scheifly, Kingston, and Earl E. Wagner, Wilkes-Barre.

Philadelphia

Personal.—Dr. Henry P. Brown Jr. left early this month for interior China, where he plans to spend four years as a medical missionary. He has been on the staff of Pennsylvania and Pittsburgh hospitals and a clinical adviser in surgery at the University of Pennsylvania School of Medicine, Philadelphia, of which he is a 1912 alumnus.

Effort to Detect Pelvic Cancer Early.—The Philadelphia Obstetric Society, in conjunction with the department of public health and the Philadelphia County Medical Society, has formed a committee chiefly of gynecologists to aid in preventing delay between the time the first symptom of pelvic cancer appears and the inauguration of proper treatment. All cases of the disease in hospitals in the city are to be reviewed by this committee, and when a delay has occurred in the institution of proper treatment the patient's former attending physicians and gynecologists are invited to a meeting in order to determine the cause and decide how such a delay can be avoided.

Pittsburgh

The Mellon Lecture.—The thirtieth Mellon lecture, sponsored by the Society for Biological Research of the University of Pittsburgh School of Medicine, was delivered May 29 by Donald Van Slyke, Ph.D., Rockefeller Institute of Medical Research, on "Studies of Renal Physiology."

TENNESSEE

New Law Requires Annual Registration.—Chapter 9, Public Acts of 1947, of the State of Tennessee becomes effective July 1. Among other things the law requires that all persons who hold a license to practice medicine in Tennessee must register and pay a fee of $2.50 some time between July 1 and Sept. 30, 1947. Failure to register will result in automatic revocation of the license to practice. On or before Dec. 31, 1947, and on or before each succeeding December 31, all licensees must register and pay a fee of $5. Failure to register by Jan. 31, 1948 and each succeeding January 31 will result in revocation of license. After the first registration, licensees who have retired from practice or who are practicing in other states may submit an affidavit of retirement on forms provided. Commissioned medical officers in the U. S. Army, Navy and Public Health Service are relieved from registration but must register within thirty days after discharge from service. Registration and retirement forms may be obtained from Dr. Robert H. Hutcheson, executive officer, State Licensing Board for the Healing Arts, 420 Sixth Avenue, North, Nashville 3, Tenn.

UTAH

Dr. George Sayers Awarded the Abel Prize.—At the annual meeting of the American Society for Pharmacology and Experimental Therapeutics, held in Chicago May 18-22, the John J. Abel Prize in pharmacology was awarded to George Sayers, Ph.D., assistant professor of pharmacology in the University of Utah School of Medicine, Salt Lake City. Dr. Sayers won the prize for his paper entitled "The Pituitary-Adrenal System." This prize of $1,000 and a bronze medal, plus an additional amount up to $150 for traveling expenses, was established in the society by Eli Lilly and Company for the purpose of stimulating fundamental research in pharmacology in the United States and Canada.

VIRGINIA

Memorial Exercises at Medical College.—Major Gen. David N. Grant, formerly air surgeon, U. S. Army, delivered the address at the memorial exercises of the Medical College of Virginia, Richmond, May 30. A plaque in commemoration of the personnel of the 45th General Hospital who died in the service of their country, was presented to President William T. Sanger by Colonel Powell Williams, unit director and chief of the medical service. A portrait of Dr. Frederick W. Shaw, Richmond, until his death professor of bacteriology, was presented to the college by Charles H. Meeks, president of the senior class in medicine.

Personal.—Dr. Philip St. L. Moncure, since 1897 a member of the medical staffs of St. Vincent's Hospital and the Hospital of St. Vincent De Paul, Norfolk, was honored May 8 at a testimonial banquet and reception celebrating his golden jubilee anniversary.——Dr. Clara C. Joel Fleischer has been named director of maternal and child health of the city department of health of Richmond, a newly created post. She will develop a citywide program of maternal, infant and preschool health. An American citizen, Dr. Fleischer is a pharmacy graduate of Prague, Czechoslovakia, and received her doctor of medicine degree from the Medical College of Virginia, Richmond. She has been in charge of the night venereal disease clinic at the college on a part time basis since 1943, as well as industrial physician at du Pont.

GENERAL

Medical Women's International Congress.—The Medical Women's International Association will hold its Fifth Congress June 24 to 30 in the Indian Institute, Amsterdam, Holland. The scientific program has been planned together with visits in Amsterdam and its surroundings as well as to various institutions.

Plague Infection.—United States Public Health Service, in its public health report for May 16, states that on April 21 and 22 proved plague infection was reported in ectoparasites from rodents in Arizona and Washington. In Navajo County, Arizona, fleas and a tick from two ground squirrels proved positive, and Yakima County, Washington, fleas from one ground squirrel and field mice proved positive.

Twelve Nations Ratify Constitution of World Health Organization.—Thus far twelve nations have ratified the World Health Organization constitution: Liberia, Ethiopia, Switzerland, Transjordan, Italy, the Netherlands, China, United Kingdom, Canada, Iran, New Zealand and Syria. A total of twenty-six ratifications by members of the United Nations are required for the World Health Organization to become a specialized agency of the United Nations.

Grant for Allergic Research on Multiple Sclerosis.—The Association for Advancement of Research of Multiple Sclerosis, Inc. made its first grant for specialized research on the disease June 11. The sum of $64,350 will cover three years of research in the field of allergy in connection with multiple sclerosis and will be under the direction of Elvin A. Kabat, Ph.D., assistant professor of bacteriology of Columbia University College of Physicians and Surgeons. The society was formed less than a year ago.

Association of American Physicians Meeting.—The Association of American Physicians at its annual meeting in Atlantic City, May 7, elected Dr. Alva H. Gordon, Montreal, Canada, president; Dr. Francis G. Blake, New Haven, Conn., vice president; Dr. Walter Bauer, Boston, treasurer, and Dr. Henry M. Thomas Jr., Baltimore, secretary. The George M. Kober Medal was presented to Dr. Eugene F. Du Bois, New York, professor of physiology, Cornell University Medical College, for his contributions to investigative and clinical medicine.

International Congress on Mental Health.—This congress, which will be held from August 12 to 21 in London, England, will consist of three conferences: (1) International Conference on Child Psychiatry, which will hold morning sessions August 12-15; (2) the International Conference on Medical Psychotherapy, which will hold afternoon sessions August 12-15, and (3) International Conference on Mental Hygiene, meeting August 16-21. Sessions will take place at Central Hall, Westminster. Subjects to be discussed at the conferences are Foundations of Mental Health in Childhood, Guilt, and Mental Health and World Citizenship. Inquiries should be addressed to: The Organizer, International Congress on Mental Health, 39 Queen Anne Street, London, W. I., England.

Danish Library Desires Back Issues of The Journal.—The University Library, Copenhagen, Denmark, has made a request for certain bound volumes of THE JOURNAL. The request, signed by Torkil Olsen, library assistant, Department 2-Nr. Allé 49, Copenhagen, Denmark, follows: "Due to the very great demand for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION it has been decided to make an attempt to procure a set of Vols. 106-133 for shelving in the library's reading room. I am therefore taking the liberty to ask you kindly to insert a short note in THE JOURNAL to the effect that our library is anxious to have the particular volumes (106-133), and that we should be grateful in case a doctor of Danish descent would send these volumes or some of them to our library. All expenses in connection with the forwarding will be covered by our library."

Medical Aid to China.—At the annual meeting of the American Bureau for Medical Aid to China in New York City, April 12, Magnus I. Gregersen, Ph D., was elected president on the retirement of Dr. Donald D. Van Slyke, president for the past six years. Dr. Gregersen has been head of the physiology department of the College of Physicians and Surgeons, Columbia University, since 1937. Five new members elected directors are Edmond V. Cowdry, Ph.D., head of the anatomy department, Washington University, St. Louis; Dr. James A. Crabtree, assistant surgeon general, U. S. Public Health Service, Washington, D. C.; Dr. Howard C. Naffziger, professor of surgery, University of California Medical School, Berkeley-San Francisco; Miss Gertrude E. Hodgman, dean of the Peiping Union Medical College School of Nursing until 1940, and John T. Tripp, Ph.D., associate director, bureau of laboratories, Michigan Department of Health, Lansing.

CANADA

Art and Camera Salon.—Canadian Physicians' Fine Art and Camera Salon will be held in the Hudson's Bay Auditorium, Winnipeg, June 23-27, in conjunction with the convention of the Canadian Medical Association. Two bronze plaques will be presented, one to the winner of the Fine Arts section and one to the winner of the Photographic section.

Public Health Officers Honored.—At a joint dinner of the Canadian Public Health Association and the State and Provincial Health Authorities of North America in Quebec May 22 certificates of honorary membership of the Canadian Association of Public Health were presented to Dr. Thomas Parran, surgeon general of the United States, and to Dr. Walter L. Bierring, president of the State and Provincial Health Authorities of North America and commissioner of health of Iowa, both of whom addressed the group.

National Cancer Institute of Canada Created.—To coordinate all efforts in the cancer field in Canada on a national basis, the minister of the National Health and Welfare called a conference of representatives from all organizations working in the cancer field in Canada, as a result of which the institute was organized. It will (1) provide for the education and subsistence of cancer research workers; (2) attract more men into the program begun by the Canadian Association before the war by providing undergraduate and postgraduate education for physicians, and attempting to establish a uniform system of reporting cancer cases and deaths throughout the dominion; (3) continue the lay educational program now being conducted by the Canadian Cancer Society, and (4) raise funds to support the work of the institute. Dr. Allan W. Blair, Regina, Sask., was recently appointed managing director. The first project planned by the institute is an immediate survey of all cancer facilities for diagnosis, treatment and research in the dominion.

LATIN AMERICA

New Sanatorium in Chile.—Dedication of the 500 bed Trudeau Hospital at Santiago, Chile, took place March 27. Built jointly by the coordinator of Inter-American affairs of the United States and the government of Chile, the hospital will be under the direction of Dr. Rafael Lorca O., who has been appointed as superintendent and medical director.

Dr. Bernardo Houssay Receives Research Award.—The American Pharmaceutical Manufacturers' Association presented its first annual research award April 28 to Dr. Bernardo A. Houssay, Buenos Aires, Argentina, at its annual meeting in Boca Raton, Fla. The award was presented to Dr. Houssay in recognition and appreciation of his contribution to medical science on nomination by a distinguished advisory committee. The association listed Dr. Houssay's most striking contribution to biology and medicine in the field of the pituitary gland, diabetes and carbohydrate metabolism.

FOREIGN

Flying Doctors.—Medical flights by the Flying Doctor Service in Australia "outback" last year covered 207,000 miles, an increase of more than 12,000 miles over the previous year. More than 5,000 patients, the service reports, were given medical advice by radio during 1946.

Fight Tuberculosis in Italy.—The United Nations Relief and Rehabilitation Administration joined Italian forces May 4 in a five year plan to combat a sharp increase in Italy's tuberculosis death rate. About 60,000 persons died in 1945, as compared with 33,226 in 1940, and it is estimated that 500,000 Italians need treatment at present. The plan will cost about $12,380,000 and will be financed from the sale of UNRRA imports in Italy. Reequipping ninety dispensaries, partly reequipping sixty-two more and providing 12,595 additional beds in eighty-eight hospitals are included in the program.

European Rheumatology Congress.—The first congress of this kind will be held at Copenhagen and Aarhus, Denmark, September 4-8. It is being sponsored by the International League Against Rheumatism. The scientific program beginning September 5 includes the discussion of etiology and pathogenesis of rheumatic fever and rheumatoid arthritis, with a special view to streptococci as the source of the disease; discussion on the treatment of rheumatoid arthritis, particularly gold treatment and other chemotherapy; the social importance of the rheumatic diseases, and biochematological problems of rheumatology. A two day sightseeing tour through Denmark has also been planned.

CORRECTIONS

American Psychiatric Association.—The second line of the item "Special Society Elections" in THE JOURNAL, June 14, page 621, should read the American Psychiatric Association instead of the American Pediatric Association.

Foreign Visitor.—Dr. Henry Makower (THE JOURNAL, May 10, p. 199) is chief assistant of the Institute of Medical Microbiology at the University of Wroclaw, Wroclaw, Poland, rather than of the University of Warsaw.

Date of Postgraduate Course.—The Columbia University course at Roosevelt Hospital "Recent Advances in Allergy," listed in Postgraduate Courses for Veterans and Civilian Physicians in THE JOURNAL, June 14, page 626, will be given November 3-8 instead of November 10-15 as listed.

Marriages

MERCER BRANNON SELL JR., Dallas, Ga. to Miss Ethel Elizabeth Smith of High Point, N. C., in Augusta, Ga., Dec. 27, 1946.

ROBERT BENTHAM SIMONS JR., Charleston, S. C., to Miss Sara Elizabeth Holden in Detroit Nov. 16, 1946.

HAROLD W. SPIES, Washington, D. C., to Miss Sadie Frances Compton of Johnson City, Tenn., January 30.

AMADEO B. SAELI, Savannah, N. Y., to Miss Ollie B. Hall of Sylva, N. C., in Salt Lake City February 15.

Deaths

Eben Elliot Smith ⊕ Medical Director, Captain, U. S. Navy, retired, Daytona Beach, Fla.; born near Dillsboro, Ind., July 12, 1891; Johns Hopkins University School of Medicine, Baltimore, 1917; fellow of the American College of Physicians; entered the U. S. Navy in 1917; during World War I served as medical officer at air stations in Ireland, on a destroyer and on a troop transport; on his return to this country assigned to the Naval Medical School as instructor in pathology; at various times served at Brooklyn Naval Hospital as clinical pathologist and ward officer, with the U. S. Marine Expeditionary Forces in Santo Domingo, on the U. S. S. *Saratoga* as a flight surgeon, at the Naval Air Station at San Diego, on the U. S. S. *Mississippi* as senior medical officer, in the Bureau of Medicine and Surgery as officer in charge of the division of publication and became editor of the *Naval Medical Bulletin*, and at the Naval Air Station, Jacksonville, Fla.; member of the Association of Military Surgeons of the United States, retired Oct. 1, 1945 for physical disability incurred in line of duty; died, June 16, 1946, aged 54, of coronary thrombosis.

Clyde Dale Blake, Hays, Kan.; born in Johnsonville, Ill., March 22, 1878; Kansas Medical College, Medical Department of Washburn College, Topeka, 1903; past president of the Kansas Medical Society; member and past president of the Central Kansas Medical Society; a charter member of the Golden Belt Medical Society; member of the American Medical Association, American Cancer Society and the Radiological Society of North America; fellow of the American College of Surgeons; member of the board of health; member of the founders group of the American Board of Surgery; served in the medical corps of the U. S. Army during World War I; captain, medical reserve corps, not on active duty; vice president of the board of directors of the First National Bank; a member and past president of the Rotary Club and past president of the chamber of commerce; formerly director of the state chamber of commerce; surgeon for the Union Pacific Railroad; chief of staff of the Hadley Memorial Hospital, where he died March 30, aged 69, of hypernephroma.

James Taft Pilcher ⊕ Brooklyn; born in Brooklyn on March 31, 1880; Columbia University College of Physicians and Surgeons, New York, 1904; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; member of the American Gastro-Enterological Association; served in the medical corps of the U. S. Army in France, a commanding officer of the 108th Field Hospital, holding the rank of major during World War I and for his services overseas received the Distinguished Service Medal; formerly a fellow in medicine at the Mayo Clinic in Rochester, Minn.; attending surgeon, Unity and Brooklyn State hospitals; consulting surgeon, Wyckoff Heights and Evangelical Deaconess hospitals in Brooklyn, Eastern Long Island Hospital in Greenport and the Jersey City Medical Center in Jersey City; managing editor of the *Annals of Surgery*; died in the Brooklyn Hospital April 6, aged 67, of angina pectoris.

Irvin Dilling Metzger, Pittsburgh; born in New Enterprise, Pa., April 12, 1873; Hahnemann Medical College and Hospital, Philadelphia, 1904; studied at the University of Vienna and in London, 1913-1914; served as chairman and president of the state board of medical education and licensure; for many years inspector of medical schools and hospitals; president of the Federation of State Medical Boards of the United States, 1935-1936; past president of the American Institute of Homeopathy; superintendent of public schools in Hollidaysburg, Pa., from 1895 to 1900; served during World War I; received honorary degrees from the Hahnemann Medical College of Philadelphia, Juanita College in Huntingdon, Pa., and the University of Pittsburgh; on the staff of the Shadyside Hospital, where he died April 1, aged 73, of pneumonia and leukemia.

Christian J. Amble ⊕ Albuquerque, N. M.; Illinois Medical College, Chicago, 1903; served as first treasurer of Torrance County; for three terms health officer of Torrance County; member of the Fourteenth Legislative Assembly, holding membership on various important committees; died recently, aged 79, of coronary thrombosis.

Rogers Coke ⊕ Marshall, Texas; University of Texas School of Medicine, Galveston, 1899; past president of the Harrison County Medical Society and of the Northeast Texas District Medical Society; fellow of the American College of Surgeons; regional chairman of the Selective Service Medical Advisory Board during World War II; chairman of the board of Kahn Memorial Hospital for many years; died February 11, aged 70, of cerebral hemorrhage.

Philip Patrick Crimmins, Brockton, Mass.; Baltimore Medical College, 1907; served during World War I; formerly affiliated with the U. S. Public Health Service reserve and various Veterans Administration hospitals; died February 27, aged 62, of coronary thrombosis.

Benjamin Franklin DeVore, Oakland, Ore.; Jefferson Medical College of Philadelphia, 1907; served during World War I; died in Eugene in February, aged 70, of coronary sclerosis.

Charles Elton Duffy ⊕ Parishville, N. Y.; University of Vermont College of Medicine, Burlington, 1896; died February 11, aged 76, of aneurysm of the abdominal aorta and arteriosclerosis.

Louis Martin Edens, Cabool, Mo.; University Medical College of Kansas City, 1907; member of the American Medical Association; died in St. Louis February 10, aged 61, of carcinoma of the larynx.

Morris Friedson ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1910; specialist certified by the American Board of Pediatrics; member of the New York Academy of Medicine; formerly on the faculty of his alma mater; on the staffs of the Beth David, Manhattan General and Gouverneur hospitals; formerly on the staffs of St. Mark's Hospital and the New York Nursery and Child Hospital; died March 17, aged 65, of heart disease.

Henry M. Hammond, Bergholz, Ohio; Baltimore Medical College, 1893; died February 9, aged 78, of angina pectoris.

Milton Mackey Osmun, Audubon, N. J.; Jefferson Medical College of Philadelphia, 1894; died in the Camden County General Hospital in Lakeland February 16, aged 88, of myocarditis and hypertension.

Argy Nicholas Padrous, Detroit; Marquette University School of Medicine, Milwaukee, 1943; began active duty as a first lieutenant in the medical corps, Army of the United States, in January 1944; released from the service with the rank of captain in September 1946; interned at the Grace Hospital, where he died February 14, aged 35, of acute glomerular nephritis and hypertension.

Jesse Ross Porter, Davenport, Iowa; Drake University Medical Department, Des Moines, 1897; died March 26, aged 77, of heart disease.

William Potter, Mason City, Iowa; Trinity Medical College, Toronto, Ont., Canada, 1892; died February 25, aged 80, of cerebral hemorrhage.

Wallace Preble, Cambridge, Mass.; Harvard Medical School, Boston, 1883; member of the American Medical Association; died February 22, aged 89, of cerebral thrombosis.

Willard De Forest Preston, Attica, N. Y.; University of Vermont College of Medicine, Burlington, 1899; member of the American Medical Association; veteran of the Spanish-American War and World War I; health officer of the consolidated health district of Attica since 1921; affiliated with St. Jerome and the Genesee Memorial hospitals in Batavia and the Wyoming County Community Hospital in Warsaw; surgeon for the Erie Railroad; died February 28, aged 69, of heart disease.

Mark Wyman Richardson ⊕ Boston; Harvard Medical School, Boston, 1894; member of the Association of American Physicians; formerly secretary of the state board of health; died February 12, aged 79, of coronary heart disease.

George W. Tape, Shell Beach, Calif.; Detroit College of Medicine, 1889; died March 11, aged 81, of cerebral hemorrhage and arteriosclerosis.

Cornelius Carl Weber ⊕ Philadelphia; Georgetown University School of Medicine, Washington, D. C., 1936; diplomate of the National Board of Medical Examiners; interned at the Misericordia Hospital, where he was a member of the staff; formerly member of the staff of the Jefferson Hospital and associated with the Abington (Pa.) Hospital, Temple University and St. Mary's hospitals; died March 12, aged 35.

George W. Wood, Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; associate in gynecology at his alma mater; fellow of the American College of Surgeons; member of the American Medical Association; served during World War I; on the staffs of the Methodist, City and St. Vincent's hospitals; died March 16, aged 67, of coronary occlusion.

Nelson A. Wright Sr. ⊕ Manito, Ill.; Missouri Medical College, St. Louis, 1899; past president of the Mason County Medical Society; died in the Methodist Hospital in Peoria March 25, aged 72, of uremia following a prostatectomy.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 10, 1947.

The British Journal of Nutrition

The Cambridge University Press announces the publication shortly, for the Nutrition Society, of a new quarterly, the *British Journal of Nutrition*. It will be devoted to reports of original work in all branches of nutrition and will incorporate the *Proceedings of the Nutrition Society*, which at present are published separately. The editorial board will consist of S. K. Kon (chairman), D. P. Cuthbertson, J. N. Davidson, R. C. Garry, G. Graham, J. Hammond, E. M. M. Hume, I. Leitch, W. C. Miller, F. Yates, B. S. Platt and J. A. B. Smith. Subscription rates for nonmembers of the Nutrition Society are $12.50 per volume of four quarterly parts. Separate parts will cost $4. Subscriptions should be addressed to the Cambridge University Press, 200 Euston Road, London, N. W. 1. Papers for publication and letters on editorial matters should be sent to Dr. S. K. Kon, *British Journal of Nutrition*, National Institute for Research in Dairying, Shinfield, near Reading, Berks, England. Information about the Nutrition Society may be had from the secretary at the same address.

Bicentenary of the Rotunda Hospital, Dublin

The bicentenary of the Rotunda Hospital, Dublin, the oldest obstetric hospital in the British Isles, will be held from July 7 to 11. Visitors will attend from all parts of the world. The opening session will be on the history of midwifery. The discussion will be introduced by Dr. T. P. C. Kirkpatrick and Dr. G. W. Kosmack, editor of the *American Journal of Obstetrics and Gynecology*. Other subjects for discussion are puerperal sepsis, eclampsia, shock in obstetrics, sterility and fetal and neonatal mortality. Visiting speakers will include Professor H. J. Stander of Cornell University, Professor F. C. Irving of Harvard, Professor Subodh Mitra of Calcutta, Dr. J. I. Hofbauer of Cincinnati, Professor H. L. Sheehan of Liverpool, Professor W. A. Scott of Toronto, Professor Henri Bedrine Lisle, Dr. J. V. O'Sullivan of London, Dr. Isidore Rubin of New York, Professor Axel Westman of Stockholm, Professor Bernard Zondek of Jerusalem, Dr. Peter Bishop of London, Professor J. S. Browne of Montreal, Professor Ebbe Brandstrup of Copenhagen, Professor F. J. Browne of London and Professor Dugald Baird of Aberdeen. Further particulars as regards the congress can be obtained from the secretary, 36, College Green, Dublin.

Acute Pancreatitis with Subcutaneous Fat Necrosis

While fat necrosis due to acute pancreatitis is commonly seen within the abdomen, where it affects the mesentery, omentum, pancreas and peritoneum, it is rare outside the abdomen except in the extraperitoneal fat. It has been observed in more distant regions—the mediastinum, pleura, pericardium, marrow of the long bones and periarticular fat. But, except when experimentally produced in animals, necrosis of subcutaneous fat seems to have been first reported in the *British Journal of Surgery* by Hugh Blauvelt. A married woman aged 41 was admitted to the hospital on Oct. 27, 1939 complaining of epigastric pain of two days' duration. Nausea and vomiting occurred the day before admission. She suffered from constipation, and micturition was difficult. The temperature was 99.6 F., the pulse 120 and the respiratory rate 24. While the abdomen was not distended, there were generalized tenderness and rigidity, more especially over the gallblader. The diagnosis lay between acute cholecystitis and acute pancreatitis. Next day many red areas, resembling erythema nodosum, appeared on the arms and legs. On October 29 laparotomy was decided on. The incision revealed necrosis of the extraperitoneal fat, and the abdomen was not opened. Excision of a portion of one of the superficial lesions on a leg revealed typical fat necrosis. The superficial areas of fat necrosis were confined to the arms, legs and buttocks excepting two on the back. They varied in size from a pin prick to a patch 2 inches or more in diameter. The urinary diastase amounted to 2,400 units in twenty-four hours. The blood sugar was 90 mg. per hundred cubic centimeters. Loewi's mydriatic reaction was positive. X-rays showed signs of gallstones. Recovery was slow. When examined seven months after the onset all external signs of fat necrosis had disappeared except a few rose colored areas on the thighs. On Aug. 8, 1940 two small stones and a chronically inflamed gallbladder were removed. On August 10 she became comatose, and death ensued in twenty-four hours. The blood urea before death was 200 mg. per hundred cubic centimeters. At the necropsy the bile ducts and pancreas were found normal and there was no evidence of recent or old fat necrosis. The kidneys were small and granular, and death was attributed to chronic nephritis.

The lesions so frequently found in the peritoneum, mesentery and pancreas itself in acute pancreatitis are attributed to the direct spread of the liberated ferment. When extraperitoneal fat, pleura, pericardium and mediastinum are affected, the lipase is said to travel by the lymphatics. Necrotic lesions in the bone marrow and periarticular tissues have been attributed to pancreatic emboli travelling by the blood stream. This would best account for the subcutaneous lesions that were observed.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, May 3, 1947

The Stoneless Gallbladder

Dr. João Montenegro says that, as diagnostic methods improve, fewer patients with chronic cholecystitis without stones are operated on. Indeed, clinical cholecystitis without stones is becoming a rare disease. Most of the symptoms ascribed to it in the past were due to intestinal dyskinesia caused by food intolerance, and sometimes to dyskinesia of Oddi's sphincter having the same cause. The hepatic flexure of the colon and the duodenum are the main mystifiers. Intestinal dyskinesia produces erratic spontaneous pains with predilection for the duodenocholecysticocolonic (hepatic flexure) and appendicular areas, while elecited pains are encountered generally in more than one spot, or the whole abdomen may be tender but without muscular rigidity. Proper dieting, rest and supporting measures will relieve them. This intestinal dyskinesia, also called irritable colon, has led to cholecystectomies on normal gallbladders with a fair percentage of cures resulting from postoperative rest, dieting, muscular relaxation and ease of mind. On the other hand, well indicated cholecystectomies have failed to cure patients mainly because of the coexistence of the bowel dyskinesia. The diseased gallbladder is removed and the symptoms caused by it are allayed but the trouble caused by the dyskinesia persists. To obtain highly probable, complete cures one must be reasonably sure that there is not a coexistence of diseases. Poor results from other diagnostic errors and sequelae represent a small percentage in the series of cholecystectomies. Pathologists are urged to refrain from the diagnosis of cholecystitis in specimens that do not show clearcut evidences of inflammation, as suggested by Foss, because such a diagnosis encourages cholecystectomies on normal gallbladders. They should avoid meaningless expressions as chronic catarrhal cholecystitis; instead of that, more anatomopathologic expressions might be employed, such as exudative and proliferative cholecystitis.

Correspondence

PROLONGED REACTION TO BENADRYL

To the Editor:—In a clinical note entitled "Prolonged Reaction to Benadryl" (The Journal, February 8, p. 393) appeared the statement "Treatment was not given, but intravenous histamine was elected as the treatment of choice if the condition failed to improve." This rather innocuous remark provoked the following criticisms from Dr. Norman A. David and Dr. Norman W. Karr of the department of pharmacology, University of Oregon Medical School:

1. Fundamental principles were overlooked.
2. Procedures suggested in The Journal may be adapted in toto by the general practitioner too busy to investigate further.
3. In a case of shocklike reaction to benadryl, such as that reported by other authors in the same issue of The Journal, histamine could aggravate the condition with possible fatal outcome.
4. *Histamine could be harmful in a case such as the one* reported.
5. The authors' suggestion, which may have been justified in their case, should have been accompanied with a strong word of caution.
6. The radical treatment proposed. . . .
7. The use of intravenous histamine has no theoretical justification in most reactions to benadryl.

The objections to the contemplated use of the drug were on the following basis:

1. "Drugs seldom react on one mechanism or system. It is probable that most of the toxic reactions to benadryl involve mechanisms entirely distinct from its histamine activity."
2. "Histamine causes increased permeability of blood vessels —a picture closely resembling clinical shock."

Since the mechanism of the action of benadryl itself is unknown, much less the toxic reactions, the first objection is purely speculative.

The second statement is valid, or at least the first half of the statement is valid. As a matter of fact, this sentence (half sentence that is) is the only statement in the entire communication (with the exception of the sentence pertaining to drugs acting on more than one system), that can be substantiated by scientific proof. If this was the basis of the charge of overlooking fundamental principles, it would appear to be logical (but not excusable) since histamine causes capillary dilatation and increased permeability and would therefore appear to be theoretically contraindicated when these factors are already present in conditions such as drug reactions. Furthermore, histamine exposure can cause anaphylactic shock in some lower animals. Oddly enough, however, clinical evidence refutes the theoretical contraindications. Intravenous histamine has been successfully used for treatment of many allergies including that of penicillin urticaria, in which increased capillary permeability and dilatation are strongly in evidence. Bayard T. Horton, chief of the research division at the Mayo Foundation, in a paper read before the Southwest Allergy Forum in April 1946, stated that he and his co-workers had given thousands on thousands of injections of intravenous histamine in the aforementioned types of cases, without reaction, with good results, and considered it a safe drug. It is assumed that any one using histamine or any other medication will use proper dilution, technic of administration and precautions.

The reasons histamine was considered for use in the case under discussion are that:

1. It is the accepted antagonist of benadryl.
2. It has been successfully used in dissipating allergic edemas including those of drug reactions. Perineural edema was thought to *be responsible for the neuritic symptoms in the* case reported.
3. The drug was considered safe for the type of case under discussion.

It should be further pointed out that the use of histamine was not recommended to others. It was simply considered the treatment most likely to be of help in the one particular case under discussion—no other. It was to be used only if more conservative treatment failed. It was not used.

It is felt that a dissertation on indications, limitations and possible dangers of a drug that was not used, in a case report, would have encroached on the technic of Colonel Stoopnagle and Budd.

It is further felt that the criticisms were unwarranted, unsubstantiated and, most amazing of all, directed against conditions foreign to the case in question and at a drug which was not used.

Sam Schwartzberg, M.D., San Antonio, Texas.

THE GENERAL PRACTITIONER IN THE HOSPITAL ORGANIZATION

To the Editor:—Dr. M. H. Miller's article in The Journal, May 3, Page 15, creates a desire to express the opinion that parallel discussion is necessary in the promotion of policy matters. Our constant problem, personal, political, social and economic, is to choose between being militant and being decent. We may do business by meeting the buyer or the seller in a private personal deal and appealing to the law, to be made whole, in case of injury, or through a third person armed with a directive which converts the transaction into a public or communal matter. Our constant choice is between socialization and civilization. If we choose to be militant we must be controlled by directives through a third party; if we choose to be decent we can live in freedom under the law; there is no middle ground.

A militant person joins a machine to force another to serve him. He looks on himself as a cog in a wheel and limits his activities to assigned duties in socialization at the grasping collectivistic level of the ego. A decent person looks on himself as the wheel and is willing to serve another individual by all the talent and skill he possesses in civilization at the economical altruistic level of the super ego.

Harvey Cushing would probably not have established single service trade school training in this country if he had foreseen that the medical profession would regress to medieval authoritarianism as a result. We must not mistake militancy for sincerity or allow the boorish boasts of bound boys to pass for professional competence when it is merely a defense mechanism used to cover their lack of integrative ability.

Mount Carmel Mercy Hospital is to be congratulated on maintaining a form of civilization far beyond the achievement of the majority of our hospitals that have been bound to a single standardization. They too have failed to separate the men from the boys by instituting "the table of organization" which is the wheel on which the single service cogs are bound as opposed to allowing a free medical market. The tradition of voluntary hospitals is to treat the doctor and the patient as guests of the hospital at all times. They have succeeded in introducing the socializing third party which continues to price a larger number of people out of the hospital market. This process can only continue to complete nationalization. Organized medicine must rehabilitate to civilization as the Supreme Court of the United States has in reaffirming "the doctrine of civilization" in the Beelo case.

The multiple service doctor is the sensitive idealistic adult who looks on himself as the wheel but who is willing to add an additional cog when the need arises. He is capable of operating the free medical market of civilization.

M. W. Stevens, M.D., *Portland, Ore.*

POSTGRADUATE COURSES FOR VETERAN AND CIVILIAN PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for Period July 1, 1947 to Jan. 15, 1948

(Concluded from page 634)

Medical schools, hospitals, state medical societies and other medical educational institutions and organizations are providing the Council with a growing body of information on courses designed primarily to meet the needs of returning medical officers. These have been incorporated into the lists on these pages. They are not specifically designated for veterans, since most if not all of them may also be open to interested civilian physicians. Furthermore, all courses listed which were not designed primarily for physician veterans are also open to qualified returning medical officers.

Note that each course is listed only once, without cross indexing, so that in some instances a prospective student should look under more than one heading for a desired course.

Table of Contents

Subject	Page
Neurology and Psychiatry—continued	727
Neurosurgery	728
Nutrition	728
Obstetrics and Gynecology	728
Ophthalmology	729
Orthopedic Surgery	730
Otolaryngology	730
Otology	730
Otorhinolaryngology	730
Pathology	731
Pediatrics	731
Pharmacology	732
Physical Medicine	732
Physiology	732
Poliomyelitis	733
Proctology	733
Public Health	733
Radiology	733
Surgery	734
Therapy	735
Tropical Medicine	735
Urology	735
Venereal Diseases	735

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	NEUROLOGY AND PSYCHIATRY—Continued		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Columbia Presbyterian Medical Center	Symposium on Neurology and Psychiatry	9 weeks, full time, October 6-December 12, 1947	250.00
	Advanced Neurology	13 weeks, full time, January 5-April 2, 1948	150.00
	Advanced Neurology	13 weeks, full time, October 6-December 30, 1947	150.00
	Clinical Electroencephalography and Electromyography	3 months, full time, between October 1, 1947 and March 31, 1948	150.00
At: Montefiore Hospital	Neuropsychiatry	4 weeks, part time, November 10-December 6, 1947	75.00
At: Mount Sinai Hospital	Applied Neuroanatomy and Neuropathology	7 months, part time, October 6, 1947-April 26, 1948	140.00
	Advanced Applied Neuroanatomy and Neuropathology	6 months, part time, October 9, 1947-April 29, 1948	100.00
	Recent Advances in Neurology and Psychiatry	5 days, full time, December 8-12, 1947	60.00
	Psychiatry in General Medicine	20 weeks, part time, January 6-May 18, 1948	100.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Neurology	1 month, full time, arranged	200.00
	3 year Comprehensive Course in Psychoanalysis	3 years, October 1947	500.00
	Introduction to Psychoanalysis	10 sessions, once a week, October 13, 1947	30.00
	Readings in Psychoanalytic Literature	15 sessions, every two weeks, October 1947	per sem. 40.00
	Child Psychiatry	10 sessions, once a week, October 10, 1947	30.00
New York State Department of Health, 76 State St., Albany 7 At: School for Corrective Motor Education, East Hampton, L. I.	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None[23]
At: Neurological Institute, New York	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None[23]
At: Neuro-Psychologic Rehabilitation Institute, Philadelphia, Pa.	Special Phases in Diagnosis, Evaluation, Treatment and Training of Cerebral Palsy Patients	Minimum 2 weeks, arranged	None[23]
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Neurological and Psychiatric Diagnosis and Treatment in General Practice	2 weeks, full time, December 8-20, 1947	100.00
New York University College of Medicine, 477 First Ave., New York 16 At: Bellevue Hospital	Psychiatry and Neurology	8 weeks, full time, September 15, 1947	250.00
Duke University School of Medicine, Durham, N. C.	Neuropsychiatry	3 months or longer, full time, arranged	per mo. 50.00
	Neurosurgery	3 months or longer, full time, arranged	per mo. 50.00
Philadelphia Psychoanalytic Institute, 111 N. 49th St., Philadelphia At: Bellevue-Stratford Hotel	Psychopathology of Childhood	12 sessions, October 14, 1947-June 1, 1948	12.00
	The Emotional Development of the Child	10 sessions, October 13, 1947-May 10, 1948	10.00
	Orientation Course on Normal Behavior	10 sessions, September 23, 1947-June 8, 1948	10.00
	The Relation between the Functions of the Teacher and of the Psychoanalyst	5 sessions, September 16, 1947 May 4, 1948	5.00
At: Places to be arranged	Professional School Courses (on theory, therapeutic applications and practice of psychoanalysis)	Varies	for all courses 284.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

NEUROLOGY AND PSYCHIATRY—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Neurology, Psychiatry (Basic Studies)	8 months, full time, October 1947-May 1948	800 00
At Affiliated Institutions	Clinicobiologic Neurology and Psychiatry [2]	10 weeks, full time	300 00
University of Texas Medical Branch 912 Avenue B, Galveston	Technical Procedure of the Neurological Examination	Arranged	Not given

NEUROSURGERY

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
University of Wisconsin Medical School, 418 N Randall St, Madison	Neurosurgery for Specialists [2]	2 6 months, arranged	per month 100 00

NUTRITION

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Nutrition	1 month, arranged	150 00
University of North Carolina School of Medicine Chapel Hill	Nutrition	Not given, arranged	25 00
Duke University School of Medicine, Durham, N C	Nutrition	3 months or longer, full time, arranged	per month 50 00

OBSTETRICS AND GYNECOLOGY

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
Alabama State Health Department and Jefferson County Health Department, Birmingham At Slossfield Maternity Center	Refresher Course in Obstetrics and Gynecology	3 days, September 1947	15 00
	Institute for Negro Physicians (Obstetrics)	[illegible] days, full time, September 1947	15 00
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Ave, Los Angeles	Basic Sciences in Obstetrics and Gynecology	33 weeks, full time, October 1, 1947 June 11, 1948	500 00 plus nominal fees
University of Southern California School of Medicine, 1200 N State St, Los Angeles 33 At Los Angeles City Health Department Maternity Division	Clinical Obstetrics (Course 757)	12 weeks, part time, special arrangement	50 00
At Los Angeles County Hospital	Obstetrics and Gynecology (Course 753)	2 weeks, full time, October 1947	100 00
University of California Medical School, San Francisco 22 At University of California Medical Center	Gynecology and Obstetrics Pathology-Smear, Technique Cancer of Uterus, Stomach Urinary Tract Lungs	2 weeks, full time, Aug 4 15, 1947	full course 115 00 mornings 80 00 afternoons 65 00
	Obstetrics and Gynecology	5 days, full time, September 1 5, 1947	35 00
Chicago Maternity Center, 1336 Newberry Ave Chicago	Assistant-residency in Obstetrics	4 6 months, continuously	None
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	Obstetrics	2 weeks, full time, September 8, 1947	150 00
	Operative and Office Gynecology	2 weeks, full time, September 22, 1947	150 00
	Personal Course in Gynecological Surgery	4 weeks, part time, July 10, 1947	80 00
	Personal Course in Gynecological Surgery	4 weeks, part time, September 4, 1947	80 00
	Practical and Didactic Course in Office Gynecology	4 weeks, part time, July 9, 1947	80 00
	Practical and Didactic Course in Office Gynecology	*4 weeks, part time, September 3, 1947*	*80 00*
University of Kansas School of Medicine, 39th St and Rainbow Blvd, Kansas City	Obstetrics and Gynecology	4 days, November 17 20, 1947	20 00
University of Maryland School of Medicine, Lombard and Greene St, Baltimore	Review of Gynecology, Oncology and Female Urology	10 weeks, full time, arranged	125 00
	Review Obstetrics and Gynecology	6 weeks, full time, arranged	150 00
Long Island College of Medicine and Medical Society County of Kings, 1313 Bedford Ave, Brooklyn 16	Complications of Pregnancy	8 sessions, twice a week, October 7, 1947	20 00
	Prenatal Care	8 sessions, once a week, October 16, 1947	20 00
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32	Observation Course in Obstetrics	1 month, full time, 1st of every month	100 00
At Margaret Hague Maternity Hospital, Jersey City, N J	Obstetrics—Internship Training	3 months, full time, 1st of every month except November and December	850 00
At Mount Sinai Hospital	Recent Advances in Gynecology	6 days, full time, December 15-20, 1947	65 00
New York Polyclinic Medical School and Hospital, 341-353 W 50th St, New York	Clinical and Operative (cadaver) Gynecology	6 weeks, arranged	175 00
	Combined Obstetrics and Gynecology	2 months, full time, October 1, 1947	250 00
At Beth Israel Hospital	Gynecology	16 weeks, part time, August 1947	250 00
	Gynecology	16 weeks, part time, December 1947	250 00
At Lenox Hill Hospital	Histopathology for Gynecologists	5 weeks, part time, September 30, 1947	50 00
	Histopathology for Gynecologists	5 weeks, part time, January 6, 1948	50 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Gynecology—Diagnosis and Office Treatment	15 sessions, part time, September 29 October 31, 1947	75 00
	Gynecology—Diagnosis and Office Treatment	15 sessions, part time, November 10 December 12, 1947	75 00
	Gynecology, Diagnosis and Office Treatment	10 sessions, part time, December 1 22, 1947	50 00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, September 24, 1947-January 21, 1948	100 00
	Gynecological Pathology (Restricted to Gynecologists and Pathologists) [2]	16 weeks, part time, January 6 February 26, 1948	100 00
	Seminar in Gynecology	2 months, full time, October 1-November 29, 1947	300 00
	Surgical Anatomy as Applied to Operative Gynecology (Cadaver) Limited to Surgeons [2]	12 sessions, part time, arranged	200 00
Duke University School of Medicine, Durham, N C	Obstetrics and Gynecology	3 months or longer, full time, arranged	per month 50 00
University of Cincinnati College of Medicine, Eden and Bethesda Ave, Cincinnati, Ohio	Seminar in Obstetrics for the General Physician	1 month, twice a week, October 1947	15 00
Oklahoma State Medical Association Postgraduate Committee, 210-212 Plaza Court, Oklahoma City 3 At Principal towns and cities in State	Gynecology	10 weeks, one night a week, not given	15 00
Oregon State Medical Society and Oregon State Board of Health, Portland	Obstetrics Refresher Course	Arranged, tentatively Fall 1947	Not given
University of Oregon Medical School, 3181 S W Marquam Hill Road, Portland 1	Gynecology	5 days, full time, October 27 31, 1947	50 00
Hahnemann Medical College and Hospital of Philadelphia, 235 N 15th St, Philadelphia	Obstetrics	*2 months, full time, July 1, 1947* January 15, 1948	200 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Gynecology, Obstetrics (Basic Studies)	8 months, full time, October 1947 May 1948	800 00

References will be found on page 735

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	OBSTETRICS AND GYNECOLOGY—Continued		
University of Tennessee College of Medicine, Memphis 3	Clinical Practice Course of Postgraduate Instruction in the Control of Pain in Childbirth with Lectures and Demonstrations in Obstetrics	2 weeks, November 1947 and every 2 weeks thereafter	150.00
Meharry Medical College, 1005 18th Ave. North at Meharry Blvd., Nashville, Tenn.	Gynecology-Obstetrics	6 months, full time, July 1, 1947-January 15, 1948	per qtr. 125.00
Southwestern Medical College of Southwestern Medical Foundation, 2211 Oak Lawn, Dallas, Tex.	Postgraduate Course in Obstetrics and Gynecology in Preparation for Specialty Board Examination	31 weeks, part time, September 1947-June 1948	10.00
University of Wisconsin Medical School, 418 N. Randall St., Madison	Obstetrics and Gynecology for Specialists[2]	2-6 months, arranged	per mo. 100.00
	OPHTHALMOLOGY		
University of Southern California School of Medicine, 1200 N. State St., Los Angeles 33 At: Los Angeles County Hospital	Basic Ophthalmology (Course 752)	4 months, full time, October 1947	600.00
University of California Medical School, San Francisco 22 At: Medical Center	Postgraduate Course in Ophthalmology	5 days, full time, September 15-19, 1947	60.00
Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14	Postgraduate Conference in Neuromuscular Anomalies of the Eyes[2]	1 week, second week in November 1947	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Ophthalmology	2 weeks, part time, every 2 weeks	50.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11	Ophthalmology—Basic Course	8 months, full time, October 16, 1947-June 28, 1948	500.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	Ophthalmology-Otolaryngology (Home Study Correspondence Courses)	9 months, September 1, 1947-June 30, 1948	10.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Montefiore Hospital	Bacteriology of the Eye and External Diseases	2½ months, part time, October 6-December 22, 1947	45.00
	Elementary Ophthalmoscopy	8 weeks, part time, January 5-March 1, 1948	30.00
	Embryology of the Eye	7 weeks, part time, October 8-November 26, 1947	40.00
	Extra-ocular Muscles	8 weeks, part time, October 9-December 4, 1947	30.00
	Histopathology of the Eye	2 months, part time, October 9-December 22, 1947	55.00
	Physiological Optics	2 months, part time, October 7-December 9, 1947	45.00
At: Mt. Sinai Hospital	Ophthalmoscopy (Elementary) [illegible]	3 months, part time, September 25-December 22, 1947	25.00
	[illegible] ary)	2 months, part time, October 6-December 22, 1947	25.00
	[illegible] Course [illegible])	18 hours, October 8-December 24, 1947	40.00
	[illegible])	12 weeks, part time, October 7-December 23, 1947	25.00
	[illegible] f the Living Eye[2]	7 weeks, part time, October 8-November 26, 1947	30.00
	Ophthalmic Surgery	2 months, part time, October 8-December 10, 1947	90.00
	Refraction[2]	11 weeks, part time, October 10-December 26, 1947	40.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Anomalies of the Ocular Muscles[2] (Restricted to Oph- [illegible]	5 days, full time, Oct. 27-31, 1947	75.00
	[illegible] the [illegible] to [illegible]	5 days, part time, Nov. 10-14, 1947	50.00
	Motor Anomalies of the Eye[2] (Restricted to Ophthalmologists)	6 days, full time, Oct. 20-25, 1947	100.00
	Ophthalmic Neurology[2] (Restricted to Ophthalmologists)	5 days, part time, Nov. 10-14, 1947	50.00
	Surgery of the Eye[2] (Restricted to Ophthalmologists)	6 days, full time, Nov. 3-8, 1947	100.00
New York University, 477 First Ave., New York 16 At: New York Eye and Ear Infirmary	Allergy of the Eyes and Upper Respiratory Tract[2]	12 lectures and 12 clinic sessions, arranged	100.00
	Anatomy and Physiology[2]	4 weeks, part time, each month if 4 or more students	50.00
	Bacteriology, Serology, Immunology[2]	Arranged, October 1947	50.00
	Embryology[2]	1 month, part time, arranged	50.00
	External Eye Diseases[2]	1 month, part time, every month if enough students	50.00
	External Eye Diseases—Ocular Therapy[2]	1 month, part time, whenever 4 students	50.00
	Extra Ocular Muscles[2]	1 month, 3 afternoons a week, each month whenever 4 students	50.00
	Glaucoma[2]	8 weeks, part time, arranged	50.00
	Histopathology of the Eye[2]	12 weeks, once a week, January-March 1948	100.00
	Neuro-Ophthalmology[2]	2 weeks, part time, arranged	50.00
	Ocular Muscles[2]	1 month, part time, arranged	50.00
	Operative Eye Surgery[2]	1 month, 3 nights a week, every month if enough students	100.00
	Ophthalmoscopy[2]	1 month, twice a week, every month	50.00
	Perimetry[2]	4 weeks, once a week, arranged	50.00
	Physiologic Optics[2]	6 weeks, part time, October 1947	100.00
	Plastic Eye Surgery[2]	1 month, 3 afternoons a week, November 1947	100.00
	Refraction[2]	2 months, 2 nights a week, October 1947 (tentative)	100.00
	Refraction[2]	2 months, 2 nights a week, January 1948 (tentative)	100.00
	X-Ray[2]	6 hours, arranged	50.00
	Slit Lamp Microscopy[2]	1 month, part time, October 1947	50.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	OPHTHALMOLOGY—Continued		
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Ophthalmology (clinical)	6 weeks, October 1, 1947	50.00
	Ophthalmology, Clinical, Operative (Cadaver) and Refraction	*3 months, October 1, 1947-January 2, 1948*	275.00
	Refraction	6 weeks, part time, arranged	100.00
University of Rochester *School of Medicine and Dentistry*, Crittenden Blvd., Rochester, N. Y.	Ophthalmology	*3½ days, full time, July 28-31, 1947*	40.00
Duke University School of Medicine, Durham, N. C.	Ophthalmology	3 months or longer, full time, arranged	per month 50.00
Cleveland Clinic, Euclid Ave. at East 93rd St., Cleveland 6	Diseases of Eye, Ear, Nose and Throat	3 days, first week in December 1947	Not given
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Ophthalmology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville At: Medical College of Virginia, Richmond	Postgraduate Course in Ophthalmology and Otolaryngology	4 days, December 1947	full course 25.00 part 15.00
	ORTHOPEDIC SURGERY		
State University of Iowa School of Medicine, Iowa City	Orthopedic Surgery	10 months, full time, September 1, 1947-July 1, 1948	300.00
New York *Post-Graduate* Medical School, 303 E. *20th* St., New York 3	Functional Anatomy in Relation to Orthopedics	10 days, part time, Sept. 22-Oct. 3, 1947	75.00
	Orthopedics in General Practice	6 days, full time, Nov. 3-8, 1947	60.00
	Seminar in Orthopedic Surgery [2] (Restricted to Surgeons)	10 days, full time, Jan. 5-16, 1948	125.00
Duke University School of Medicine, Durham, N. C.	Orthopedic Surgery	3 months or longer, full time, arranged	per month 50.00
Cleveland Clinic, Euclid Ave. at East 93rd. St., Cleveland 6	Bunts Institute (Orthopedics)	1 day, October 1947	Not given
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Orthopedics (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
	OTOLARYNGOLOGY		
College of Medical Evangelists, Boyle and Michigan Ave., Los Angeles	Basic Sciences in Otolaryngology	33 weeks, full time, October 1, 1947 June 11, 1948	500.00 plus nominal fees
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Otolaryngology	2 weeks, part time, every 2 weeks	50.00
University of Illinois College of Medicine, 912 S. Wood St., Chicago 12	Otolaryngology Refresher [2]	1 or 2 weeks, September 1947	per week 50.00
State University of Iowa College of Medicine, Iowa City	[illegible]	5 days, December 1-5, 1947	75.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	[illegible]	9 months, September 1, 1947-June 30, 1948	10.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	Otolaryngology	3-6 months, full time, first day of any month	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Otolaryngologic Procedures	1 month, part time, arranged	100.00
New York Post-Graduate Medical School, 303 E. 20th St., New York 3	Symposium on Otolaryngology [2] (Restricted to Otolaryngologists)	2 weeks, full time, Nov. 10-22, 1947	150.00
New York University, 477 First Ave., New York At: New York Eye and Ear Infirmary	Anatomy Temporal Bone [2]	1 month, part time, arranged	60.00
	Bacteriology, Serology, Immunology [2]	2 weeks, part time, arranged	50.00
	Bacteriology, Serology and Immunology [2]	1 month, part time, arranged	50.00
	X-Ray [2]	6 hours, arranged	50.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Otolaryngology and Ophthalmology (clinical)	6 weeks, October 1, 1947-January 2, 1948	100.00
	Clinical Otolaryngology	6 weeks, October 1, 1947-January 2, 1948	75.00
Duke University School of Medicine, Durham, N. C.	Otolaryngology	3 months or longer, full time, arranged	per month 50.00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Otolaryngology (Basic Studies)	8 months, full time, October 1947-May 1948	800.00
Virginia Society of Ophthalmology and Otolaryngology, University Station, Charlottesville At: Medical College of Virginia, Richmond	Postgraduate Course in Ophthalmology and Otolaryngology	4 days, December 1947	full course 25.00 part 15.00
	OTOLOGY		
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Mount Sinai Hospital	Histopathology of the Ear	5½ weeks, part time, October 21-November 28, 1947	50.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Advanced Otology	Arranged	250.00
New York University College of Medicine, 477 First Ave., New York 16 At: New York Eye and Ear Infirmary	Anatomy and Physiology [2]	4 weeks, 3 hours a week each month if 4 or more students	50.00
	Bacteriology of the Ear [2]	4 weeks, 4 hours a week, arranged	50.00
	Bacteriology, Serology, Immunology [2]	2 weeks, part time, October 1947	50.00
	Clinical Otology [2]	4 weeks, 4 hours a week, arranged	75.00
	Mastoid Surgery and Nasal Sinuses [2]	*1 month, 4 hours a week, arranged*	200.00
	Operative Ear Surgery (Cadaver) and Nasal Accessory Sinuses [2]	1 month, part time, arranged	200.00
	OTORHINOLARYNGOLOGY		
University of California Medical School, San Francisco 22 At: Medical Center	Postgraduate Course in Otorhinolaryngology	5 days, full time, September 8-12, 1947	60.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Combined Eye, Ear, Nose and Throat Course	3 months, October 1, 1947-January 2, 1948	600.00
	Combined Eye, Ear, Nose and Throat Course	*3 months, January 2, 1948-April 1948*	600.00
	Combined Eye, Ear, Nose and Throat Course	9 months, October 1, 1947	1,000.00
Cleveland Clinic, Euclid Ave. at East 93rd St., Cleveland 6, Ohio	Diseases of Eye, Ear, Nose and Throat Course	3 days, first week in December 1947	Not given
Washington State Medical Association, 218 Cobb Bldg., Seattle	Eye, Ear, Nose and Throat Course	2 weeks, August 1947	Not given

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References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	PATHOLOGY		
Cook County Graduate School of Medicine, 427 S Honore St., Chicago	Pathology and Laboratory Medicine	10 weeks, part time, October 1, 1947	100.00
	2 Weeks Course Surgical Pathology	2 weeks, full time, every 2 weeks	150.00
	1 Month Course Surgical Pathology	1 month, full time, every month	250.00
U-Maryland School of Medicine, Lombard and Greene St., Baltimore	Training in General Pathology	6 months, full time, arranged	150.00
	Training in General Pathology	1 year, full time, arranged	300.00
	Neuropathology[2]	6 months, full time, arranged	210.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Medical Pathologic Conference	1 quarter, 1 morning a week, July 1947	per quarter 10.00
	Medical Pathologic Conference	1 quarter, 1 morning a week, October 1947	per quarter 10.00
	Pathology Seminar	1 quarter, part time, July 1947	Not given
	Pathology Seminar	1 quarter, 2nd and 4th Monday afternoons, October 1947	per quarter 10.00
	Pathology of Neoplasms	1 quarter, 1 afternoon week, October 1947	per quarter 20.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Graduate Course in Pathology	8-11 months, beginning between July 1, and October 1, 1947	per month 62.50
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32	General and Special Pathology	14 weeks, part time, October 18, 1947 January 24, 1948	60.00
New York Medical College Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York	Clinical Pathology	26 hours, arranged	200.00
	Pathology	16 weeks, part time, arranged	200.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Pathology and Bacteriology	Arranged	Not given
New York Post-Graduate Medical School, 303 E 20th St., New York 3	Gross and Microscopic Pathology	6 weeks, part time, Sept. 15-Oct. 24, 1947	100.00
	Gynecological Pathology (Restricted to Gynecologists	16 weeks, part time, Sept. 24, 1947-Jan. 21, 1948	100.00
		16 weeks, part time, Jan. 6-Feb. 26, 1948	100.00
	to Surgeons and Pathologists)[2]	15 weeks, part time, Sept. 16-Dec. 20, 1947	200.00
New York University College of Medicine, 477 First Ave., New York 16 At: Lenox Hill Hospital	Pathology for Surgeons	5 weeks, part time, September 29, 1947	50.00
	Pathology for Surgeons	5 weeks, part time, January 5, 1948	50.00
University of North Carolina School of Medicine, Chapel Hill	Pathology	Arranged	25.00
Duke University School of Medicine, Durham N C.	Pathology	3 months or longer, full time, arranged	per month 50.00
	Pathological Research	3 months or longer, full time, arranged	per month 50.00
	Gross and Microscopic Conferences on Surgical Pathology	3 months or longer, full time, arranged	per month 50.00
	Systematic Review of General and Surgical Pathology	3 months or longer, full time, arranged	per month 50.00
	Staff Appointment in Pathology	3 months or longer, full time, arranged	per month 50.00
University of Texas Medical Branch, 912 Avenue B, Galveston	Surgical Pathology	Arranged	Not given
	PEDIATRICS		
State Department of Health, Hartford, Conn	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
At: Moodus	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
At: North Grosvenordale	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
At: Old Lyme	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
At: Waterbury	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
At: West Hartford	Training Sessions for Physicians at Well Child Conferences	6 sessions, once a month, continuously	None[19]
Emory University School of Medicine, 50 Armstrong St., Atlanta, Ga. At: Grady Memorial and Egleston Hospital	Pediatrics	3 months to 1 year, arranged	per quarter 125.00
Children's Memorial Hospital, 707 Fullerton Ave , Chicago	Postgraduate Course in Pediatrics	4 weeks, October 1947	100.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Course in Pediatrics	2 weeks or 1 month, full time, every two weeks	2 weeks 60.00 1 month 100.00
Wayne University College of Medicine, 1516 St Antoine St , Detroit	Children's Guidance Clinic	1 quarter, part time, July 1947	Not given
	Children's Guidance Clinic	1 quarter, part time, October 1947	Not given
University of Minnesota Medical School Minneapolis 14	Diseases of Children	Not decided, arranged	Arranged
	Pediatrics	6 weeks, full time, arranged	Arranged
Long Island College of Medicine, Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16	Clinical Pediatrics	10 sessions, twice a week, October 8, 1947	20.00
Columbia University, 630 W. 168th St., New York At: Mount Sinai Hospital	Allergy in Children (PM 31)	8 weeks, part time, October 10-November 28, 1947	30.00
	Clinical Pediatrics	10 weeks, part time, October 7-December 16, 1947	80.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York	Clinical Pediatrics	1-9 months, all year	1 month 150.00 3 months 250.00 6 months 450.00 9 months 650.00
	Pediatrics	4 weeks, part time, arranged	Not given

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	PEDIATRICS—Continued		
New York Post-Graduate Medical School, 303 E 20th St, New York 3	*Allergy for Pediatricians* (Restricted to Pediatricians)[2]	*5 days, full time, Oct. 6 10, 1947*	75 00
	Cardiology for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, Dec. 8 12, 1947	75 00
	Clinical Pediatrics	4 weeks, full time, Oct. 13 Nov. 8, 1947	150 00
	Clinical Pediatrics	4 weeks, full time, Jan. 5 31, 1948	150 00
	Dermatology and Syphilology for Pediatricians (Restricted to Pediatricians)[2]	5 days, full time, Sept. 29 Oct. 3, 1947	75 00
	Neurology and Psychiatry for Pediatricians (Restricted to *Pediatricians*)[2]	2 weeks, full time, Oct. 13 25, 1947	100 00
	Practical Clinical Pediatrics	4 weeks, full time, Nov. 10-Dec. 5, 1947	125 00
	Symposium on Recent Advances in Pediatrics	6 days, full time, Nov. 17 22, 1947	75 00
New York University College of Medicine, 477 First Ave, New York 16 At Beth Israel Hospital	Pediatrics	12 weeks, part time, September 30, 1947	Veterans 75 00 Non Veterans 100 00
At Lenox Hill Hospital	Pediatrics	8 weeks, part time, fall 1947	50 00
Duke University School of Medicine, Durham, N C	Pediatrics	3 months or longer, full time, arranged	per month 50 00
Southern Pediatric Seminar, Saluda, N C	Southern Pediatric Seminar	2 weeks, July 14 28, 1947	Not given
University of Cincinnati College of Medicine, Eden and Bethesda Aves, Cincinnati, Ohio	Pediatrics	3 4 months, continuously	per month 30 00
Oregon State Medical Society and Oregon State Board of Health, Portland	*Refresher Course in Pediatrics*	*Arranged, Fall 1947 (tentative)*	*Not given*
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia	Pediatrics (Basic Studies)	8 months, full time, October 1947-May 1948	800 00
Meharry Medical College, 1005 18th Av. North at Meharry Blvd, Nashville, Tenn	Pediatrics	6 months, full time, July 1, 1947 January 15, 1948	per quarter 125 00
Vanderbilt University School of Medicine, Nashville Tenn	Pediatrics	1 3 months, October 1947	3 months 166 66
University of Texas Medical Branch, 912 Avenue B, Galveston	Pediatrics	1 week, October 1947	25 00
Washington State Medical Association, 218 Cobb Bldg, *Seattle*	Intensive Postgraduate Course in Pediatrics	2 weeks, July 14 27, 1947	Not given
University of Wisconsin Medical School, 418 N Randall St, Madison	Course in Pediatrics for Specialists[2]	2 6 months, arranged	per month 100 00
	PHARMACOLOGY		
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Pharmacology Seminar	1 quarter, part time, July 1947	Not given
	Pharmacology Seminar	1 quarter, once a week, October 1947	per quarter 10 00
	Pharmacology Survey	1 quarter, July 1947	Not given
University of North Carolina School of Medicine, Chapel Hill	Pharmacology	September 1947-March 1948	25 00
Duke University School of Medicine, Durham N C	Pharmacology	3 months or longer, full time, arranged	per month 50 00
	Recent Advances in Pharmacology	10 12 weekly seminars, part time, arranged	per month 50 00
	PHYSICAL MEDICINE		
University of *Southern California* School of Medicine 1200 North State St, *Los Angeles* 33 At Los Angeles County Hospital	Principles of Physical Medicine (Course 775)	12 weeks, full time, September 15, 1947	250 00
	Physical Medicine in the Treatment of Anterior Poliomyelitis (Course 776)	4 weeks, *full time*, July 7, 1947	100 00
	Advanced Clinical Practice in Physical Medicine (Course 779)	12 months, full time, September 15, 1947	1,000 00
University of Kansas School of Medicine, 39th St and Rainbow Blvd, Kansas City	Physical Medicine	3 days, December 8 10, 1947	15 00
American Congress of Physical Medicine, 30 N Michigan Ave, Chicago At *Hotel Pennsylvania, New York*	Instruction Seminar	4 days, September 4 7, 1947	1 lecture 2 00 full semester 15 00
New York Polyclinic Medical School and Hospital 341-353 W. 50th St, New York	General Course in Physical Medicine	4 weeks, part time, arranged	100 00[4]
New York University College of Medicine, 477 First Ave, New York At Bellevue Hospital and Institute for Crippled and Disabled	Physical Medicine	12 weeks, part time, Fall 1947	200 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia	Physical Medicine (Basic Studies)	8 months, full time, October 1947-May 1948	800 00
University of Wisconsin Medical School, 418 N Randall St, Madison	Physical Medicine for Specialists[2]	2 6 months, arranged	per month 100 00
	PHYSIOLOGY		
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Physiology Survey	*1 quarter, part time, October 1947*	*Not given*
Columbia University *College of* Physicians and Surgeons, 630 W 168th St, New York 32 At Mount Sinai Hospital	Physiology of the Digestive Tract	*3 weeks, part time, December 1 23, 1947*	40 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Physiology and Chemistry of the Gastrointestinal Tract, Digestion	1 month, arranged	150 00
	Physiology of the Cardio-vascular System and Blood	1 month, arranged	75.00
	Physiology of the Endocrine System	1 month, arranged	75 00
	Physiology of the Special Senses	1 month, arranged	75 00
	Physiology of the Nervous System	2 weeks, arranged	50 00
	Physiology of Respiration	*1 month, arranged*	75 00
New York Post Graduate Medical School, 303 E 20th St, New York 3	Normal and Pathological Physiology — Functional and Chemical Aspects	10 days, full time, Sept. 22 Oct. 3, 1947	100 00
	Normal and Pathological Physiology — Functional and Chemical Aspects	*8 sessions, part time, Jan. 7 Feb. 25, 1948*	30 00
New York University Medical College, 477 First Ave, New York 16	*Physiology*	Not given; twice a week, Fall *1947*	Veterans 65 00 Non Veterans 75 00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan. 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	PHYSIOLOGY—Continued		
University of North Carolina School of Medicine, Chapel Hill	Physiology	Arranged	25.00
Duke University School of Medicine, Durham, N. C.	Physiology	5 months or longer, full time, arranged	per month 50.00
	Recent Advances in Physiology	10-12 weekly seminars, part time, arranged	per month 50.00
	POLIOMYELITIS		
University of Southern California School of Medicine, 1200 North State St., Los Angeles 33 At: Los Angeles County Hospital	Physical Medicine in the Treatment of Anterior Poliomyelitis (Course 776)	4 weeks, full time, July 7, 1947	100.00
Georgia Warm Springs Foundation, Warm Springs At: Jewish Hospital	Poliomyelitis	2 weeks, first Monday in October 1947	Not given
	PROCTOLOGY		
Long Island College of Medicine Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Jewish Hospital	Proctology	8 sessions, twice a week, October 6, 1947	25.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Proctology and Gastroenterology (clinical)	6 weeks, October 1, 1947-January 2, 1948	100.00
	Combined Proctology and Gastroenterology (clinical) and operative (cadaver) Proctology	6 weeks, October 1, 1947-January 2, 1948	200.00
New York University College of Medicine, 477 First Ave., New York At: Bellevue Hospital	Proctology	8 weeks, part time, September 29, 1947	Veterans 100.00 Non-Veterans 150.00
	PUBLIC HEALTH		
Yale University School of Medicine, 333 Cedar St., New Haven, Conn.	Public Health Administration	9 months, full time,[20] September 1947-June 1948	450.00
Tulane University of Louisiana, 1430 Tulane Ave., New Orleans	Intramural Training in Tropical Medicine and Public Health	9 months, September 2, 1947	500.00
Johns Hopkins University, School of Hygiene and Public Health, 615 N. Wolfe, Baltimore, Md.	Public Health	8 months, full time, September 29, 1947-May 1948	600.00
University of Michigan School of Public Health, Ann Arbor	Health Education	3 days, July 7-9, 1947	Not given
	Public Health	4 months, September 22, 1947-January 17, 1948	Not given
University of Minnesota, School of Public Health, Minneapolis 14	Course for Health Officers	9 months, full time, September 1947-June 1948	Residents 30.00 Non-residents 75.00
Albany Medical College, 47 New Scotland Ave., Albany, N. Y., and New York State Dept. of Health	Extension Course for Graduate II Health Officers	1 year, continuously	40.00
Columbia University School of Public Health, 630 W. 168th St., New York 32	1. Public Health; 2. Hospital Administration	1 year minimum, not given	Year 490.00
New York State Department of Health, 76 State St., Albany 7	Fellowship in Public Health (6 months Field Training; 8 months Academic Training)	14 months, full time, continuous	None [21]
University of North Carolina School of Medicine, Chapel Hill	Public Health	1 year, full time, September 1947-June 1948	per quarter 100.00
Duke University School of Medicine, Durham, N. C.	Public Health	3 months or longer, full time, arranged	per month 50.00
Vanderbilt University School of Medicine, Nashville, Tenn.	Master of Public Health	4 months, beginning September 1947	per semester 200.00
	RADIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Clinical Roentgenology	2 weeks, full time, third Monday of every month	70.00
	Lecture and Clinical Roentgenology	2 weeks, full time, first Monday of every month	125.00
	X-Ray Therapy	2 weeks or 1 month, full time	2 weeks 100.00 1 month 200.00
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City	Radiology and Cancer	3 days, January 19-21, 1948	15.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit	Medical X-Ray Conference	1 quarter, 1 afternoon a week, July 1947	per quarter 10.00
	Medical X-Ray Conference	1 quarter, 1 afternoon a week, October 1947	per quarter 10.00
	Radiology Seminar Conference	1 quarter, 1 evening a week, July 1947	20.00
	Radiology Seminar Conference	1 quarter, 1 evening a week, October 1947	10.00
	Radiology Physics and Therapy	1 quarter, 1 evening a week, October 1947	per quarter 10.00
University of Minnesota Medical School, Minneapolis 14 At: Center for Continuation Study	Continuation Course in Radiology of the Chest	1 week, December 1947 (tentative)	Arranged
	Radiologic Diagnosis	2-4 weeks, not decided	Arranged
American Roentgen Ray Society, University Hospital, Iowa City, Ia. At: Haddon Hall, Atlantic City, N. J.	Instructional Course in Diagnostic and [illegible]	4 days, part time, September 17-20, 1947	5.00
Long Island College of Medicine, Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn 16 At: Jewish Sanitarium and Hospital for Chronic Diseases		8 sessions, once a week, October 8, 1947	20.00
At: Jewish Hospital	X-Ray Diagnosis	10 sessions, once a week, October 14, 1947	25.00
At: Long Island College of Medicine	Biologic Fundamentals of Radiation Therapy	10 sessions, once a week, October 7, 1947	20.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32 At: Affiliated Hospitals	Radiological Physics	2 months, part time, September 24-November 21, 1947	25.00
	Symposium on Diagnostic Radiology [2]	10 weeks, full time, September 29-December 5, 1947	250.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York	Diagnostic Roentgenology	Every 6 weeks, half time except during July and August 1947	150.00
	Radium and Roentgen Therapy	6 weeks half time, every 6 weeks except during summer months	150.00
New York Polyclinic Medical School and Hospital, 341-353 W. 50th St., New York	Radiology	3 months, October 1, 1947-January 2, 1948	300.00
New York University College of Medicine, 477 First Ave., New York 16 At: Beth Israel Hospital	Roentgenology	8 weeks, part time, 2 afternoons a week, September 30, 1947	50.00
At: City Hospital	Diagnostic Radiology	12 weeks, part time, 3 afternoons a week, September 29, 1947	100.00
Duke University School of Medicine, Durham, N. C.	Radiology	3 months, or longer, full time, arranged	per month 50.00

References will be found on page 735.

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	RADIOLOGY—Continued		
University of Oregon Medical School, 3181 S W Marquam Hill Road Portland 1	Radiology	5 days, full time, Nov. 10 14, 1947	50 00
American College of Radiology, 20 N Wacker Drive, Chicago and Philadelphia Roentgen Ray Society, Philadelphia At Philadelphia	Preceptorships	Arranged at various times	None
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Radiology (Basic Studies)	*8 months, full time, October 1947-May 1948*	800 00
Meharry Medical College, 1005 18th Av North at Meharry Blvd, Nashville, Tenn	Radiology	6 months, July 1, 1947-January 15, 1948	per quarter 125 00
	SURGERY		
College of Medical Evangelists, Graduate School of Medicine Boyle and Michigan Ave, Los Angeles	Basic Sciences in General Surgery	33 weeks, full time, October 1, 1947 June 11, 1948	500 00 plus nominal fees
University of Southern California School of Medicine 1200 N State St, Los Angeles 33 At Los Angeles County Hospital	*General Surgery (Course 750)*	*4 weeks, full time, September 1947*	200 00
	General Surgery (Course 755)	8 months, full time, following Course 750	750 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago	General Surgery	*1 month, full time, July 7, 1947*	300 00
	1 Month General Surgery	4 weeks, full time, Aug 4, 1947	300 00
	General Surgery	4 weeks, full time, Sept 8, 1947	300 00
	General Surgery	4 weeks, full time, Oct 6, 1947	300 00
	General Surgery	4 weeks, full time, Nov 17, 1947	300 00
	General Surgery	4 weeks, full time, Dec. 1, 1947	300 00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, July 21, 1947	150 00
	2 Weeks Course Surgical *Anatomy and Clinical* Surgery	2 weeks, full time, Aug. 18, 1947	150 00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Sept. 22, 1947	150 00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Oct 20, 1947	150 00
	2 Weeks Course Surgical Anatomy and Clinical Surgery	2 weeks, full time, Nov 17 1947	150 00
	Surgical Anatomy on the Cadaver	10 weeks, part time, Oct 1, 1947	125 00
	Surgery *of* the Colon and Rectum	1 week, full time, Sept 15, 1947	100 00
	Surgery of the Colon and Rectum	1 week, full time, Nov. 3, 1947	100 00
	Surgical Diagnosis Preoperative and Postoperative Care	10 weeks, part time, Oct 1, 1947	100 00
	Surgical Technique	2 weeks, every 2 weeks	200 00
	Personal Course in Vaginal Surgery	1 week, full time, Sept. 15, 1947	100 00
	Personal Course in Vaginal Surgery	1 week, *full time, Oct 13, 1947*	100 00
University of Kansas School of Medicine, 39th St and Rainbow Blvd, Kansas City	Continuation Course in Surgical Pathology	12 weeks, once a week, September 25, 1947	50 00
At University of Kansas Extension Division, Lawrence	*Surgical Pathology*	*10 or 12 weeks, part time, beginning* latter part of September or early October 1947	Not given
	Surgical Physiology	10 or 12 weeks, part time, beginning latter part of September or early October 1947	Not given
Wayne University College of Medicine, 1516 St Antoine St, Detroit	Laboratory Surgery	1 quarter, part time, October 1947	Not given
	Surgery Seminar	1 quarter, 1 afternoon a week, July 1947	per quarter 10 00
	Surgery *Seminar*	1 quarter, 1 afternoon a week, October 1947	*per quarter* 10 00
Cornell University Medical College, 1300 York Ave, New York 21	Surgical Anatomy[1]	3 weeks, September 2 20, 1947	150 00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E 106th St, New York	Gastrointestinal Surgery	Not given, arranged	200 00
	Peritoneoscopy	Not given, arranged	100 00
	Surgical Aspects of Peripheral Vascular Diseases	Not given, arranged	200 00
	Surgical Technique	50 hours, arranged	375 00
	Thoracic Surgery	3 weeks, *full time*, arranged, Fall 1947	325 00
New York Post-Graduate Medical School, 303 E 20th St, New York 3	Diagnosis and Treatment of Trauma	6 days, full time, Nov. 17 22, 1947	60 00
	Dissection and Surgical *Anatomy* (Restricted to Surgeons)[2]	Part time, arranged	150 00
	Normal and Pathological Physiology in Surgery (Restricted to Surgeons)[2]	5 days, full time	55 00
	Review of General Surgery for Surgeons (Restricted to Surgeons)[2]	4 weeks, full time	200 00
	Seminar in Traumatic Surgery (Restricted to Surgeons)[2]	2 weeks, full time, Sept 8 20, 1947	125 00
	Surgery of the Hand (Restricted to Surgeons)[2]	6 days, full time, Oct 6 11, 1947	75 00
	Surgical Anatomy as Applied to Colon and Rectal Surgery (Restricted to Surgeons)[2]	Part time, arranged	100 00
	Surgical Anatomy as Applied to General Surgery (Cadaver) (Restricted to Surgeons)[2]	Part time, arranged	200 00
	Surgical *Anatomy as Applied* to Operative Gynecology (Cadaver)[2]	*12 sessions, part time, arranged*	200 00
	Surgical Anatomy as Applied to Thoracic (Cadaver) (Restricted to Surgeons)[2]	Part time, arranged	200 00
	Surgical Pathology (Restricted to Surgeons and Pathologists)[2]	*15 weeks, part time, Sept 16 Dec 30, 1947*	200 00

References will be found on page 735

Postgraduate Courses for Practicing Physicians—July 1, 1947 to Jan 15, 1948—Continued

Institution	Title of Course	School and Course	Registration Fee and/or Tuition
	SURGERY—Continued		
New York Polyclinic Medical School and Hospital 341-353 W 50th St, New York	Combined Surgical Course	3 months, October 1, 1947 January 2, 1948	350 00
Duke University School of Medicine Durham, N C	Surgery	3 months or longer, full time, arranged	per month 50 00
University of Oregon Medical School, 3181 S W Marquam Hill Road, Portland 1	General Surgery	5 days, full time, Sept 29 Oct 3, 1947	50 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories Philadelphia 4	Surgery (Basic Studies)	8 months, full time, October 1947 May 1948	800 00
Meharry Medical College 1005 18th Av North at Meharry Blvd Nashville, Tenn	Surgery	6 months, full time, July 1, 1947 January 15, 1948	per quarter 125 00
Vanderbilt University School of Medicine, Nashville 4, Tenn	Surgery	1 3 months, October 1947	for 3 months 166 66
Southwestern Medical College of Southwestern Medical Foundation 2211 Oak Lawn Dallas, Tex	Postgraduate Course in Surgery in Preparation for Specialty Board Examination	3 weeks, 2 hours a week, September 1947 June 1948	10 00
University of Texas Medical Branch 912 Avenue B, Galveston	General Surgery	1 week, November 1947	25 00
University of Vermont College of Medicine, Pearl St, College Park, Burlington	Surgery	Minimum 4 weeks, part time, July 1947 January 1948	per year 500 00 or pro rated
University of Wisconsin Medical School, 418 N Randall St, Madison	Surgery Course for Specialists[2]	2 6 months, arranged	per month 100 00
	THERAPY		
University of Kansas School of Medicine 39th St and Rainbow Blvd, Kansas City At University of Kansas Extension Division Lawrence	General Therapeutics Clinic (tentative)	5 days, October 1947	Not given
Wayne University College of Medicine 1516 St Antoine St, Detroit	Therapeutic Seminar	1 quarter, part time, July 1947	Not given
	Therapeutic Seminar	1 quarter, part time, October 1947	Not given
Long Island College of Medicine, Medical Society County of Kings 1313 Bedford Ave, Brooklyn 16 At Jewish Sanatarium and Hospital for Chronic Diseases	Clinical Therapeutics	12 sessions, twice a week October 6, 1947	20 00
Columbia University College of Physicians and Surgeons 630 W 168 St, New York 32 At Columbia Presbyterian Medical Center	Physiologic Therapy in Respiratory Diseases	6 days, full time, January 26 1, 1948	40 00
At Mount Sinai Hospital	Physical Therapy in General Practice	4 months, part time, October 7 1947 February 10, 1948	85 00
	Recent Advances in Therapy	7 weeks, part time October 22 December 10, 1947	35 00
University of Oregon Medical School 3181 S W Marquam Hill Road Portland 1	Applied Therapeutics	5 days, Oct 13 17, 1947	50 00
University of Texas Medical Branch 912 Avenue B, Galveston	Electro shock Therapy	Arranged	Not given
	TROPICAL MEDICINE		
Tulane University of Louisiana, 1430 Tulane Ave, New Orleans 13	Intramural Training in Tropical Medicine and Public Health	9 months, September 2, 1947	500 00
	UROLOGY		
College of Medical Evangelists Boyle and Michigan Ave, Los Angeles	Basic Sciences in Urology	33 weeks, full time, October 1, 1947 June 11, 1948	500 00 plus nominal fee
Long Island College of Medicine Medical Society County of Kings 1313 Bedford Ave, Brooklyn 16 At Long Island College Hospital	Urology	1 month or longer, October 1, 1947	25 00
James Buchanan Brady Foundation of the New York Hospital 525 E 68th St, New York	Postgraduate Course in Urology	6 months, full time, July 1947 January 1948	500 00 [22]
	Postgraduate Course in Urology	6 months, full time, January July 1948	500 00 [23]
New York Post Graduate Medical School, 303 E 20th St, New York 3	Advanced Course in Urology (Restricted to Urologists)[2]	2 months, full time, Oct 1 Nov 26, 1947	300 00
New York Polyclinic Medical School and Hospital 341-353 W 50th St, New York	Urology and Allied Subjects	8 months, full time, October 1, 1947	800 00
New York University College of Medicine, 477 First Ave, New York 16 At Beth Israel Hospital	Urology	6 weeks, part time, September 29, 1947	100 00
Duke University School of Medicine Durham, N C	Urology	3 months, or longer, arranged	per month 50 00
University of Pennsylvania Graduate School of Medicine, 237 Medical Laboratories, Philadelphia 4	Urology (Basic Studies)	8 months, full time, October 1947 May 1948	800 00
	VENEREAL DISEASES		
U S Public Health Service and Arkansas State Board of Health Hot Springs National Park Ark	Ninth Postgraduate Course in The Management and Control of the Venereal Diseases	3 weeks, full time, Fall 1947	None
University of California Medical School, San Francisco 22	Course in Venereal Diseases	16 weeks, 1 hour a week, September 13, 1947 January 10, 1948	40 00
Bureau of Social Hygiene, Department of Health, 125 Worth St, New York At Central Clinic	Practical Course in Diagnosis Treatment and Control of Venereal Diseases	1 morning a week every 2 weeks	None
	Seminar in Diagnosis and Treatment of Venereal Disease (Lectures)	14 sessions, Fall and Winter 1947 1948	None
Columbia University College of Physicians and Surgeons, 630 W 168th St, New York 32	Venereal and Skin Diseases	6 days, full time, December 1-6, 1947	30 00

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[1] Special contract to War Department

[2] Specialists only

[3] Stipends up to a maximum of $250 00 per month are available if certain qualifications can be met

[4] Half fee to physicians in service

[5] Followed by 12 months in hospital administrative internship

[6] Training given in various institutions throughout country Applicant must make his own arrangement with institution

[7] Stipend paid on per diem basis

[8] In each teaching district—covering the state in 2 years

[9] Pre-requisite—Course 730

[10] Evening seminars to be announced during course

[11] Fellows and Jr candidates

[12] Including dinners and luncheons

[13] Write for schedule to Committee on Graduate Education, 230 State St, Harrisburg, Pa

[14] Includes meals

[15] Free to physicians on active duty at Cook County Psychopathic Hospital

[16] Full-time employees of the Illinois Department of Public Welfare pay no fee

[17] Restricted to physician candidates of the Topeka Institute for Psychoanalysis

[18] Candidates in training only

[19] $5 00 per session paid to physician in training by State Department of Health

[20] Or equivalent if taken on part time basis

[21] Especially for candidates for American Board of Surgery

[22] No extra charge for longer stay

[23] Stipend (including travel) and tuition fee (when there is such) paid for by the department

[24] Paid by State Health Dept, also stipend paid during training period

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Revocation of License for Unlawful Advertising.—This was a proceeding to revoke the license of the defendant to practice dentistry. From a judgment of the district court setting aside a revocation order entered by the state board of dental examiners, the board appealed to the Supreme Court of Kansas.

Early in April 1941 the defendant, then practicing dentistry in Kansas City, began running advertisements in the Kansas City *Kansan* and the *Shopper,* newspapers in general circulation in Kansas City, of a kind which violated the provisions of the dental practice act, the Code of Ethics of the American Dental Association and the rules of the board of dental examiners. The secretary of the board accordingly wrote the defendant, calling attention to that fact. The defendant replied, expressing his desire to conduct his business in an ethical way and asking for specific information as to in what way he was not doing so. Following receipt of this letter, the attorney for the board called on the defendant and made a full explanation to him of the objectionable nature of his advertisements, furnished him copies of the Code of Ethics and the board's rules and referred him to the pertinent statute. Later the board's attorney also wrote to the defendant, referred to the interview and again detailed the matters which had been discussed. The defendant referred this letter to a lawyer, who requested and received an interview with the attorney for the board. At the interview the entire matter was again gone over, with the ultimate result that defendant's attorney took the position that, while what the defendant was doing was contrary to the rules of the board, the board had no authority to make such rules and hence defendant was not engaged in unethical or dishonorable conduct. A complaint was filed before the board on Nov. 15, 1941 and a copy of it sent to the defendant by registered mail. At the date set for a hearing, the board heard the arguments of all the parties and concluded that the complaint should be further investigated. [At this point the defendant appealed to the Supreme Court on the right of the board to conduct the hearing on the complaint. The defendant lost (*Bohl* v. *Teall,* 155 Kan. 505, 126 P (2d) 216.)] The matter was set for hearing on Aug. 10, 1942. At that time the defendant made an offer to cease the objectionable advertising if the complaint was dismissed. A hearing respecting the good faith of the defendant in making that offer was conducted, and the board took the matter under advisement pending the final hearing, at which the board went fully into the complaint and the evidence and entered an order revoking the defendant's license. [At this point the defendant obtained an injunction restraining the board from enforcing its revocation order. Again the matter was taken to the Supreme Court (*Bohl* v. *Teal,* 157 Kan. 239, 139 P (2d) 418), which held that the defendant's proper remedy was by appeal of the board's order and not by an independent action to restrain the board from enforcing its order.]

From our examination of the record, said the Supreme Court, we find nothing which justified the trial court in finding that the order of the board was unreasonable, arbitrary, oppressive and illegal. The board gave the defendant as fair treatment and consideration as any one could expect. The testimony before the board justified its findings, and the Dental Practice Act authorized the board to conduct such a hearing and to make the order revoking the license if the evidence disclosed that it should be done. Continuing, the Supreme Court pointed out that a member of a profession which has high ethical standards in order that its members may have the high standing in the community which their education and training justify, and which standards are beneficial to the health and welfare of those whom they serve, should conform to them. Apparently, said the court, the defendant violated these standards, and when his attention was called to the matter he professed ignorance. With reasonable promptness he was informed in a personal interview and in writing by the board's attorney. Defendant blocked a full inquiry, the court continued, but enough did get into the record to tend to show conduct on the part of the defendant which the board might regard as being professionally dishonorable. It is not for this court, nor was it for the trial court, to pass upon the evidence before the board as to whether or not it established grounds for revoking the defendant's license. The court concluded that it had no authority to substitute its judgment for that of the board.

The court also held that legal questions relating to procedure of this kind are well established by former decisions of the Kansas Supreme Court. Council for the defendant cited *Capland* v. *Board of Dental Examiners,* a prior Kansas case, as controlling. But in that case, the Supreme Court pointed out, the board had not made the rules authorized by statute. In this case the rules had been adopted by the board prior to any of the objectionable conduct of the defendant, a fact of which he either knew or was promptly informed before any proceedings were started. On behalf of defendant, it was also argued that because some general definitions of dishonorable conduct were stated in the Capland case the board had no authority to embody in its rules a definition of dishonorable conduct. The point is not well taken, said the Supreme Court. The general definitions of dishonorable conduct quoted in the opinion did not preclude the board from considering its own profession and making rules defining dishonorable conduct as being that which was opposed to the long standing Codes of Ethics of the profession.

Accordingly, the judgment of the trial court was reversed with directions to affirm the order of the board revoking the defendant's license to practice dentistry in Kansas.—*State Board of Dental Examiners v. Bohl, 174 P. (2d) 998 (Kansas, 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal June 14, page 635.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* September. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Part II. *Oral.* Cleveland. Oct. 5-11. Sec., Dr. P. M. Wood, 131 Riverside Dr., New York 24.

American Board of Dermatology and Syphilology: *Part I. Oral.* Chicago, Oct. 24-26. Final date for filing application is Aug. 1. *Part II. Written.* Various centers, Sept. 15. Sec., Dr. G. M. Lewis, 66 E. 66th St., New York 21.

American Board of Neurological Surgery: *Oral.* Chicago, May or June. Final date for filing application is Feb. 1. Sec., Dr. W. J. German, 310 Cedar St., New Haven, Conn.

American Board of Ophthalmology: Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

American Board of Orthopaedic Surgery: Part II. Chicago, Jan. 22-23. Final date for filing applications is Sept. 15, 1947. Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

American Board of Otolaryngology: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

American Board of Pathology: Chicago, Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kingshighway, St. Louis 10.

American Board of Plastic Surgery: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Louis T. Byars, 508 N. Grand Blvd., St. Louis.

American Board of Psychiatry and Neurology: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

American Board of Radiology: *Oral.* Boston, Nov. 26-30. Final date for filing application is Aug. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

American Board of Surgery: *Examination. Part I. Written.* Various centers, Oct. *29. Final date for filing application* is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Chicago, February. Final date for filing application is *Nov. 1: Sec., Dr. Harry Culver,* 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Practitioner, Philadelphia

1:343-400 (March) 1947

Prematurity from the Viewpoint of Obstetrician. N. J. Eastman.—p. 343.
Role of Vitamin Deficiencies in Neuropsychiatric Diseases. N. Q. Brill.—p. 353.
Blood Grouping Tests in Disputed Paternity Cases. I. Davidsohn.—p. 357.
Chemical Tests for Alcoholic Intoxication. C. Muehlberger.—p. 360.
Legal Problems Regarding Blood Grouping Tests in Paternity Cases and Scientific Tests for Alcoholic Intoxication. F. E. Inbau.—p. 363.
Lymphogranuloma Venereum. J. Parks and C. K. Fraser.—p. 371.
Abdominal Auscultation. P. Thorek.—p. 375.
Treatment of Migraines. H. T. Engelhardt and V. J. Derbes.—p. 392.

Archives of Dermatology and Syphilology, Chicago

55:309-432 (March) 1947

Clinical Use of New Antihistaminic Compound (Pyribenzamine) in Certain Cutaneous Disorders. E. D. Osborne, J. W. Jordon and N. G. Rausch.—p. 309.
Dermatologic Problems in Staging Area Station Hospital. S. L. Hanfling and A. A. Goldbloom.—p. 322.
Kaposi's Varicelliform Eruption: F. W. Lynch and R. J. Steves.—p. 327.
Dermatophytosis of Face Caused by Trichophyton Camerounense. E. Bernhardt.—p. 337.
Granuloma Inguinale Involving Buttock and Lymph Node: Cultivation of Donovon Body in Embryonic Yolk. D. B. Jennison, E. B. Helwig and J. H. Milstone.—p. 342.
*Acne Vulgaris Treated with Vitamin A. F. W. Lynch and C. C. Cook.—p. 355.
Leishmaniasis Verrucosa of Face. O. G. Costa.—p. 358.
Cutaneous Diphtheria and Tropical Ulcers. E. Denhoff and M. H. Kolodny.—p. 360.
Epidermolysis Bullosa of the Newborn. J. H. Lamb and B. Halpert.—p. 369.
Basal Cell Epithelioma in Psoriatic Patch. A. G. Franks and J. L. Barner.—p. 375.
Treatment of Mycotic Infections by Inhibiting Respiration of Dermatophytes. F. A. Dolce and W. J. Nickerson.—p. 379.
Reactions in Treatment of Syphilis with Penicillin. S. Fromer.—p. 385.
*Undecylenic and Propionic Acids in Prevention and Treatment of Dermatophytosis. M. B. Sulzberger and A. Kanof.—p. 391.

Vitamin A in Acne Vulgaris.—Lynch and Cook studied the effects of vitamin A given orally in daily doses of 100,000 units to a group of university students with acne. The patients received no advice as to diet or hygiene, and no other treatment was given. There were 45 patients to whom vitamin A was given for a sufficient length of time (four or five months) to permit evaluation. A comparison of the results of vitamin A treatment with those obtained with nicotinic acid or other treatments reveals that vitamin A does not produce remarkable improvement in acne.

Undecylenic and Propionic Acids in Dermatophytosis.—Sulzberger and Kanof summarize the results of experiments performed under the direction of the Research Division of the Bureau of Medicine and Surgery of the United States Navy. The object of the experiments was to ascertain the efficacy of certain fatty acids and their salts in the prophylaxis and treatment of dermatophytosis. Nine agents were compared and are listed in approximately descending order of efficiency: 1. Undecylenic acid-undecylenate powder. 2. Diodoquin 5 per cent in talcum powder. 3. Vioform 1 to 3 per cent in talcum powder. 4. Calcium-zinc propionate powder. 5. Sodium propionate powder. 6. Foot powder U. S. N. 7. Boric acid-salicylic acid powder. 8. Talcum powder. 9. Thiourea 5 per cent in talcum powder. Undecylenic acid-undecylenate powder was slightly more effective than the boric acid-salicylic acid powder. Approximately one fourth of all the men studied and examined had clinical evidence of active fungous infection of the feet.

Canadian Medical Association Journal, Montreal

56:249-360 (March) 1947

*Heart Catheterization in Investigation of Congenital Heart Disease. A. L. Johnson, D. G. Wollin and Janice B. Ross.—p. 249.
Some Observations on Nasal Cilia. G. E. Tremble.—p. 255.
New Method of Ureterointestinal Anastomosis Prior to Total Cystectomy for Carcinoma of Bladder. R. H. Flocks.—p. 259.
Importance of Blood Changes in Coronary Occlusion. W. M. Cameron, J. H. B. Hilton, S. R. Townsend and E. S. Mills.—p. 263.
Ectopic Pregnancy as Diagnostic Probem: Study of 100 Cases. H. B. Atlee.—p. 268.
Sudden Death. W. J. Deadman.—p. 273.
Anesthesia for Plastic Surgery. R. A. Gordon.—p. 277.
Problem of Muscle Relaxation in Surgery. H. R. Griffith.—p. 281.
Phlebothrombosis and Its Treatment. E. S. Mills.—p. 284.
Anesthesia in Thoracic Surgery. H. J. Shields.—p. 287.
Bone Lesions Encountered During Infancy. A. E. Childe.—p. 292.
Penicillin in Treatment of Sinusitis. R. Scott-Moncrieff.—p. 296.
Treatment of Mastoiditis in Children. L. H. Leeson.—p. 298.
Psychological Component. B. I. Lewis.—p. 303.
Vertigo. T. J. Haughton.—p. 308.
Occupational Therapy in Rheumatoid Arthritis. H. P. Wright.—p. 313.

Heart Catheterization in Congenital Heart Disease.—The report by Johnson and his associates is based on the study of 17 children with congenital heart disease in which this approach has been employed. The patients ranged in age from 19 months to 16 years. Of the 17 patients studied, 9 were considered to have interventricular septal defects in view of the information provided by catheterization. The authors regard the method of heart catheterization as a most useful adjunct in the investigation of congenital heart disease.

Journal of International College of Surgeons, Chicago

10:1-134 (Jan.-Feb.) 1947

Impending Death Under Anesthesia. H. Bailey.—p. 1.
Surgical Concept in Hyperthyroidism. C. G. Heyd.—p. 11.
Reconditioning of Spinal Cord Injuries. W. McK. Craig and J. S. Barr.—p. 18.
Dermoplasty of War Wounds of Lower Extremity. J. F. Pick.—p. 28.
Anatomic and Surgical Considerations of Phrenic and Accessory Phrenic Nerves. M. J. Rajanna.—p. 42.
Prostheses for Nose. A. M. Brown.—p. 53.
Operative Technic for External and Internal Strabismus. J. P. Rigg.—p. 63.
Ureteroureterostomy: Anastomosis of Old Stump of Right Ureter with Injured Left Ureter. N. I. Slutsky.—p. 72.
Goiter Due to Iodine Deficiency in Childhood. E. S. Loup B.—p. 110.
Controlled Spinal Anesthesia. J. E. Cavelier.—p. 118.
Consideration on 10,000 Anesthesias Performed in the Workers' Hospital in Lima. P. B. Carlin and J. Fuentes.—p. 120.
New Technic and Its Advantages for Extraction of Fetal Head in Segmental Cesarean Section. M. Urpi Rodriguez.—p. 126.
Should Subtotal Be Preferred to Total Hysterectomy in Nonmalignant Lesions? E. Bello.—p. 129.

Medical Annals of District of Columbia, Washington

16:119-172 (March) 1947

*Nondysenteric Amebiasis: General Considerations and Possible Relationship to Rheumatoid Arthritis. M. W. Perry.—p. 119.
Late Manifestations of Tropical Diseases. O. J. Brown.—p. 125.
National Hotel Epidemic of 1857. H. J. Forrest.—p. 132.
Glomus Tumor. W. H. Gerwig Jr.—p. 135.

Nondysenteric Amebiasis.—Perry thinks that amebiasis is generally thought of only in terms of amebic dysentery. He stresses the importance of the carrier state, in which the lesions are smaller and often microscopic. The organisms tend to grow in the cecum and the terminal ileum. The appendix is frequently involved and is often removed for so-called chronic appendicitis. No patient with so-called chronic appendicitis should have an appendectomy without first having adequate studies of the stools for amebas. Patients with nondysenteric amebiasis have a tender cecal area and a somewhat enlarged and palpable liver. There is need for a careful study of the feces whenever these signs are detected. The author has detected amebas in persons with rheumatoid arthritis and thinks that the lesions produced in the right colon by the ameba in the carrier or nondysenteric state are capable of providing a port of entry for pathogenic bacteria. He cites a case which illustrates the role amebiasis may play in rheumatic difficulties and how treatment of the amebiasis will counteract the rheumatic symptoms.

Nebraska State Medical Journal, Lincoln

32:89-132 (March) 1947

Purpuric States. C. A. Doan.—p. 93.
Histoplasmosis Case Report. F. M. Conlin and C. R. Hankins.—p. 101.
Local Anesthesia in Cesarean Section. L. S. McGoogan.—p. 104.
Psychiatric Aspects of Pain in Neck. R. H. Young.—p. 107.
Headaches from Otolaryngologic Viewpoint: Origin and Mechanism. F. M. Watke.—p. 109.
Pitfalls in Serologic Diagnosis of Syphilis. J. P. Tollman.—p. 114.
Atresia or Stenosis of Nares. W. L. Shearer.—p. 116.

32:133-176 (April) 1947

Blood Substitutes and Parenteral Fluids: Derivation and Their Relative Values. C. M. Wilhelmj.—p. 136.
Use and Abuse of Blood Substitutes and Parenteral Fluids in General Surgery. C. W. McLaughlin Jr.—p. 138.
Blood Substitutes and Parenteral Fluids in Gynecology and Obstetrics. J. P. Redgwick.—p. 141.
Blood Substitutes and Parenteral Fluids. F. S. Clark.—p. 144.
Blood Substitutes and Parenteral Fluids: Use and Abuse in Internal Medicine. C. E. Thompson.—p. 146.

New York State Journal of Medicine, New York

47:433-528 (March 1) 1947

*Operation of Portacaval Anastomosis: Indications, Report of Cases. A. H. Blakemore.—p. 479.
Evaluation of Transdiaphragmatic Approach for Upper Abdominal Surgery. J. D. Stewart.—p. 486.
Prevention of Complications Following Surgery on Urinary Tract. G. E. Slotkin.—p. 490.
*Consideration of Effect of Androgen Control Treatment of Carcinoma of Prostate. C. C. Herger and H. R. Sauer.—p. 494.

47:529-656 (March 15) 1947

Pulmonary Tuberculosis, Early and Differential Diagnosis. R. J. Erickson.—p. 575.
Incidence of Pathologically Significant Tuberculosis in Routine Necropsies in Private and Public General Hospitals: Comparison of Two Periods: 1916-1920 and 1940-1945. E. M. Medlar.—p. 582.
Use of Bronchoscope in Diseases of Chest. J. D. Kernan.—p. 588.
Surgery in Diseases of Chest. H. C. Maier.—p. 592.
Maternal Mortality in Brooklyn for 1945. C. A. Gordon.—p. 595.
Clinical Use of Penicillin in Otolaryngology. J. W. Fowlkes.—p. 600.
Management of Renal Lithiasis. C. C. Higgins.—p. 604.
Parenteral Nitrogen Therapy in Surgical Nutrition Including the Use of a Mixture of Pure Amino Acids. S. C. Werner.—p. 607.

Portacaval Anastomosis.—Blakemore thinks that the principle of establishing portacaval shunts to effect a reduction of blood pressure in the portal system in cases of portal hypertension is a sound one, but in the first operations of this kind the anastomosis often became occluded by a thrombus. The difficulty of accurate placement of each stitch so necessary for a perfect intima to intima coaptation of the vein walls induced the author and Whipple to try a nonsuture technic employing vitallium tubes in the establishment of portacaval shunts. The nonsuture method of blood vessel anastomosis affords a broad intima to intima coaptation of the vessel walls without an intervening foreign body suture. The author illustrates the technic and discusses the indications for the anastomosis. The operation has been performed on 17 patients. In this group there were two postoperative deaths. In 6 patients the site of the portal obstruction was extrahepatic. Ten of the 11 remaining patients had portal cirrhosis. Sufficient time has elapsed since operation to have some follow-up significance in 8 cases of cirrhosis. In 1 of these with esophageal varices but no ascites there was a rise in total proteins and albumin following operation. In 2 other cases there was a slight rise in total proteins and albumin following operation, whereas in the remaining 5 cases there was a slight fall of these. Ascites disappeared following establishment of the portacaval shunts in spite of lowered proteins in 3 cases; this emphasizes the role of portal hypertension as a causative factor.

Androgen Control in Carcinoma of Prostate.—Herger and Sauer review the results obtained with endocrine therapy in 130 cases of prostatic cancer. They found that after initial benefit resurgent symptoms develop in the majority of the cases after variable periods of time. This indicates that endocrine therapy in its present form does not cure nor does it retard the disease indefinitely. Indiscriminate use of orchiectomy in patients with prostatic cancer is decried. Castration should be reserved for patients in whom immediate relief from pain is desired or patients in whom estrogen administration has lost its effectiveness. Estrogen administration given in cases of failures following castration is usually ineffective while failures occurring after exclusive estrogen therapy show fair response to subsequent castration. Androgen control therapy does not prevent formation of metastases in patients with apparently quiescent disease.

North Carolina Medical Journal, Winston-Salem

8:115-190 (March) 1947

Diagnosis and Management of Tinea Capitis. J. L. Callaway and N. F. Conant.—p. 116.
Management of Myocardial Infarction. C. Johnston.—p. 121.
Treatment of Congestive Heart Failure. E. S. Orgain.—p. 125.
Treatment of Cardiac Failure with Rice Diet: History of Patient with Myocardial Aneurysm. W. Kempner.—p. 128.
Basis for Treatment of Rheumatoid Arthritis. E. L. Persons.—p. 131.
Treatment of Psychogenic Headaches. R. L. Craig.—p. 134.
Recognition and Management of Subarachnoid Hemorrhage. F. H. Hesser.—p. 138.
Treatment of Chronic Convulsive Disorders. R. W. Graves.—p. 141.
Modern Concepts of Treatment of Peptic Ulcer. J. M. Ruffin.—p. 143.
Treatment of Anemia. O. C. Hansen-Pruss.—p. 146.
Treatment of Diabetic Acidosis. W. M. Nicholson.—p. 150.
Prescribing of Diets in Treatment of Diabetes Mellitus. R. W. Rundles.—p. 152.
Some Common Forms of Overtreatment. M. Dick.—p. 157.
Significance of Hypersensitivity in Diagnostic Tests and in Therapy of Infectious Diseases. D. T. Smith and D. S. Martin.—p. 160.
Desensitization in Treatment of Asthma. E. G. Goodman.—p. 162.
Penicillin Aerosol Therapy. E. E. Menefee Jr. and D. H. Fogel.—p. 165.
New Horizons in Drug Therapy. J. P. Hendrix.—p. 169.

Oklahoma State Medical Assn. Jour., Oklahoma City

40:73-116 (March) 1947

Diagnosis and Treatment of Cardiac Emergencies. F. R. Park.—p. 75.
Sulfonamide Anuria. D. W. Branham.—p. 81.
*Brucellosis in Children. G. R. Russell.—p. 82.
Gastric Resection for Carcinoma of Stomach: Kronlein Technic. A. B. Carney—p. 88.

Brucellosis in Children.—Russell reports observations on 141 children with tissue sensitivity to Brucella vaccine as manifested by a positive skin test. The search was suggested during the past two years by the letting down of the bars to raw dairy products due to rationing, and by the presentation by the parents of the occasional child with symptoms similar to their own and diagnosed as probable ambulant forms of brucellosis. In 123 of the 141 there was a definite history of fever, usually of the remittent type. Vague pains of the skeletal system, chiefly leg ache and backache, were present in 50 children, with headaches in 13. Forty-two children gave a history of vague gastrointestinal symptoms. Eighty-eight had a history of using raw or unpasteurized dairy products, including milk, cream and country butter. Associated conditions, although not necessarily due to brucellosis, may be connected with it when the protean character of its manifestations is taken into consideration. There were ocular and pulmonary manifestations, lymphadenopathy, skin lesions, spondylitis, joint manifestations and alopecia. Vaccine therapy was tried in children who showed no spontaneous improvement after one or two months. Great improvement was effected with vaccine in 9 patients, moderate improvement in 11, slight improvement in 8 and no improvement in 2. The blood sedimentation level has been found to be a valuable aid in following the activity of brucellosis infection. Russell suggests investigation of the use of Brucella prophylactic vaccine, perhaps as a combination with typhoid and paratyphoid, as tried by Kolmer.

Psychiatry, Washington, D. C.

10:1-120 (Feb.) 1947

Memory and Childhood Amnesia. E. G. Schachtel.—p. 1.
Notes on "The Iceman Cometh." W. V. Silverberg.—p. 27.
Study of Psychopathic Personality in Guatemala. M. F. Molina.—p. 31.
Cultural Dynamics of Sex: Study in Culture and Personality. J. J. Honigmann.—p. 37.
Witches and Psychiatrists. D. Senter.—p. 49.
Concept of Culture and Psychosomatic Approach. Margaret Mead.—p. 57.
Medical Philosophy from Viewpoint of Psychiatrist. W. A. White.—p. 77.

Quarterly J. of Studies on Alcohol, New Haven, Conn.

7:499-638 (March) 1947

*Effect of B Complex Vitamins on Voluntary Consumption of Alcohol by Rats. R. A. Brady and W. W. Westerfeld.—p. 499.
*Insulin Subshock as Detoxicant in Acute Alcoholic Intoxication. J. Thimann and P. Peltason.—p. 506.
Imprisoned Abnormal Drinkers: Application of Bowman-Jellinck Classification Schedule to Institutional Sample: Part I. Review and Analysis of Data. M. Floch.—p. 518.
Etiology of Alcoholism: Working Hypothesis Involving Interplay of Hereditary and Environmental Factors. R. J. Williams.—p. 567.
Contribution of Alcohol to Accident Fatalities in Hennepin County During a One Year Period. G. Joss.—p. 588.
Opinion Poll on Reactions to "The Lost Weekend."—p. 596.

B Vitamins and Voluntary Alcohol Consumption.—Brady and Westerfeld found that rats maintained with a diet containing all the known members of the yitamin B complex plus Wilson's liver fraction L did not consume alcohol in autoselection experiments. Rats consumed relatively large amounts of alcohol voluntarily when fed a diet deficient in members of the vitamin B complex. Once the alcohol intake became elevated on a deficient diet it could not be restored permanently to low levels by feeding a "complete" diet; inclusion of missing factors in the diet usually brought about a temporary decrease in alcohol consumption.

Insulin Subshock as Detoxicant in Alcoholic Intoxication.—Insulin ranging from small amounts to subshock dosages was administered by Thimann and Peltason in the therapy of uncomplicated acute alcoholic intoxication and acute alcoholic psychoses to 120 patients. In the alcoholic psychoses 10 to 20 units of insulin given simultaneously with dextrose proved the method of choice. Uncomplicated acute alcoholic intoxication responded best to subshock doses of insulin. The duration of the sobering up process was reduced in most cases from the two to four days required under previous technic to one day and often to only a few hours. Patients prefer this technic to the conventional method of substituting paralydehyde or chloral for alcohol. The staff was of the impression that in 20 per cent of these 120 patients the insulin method had no advantage over the conventional method. In the remaining 80 per cent the insulin technic proved to be superior.

Surgery, Gynecology and Obstetrics, Chicago

84:385-512 (April) 1947

*Ligation of Inferior Vena Cava in Thromboembolism: Report of 36 Cases. B. R. Thebaut and C. S. Ward.—p. 385.
*Total Gastrectomy: Report of 89 Cases. Frances H. Smith.—p. 402.
Complete Fecal Diversion Achieved by Simple Loop Colostomy. O. H. Wangensteen.—p. 409.
*Hyperfunctioning Simple Adenoma of Thyroid. O. Cope, R. W. Rawson and Janet W. McArthur.—p. 415.
Resection of Common Hepatic Duct for Papillary Adenocarcinoma. J. P. Barnes and L. L. Zarr.—p. 427.
*Massive Iliac Bone Grafts in Treatment of Ununited Fractures and Large Defects of Long Bones; The Combined Bone Graft-Metallic Plate Technic: An Analysis of 91 Operations in 85 Patients. T. Horwitz and R. G. Lambert.—p. 435.
Coagulation Thrombi in Segments of Artery and Vein in Dogs and Genesis of Thromboembolism. A. L. Copley and P. L. Stefko.—p. 451.
Transplantation of Spinal Cord: Problem of Kyphoscoliosis with Cord Signs. O. R. Hyndman.—p. 460.
Reconstructive Surgery of Chest Wall. K. L. Pickrell and J. P. Collins.—p. 465.
Protective Action of Sulfanilamide on Experimental Chloroform Hepatitis. C. A. Tanturi, J. A. Loncharich and R. F. Banfi.—p. 477.
Gastric Carcinoma: Comparative Review of Origin, Diagnosis and End Results in 583 Patients. R. H. Abrahamson and J. W. Hinton.—p. 481.
Physiologic Effects of Curare and Its Use as Adjunct to Anesthesia. Phyllis Harroun, F. E. Beckert and C. W. Fisher.—p. 491.
Preinfusion—Study in Prevention of Hemorrhagic Shock. H. Necheles, S. O. Levinson, Martha Janota and F. Arimoto.—p. 499.

Ligation of the Inferior Vena Cava in Thromboembolism.—Thebaut and Ward emphasize the importance of thrombosis in the deep veins of the lower extremities and discuss its surgical management once pulmonary infarction has occurred. In 34 of 36 patients ligation of the inferior vena cava was performed and 2 patients died on the operating table before ligation could be accomplished. There was no recurrence of pulmonary embolism in the patients operated on. The authors recommend ligation of the inferior vena cava as the treatment of choice in patients with thromboembolism.

Total Gastrectomy.—Smith reviews observations in 89 total gastrectomies performed at the Lahey Clinic since 1927. All patients gave x-ray evidence of a lesion involving the stomach. The postoperative mortality for the entire group was 29.1 per cent. The postoperative mortality during the last three years and nine months of the study, during which 43 operations were done, was 16.3 per cent. Twelve patients have survived the operation for three years or more. Calculation of life expectancy of patients surviving the operation shows that 50 per cent will survive twelve months or more. It is impossible to overemphasize the importance of nutritional care in the postoperative period of patients subjected to total gastrectomy. In order to put the gastrointestinal tract as completely at rest as possible and so avoid stress at the suture lines, nothing is given by mouth for at least three days. During this period blood is transfused as indicated. With the advent of protein hydrolysates for parenteral administration there has become available a valuable addition to the postoperative nutritional care of patients undergoing gastrointestinal surgery. The author advocates the administration of one of the available digests in amounts equivalent to at least 50 to 100 Gm. of protein daily until the patient is able to take adequate protein orally.

Hyperfunctioning Single Adenoma of Thyroid.—Cope and his associates say that during the past ten years 10 patients have been cared for in the Thyroid Clinic at the Massachusetts General Hospital whose thyroid glands fulfil the anatomic and biologic criteria of a hyperfunctioning single adenoma of the thyroid. Proof of the existence of a single adenoma depends on the absence of other diseased thyroid tissue, the presence of gross anatomic atrophy and of physiologic inactivity of the uninvolved thyroid tissue, and relief of the excessive function on its removal. The atrophy of the uninvolved thyroid tissue can be suspected on physical examination but should always be recognized at operation and undue resection of it avoided. The physiologic activity of the adenoma and uninvolved thyroid gland has been compared by the ability of explanted thyroid tissue to inactivate thyroid stimulating hormone and by the avidity of the thyroid for tracer doses of radioactive iodine. The absorption of tracer doses of radioactive iodine by single adenomas not associated with hyperthyroidism suggests that the secretory activity of adenomatous tissue varies and that the presence of thyrotoxicosis in a patient depends on the degree of activity and size of the adenoma. The activity of the accompanying uninvolved tissue varies inversely and is depressed when that of the adenomatous approaches an excessive amount.

Massive Iliac Bone Grafts and Combined Bone Graft-Metallic Plate Technic.—Experience with 85 patients on whom 91 bone graft operations were performed has indicated to Horwitz and Lambert the need for variations in technic. They discuss experiences with iliac bone as massive bone grafts; conditions in which cortical bone is preferable to iliac bone as graft material; the place for plate fixation in combination with bone grafts; fixation by multiple screws in oblique fractures; modifications and variations in the technic of the combined graft-plate method and of bone grafting without plate fixation; factors involved in failure of the graft operation incidence and factors involved in the occurrence of postoperative infection, and the fate of iliac grafts in the presence of infection. Resorption of iliac grafts has occurred as late as four or five months postoperatively, owing possibly to incomplete metaplasia and structural weakness of the graft and the result of stress and strain on an inadequately protected graft. This also occurs with cortical grafts and is one of the dominant reasons for the use of internal metallic fixation in conjunction with grafting procedures. Cortical bone must be employed, for example, when grafts must be excessively long and when an absolutely straight, rigid segment of bone is required. To assure absolutely rigid protection during graft incorporation, especially when large defects are being bridged, it is recommended that the plate-graft technic be employed. Failure of bone graft operations with recurrence of *nonunion*, excluding cases associated with postoperative infections, has been due to such errors in technic as failure to use a plate when indicated and failure to use a plate of adequate length. *Postoperative infection* does not mean failure of iliac graft incorporation, especially if the infection is mild and well controlled and removal of the metallic fixation can be deferred.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

59:85-124 (March) 1947

Experiences in a Skin Department of Prisoner of War Camp Hospital in Singapore, 1942-1945. L. Sefton.—p. 85.
Vitiligo in Brazil. O. G. Costa.—p. 104.
Recurrent Bullous Eruption of the Feet.—E. A. Cockayne.—p. 109.

British Medical Journal, London

1:325-366 (March 15) 1947

*The "Costoclavicular Syndrome." E. D. Telford and S. Mottershead.—p. 325.
Water and Salt Depletion. H. L. Marriott.—p. 328.
Swallowing of Foreign Bodies. W. L. Neustatter.—p. 332.
Swallowed Foreign Bodies: Cases Treated in a Military Hospital. G. St. J. Hallett.—p. 334.
Variation in Titer of Rh Antibody During Pregnancy. M. D. Hickey and E. de Valera.—p. 335.
Report on Case of Melioidosis from Siam. J. P. J. Paton, C. R. Peck and A. van de Schaaf.—p. 336.
Case of Melioidosis Presenting as an Abscess in the Neck. C. R. Peck and T. Zwanenburg.—p. 337.

Costoclavicular Syndrome.—Telford and Mottershead base their conclusions on findings at 120 operations undertaken for the relief of pressure on the neurovascular bundle of the arm; on examination of the effects of posture of the shoulder girdle on the radial pulse in 120 medical students, and on the evidence obtained by dissection of 30 bodies. No one mechanical cause can explain all cases. Damage by pressure of the clavicle cannot happen in pure depression of the shoulder but is a likely event in retraction and abduction if cervical rib or abnormal first rib is present. These cases will probably show whole plexus symptoms. The most common cause of symptoms is the hanging up of the plexus on a cervical rib or other mechanical obstacle. These cases are likely to show lowest trunk symptoms. The phenomenon of alteration in the radial pulse on movements of the shoulder is due to causes distal to the clavicle. It has nothing to do with the costoclavicular syndrome.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

54:1-136 (Feb.) 1947. Partial Index

*Endocrine Allergy: Clinical Reactions of Allergy to Endogenous Hormones and Their Treatment. B. Zondek and Y. M. Bromberg.—p. 1.
Use of Radiology in Predicting Difficult Labor. J. C. Moir.—p. 20.
Head Flexion in Forceps Technic. J. Baxter.—p. 34.
Preliminary Report on Pelvic Brim Index. O. S. Heyns.—p. 39.
Technic of the Lower Segment Cesarean Section. C. Uhma.—p. 65.
Fibroids in Pregnancy: Analysis of 122 Cases Treated in University College Hospital, London, from 1934 to 1945. E. W. C. Buckell.—p. 70.
Statistical Study on Effects of Exercises on Childbearing. Helen E. Rodway.—p. 77.
Timing of Endometrial Biopsy. Margaret Hadley-Jackson.—p. 86.
Coarctation of Aorta in Association with Pregnancy: Review of Literature with Description of Case. M. D. Barber and Doreen Daley.—p. 91.

Endocrine Allergy.—Zondek and Bromberg suggest for the treatment of endocrine allergy (1) desensitization by the subcutaneous injection of the hormonal allergen in gradually increasing doses, (2) desensitization by the "depot method" involving the implantation of hormone pellets, (3) desensitization by percutaneous treatment with hormone ointment and (4) elimination of the allergenic hormone from the body by the inhibition of the gonadotropic hypophysial function with large doses of estrogens or androgens. In 47 cases of endocrine allergy treated by specific desensitization complete recovery was obtained in 51 per cent, improvement in 28 per cent and negative results in 21 per cent. In 2 cases the allergenic hormone was eliminated by the inhibitory effect of high doses of testosterone on pituitary secretion.

Journal of Tropical Medicine and Hygiene, London

50:41-60 (March) 1947

Subtertian Malaria in White Troops in West Africa: A Review of 300 Cases. T. C. Studdert.—p. 44.
Maintenance of Anopheles Quadrimaculatus in the Laboratory. R. Hunt and Pauline Davey.—p. 53.

Medical Journal of Australia, Sydney

1:225-256 (Feb. 22) 1947. Partial Index

Some Rules for Employment of Local Analgesia in Treatment of Somatic Pain. M. Kelly.—p. 235.
Heterospecific Pregnancy: III. The Rh Factor and Repeated Miscarriages. P. M. de Burgh, Ruth A. Sanger and R. J. Walsh.—p. 239.
Thiamine and Riboflavin Content of Some Commercial Vegetable and Yeast Extracts. Catherine E. Francis.—p. 239.

1:257-288 (March 1) 1947

Asiatic Schistosomiasis: Outbreak in Royal Australian Air Force. W. P. H. Dakin.—p. 257.
Leon Daudet: Extracts from His Memoirs Dealing with French Medicine in Eighties and Nineties. G. H. Hogg.—p. 265.
Intracranial Damage in Newly Born. T. Y. Nelson.—p. 268.
Present Position of Allergy. D. M. B. Riley.—p. 270.

Wiener medizinische Wochenschrift, Vienna

97:93-108 (Feb. 22) 1947

Pathogenesis and Causal Treatment of Gastric Ulcer. R. Boller.—p. 93.
*Abdominal Amnion Puncture as Valuable Differential Diagnostic Aid. F. Hoff.—p. 96.
Diagnosis and Therapy of Peripheral Nerve Lesions. A. Rottmann.—p. 99.

Abdominal Amnion Puncture as Differential Diagnostic Aid.—The diagnostic amnion puncture, as used by Hoff, is based on the reasoning that in the presence of a total hydatidiform mole the entire uterus is filled with hydropically swollen chorionic villi and no amniotic fluid can be obtained by puncture of the uterine cavity. If amniotic fluid is aspirated, the unusually rapid enlargement of the uterus is not due to a vesicular mole. The author stresses that early diagnosis of cystic mole is difficult without the described method, because neither roentgenograms nor hormonal analyses are reliable before the typical vesicles are discharged. Since it is particularly difficult to differentiate a cystic mole from a hydramnion or a twin pregnancy the abdominal amnion puncture is advisable in doubtful cases. With proper regard for contraindications, the method is comparatively simple, reliable and safe.

Nordisk Medicin, Gothenburg

33:1-58 (Jan. 3) 1947. Partial Index

Surgical and Bronchoscopic Treatment of Bronchial Asthma. J. L. Hansen and C. M. Smidt.—p. 4.

Hospitalstidende

Examinations of Milieu in Acute Anterior Poliomyelitis. E. Skinhøj.—p. 7.
Initial Disorder in Acute Anterior Poliomyelitis. E. Skinhøj.—p. 9.
Extent to Which Initial Symptoms in Acute Anterior Poliomyelitis Afford Information on Port of Entry of Virus in Human Organism. E. Skinhøj.—p. 12.

Hygiea

*Tumors in Pineal Body. R. Müller and G. Wohlfart.—p. 15.
Gastroscopy. L. Walk.—p. 21.
Plasma Cells in Bone Marrow in Hyperglobinemia. L. Söderhjelm.—p. 24.

Tumors in Pineal Body.—Müller and Wohlfart say that in the 47 cases of tumor of the pineal gland, in 28 men and 19 women, treated in the neurosurgical division of the Serafimer Hospital from 1929 to 1944, general symptoms of increased intracranial pressure appeared as a rule before local symptoms, while eye signs were absent in only 6 instances. Bilateral iridoplegia occurred in 37, reflex iridoplegia in 21, paralysis of vertical conjugated movements in 19, partial paralysis of the oculomotor nerve in 10, paralysis of convergence in 7, isolated paralysis of the trochlear nerve in 3 and paralysis of the abducens in 11. There were 13 cases of vertical nystagmus, 5 of horizontal-rotatory nystagmus and 2 of converging nystagmus. Puberty precox was not seen. Tinnitus, which may appear before the general symptoms of pressure, is an important if not especially common symptom not sufficiently noted in the literature. It has not been established that puberty precox is due to destruction of the pineal gland. The diagnosis of pinealoma or pineoblastoma was made or suspected in 29 cases; 1 case of neuroblastoma and 4 cases of intracranial teratoma were found. In the 41 patients operated on the primary mortality was 20, 11 patients died within four years after operation, the fate of 1 being unknown, 9 patients are living, 1 two and a half years after operation, 8 from six to twelve years after operation, and the 7 are able to work and are practically without symptoms.

Book Notices

The Human Frontier: A New Pathway for Science Toward a Better Understanding of Ourselves. By Roger J. Williams. Cloth. Price, $3. Pp. 314. Harcourt, Brace and Company, 383 Madison Ave., New York 17, 1946.

Williams is known to medicine primarily for his discovery of pantothenic acid and for his general contribution to our knowledge of the B vitamins. In this book he presents in language addressed definitely to the lay reader a philosophical consideration of some of the advances made by medical science. He has been especially concerned with the great variations in human physiology, a subject of the greatest importance since a determination of what is normal may be the first step in the proper consideration of the abnormal. The chapter on the endocrine glands and behavior reviews our knowledge of the glands and the manner in which they regulate our lives. He concludes from his study that standards of what may be regarded as a normal sex life do not exist and lead to the concept that it is futile to expect that each human being will behave according to a pattern that we ascribe to the average man. Following the discussion of physiology there is an extensive consideration of psychologic traits and the conclusion that every consideration leads us to think that psychologic phenomena have physiologic bases. There is a fundamental unity between one's physiology and one's psychology, a relationship that leads logically to a greater appreciation of psychosomatic medicine. The author proceeds to a consideration of man and society, to humanics and education, to a review of marriage clinics, then to clinical and to medical research. A final chapter deals with international relations. The book represents therefore essentially a series of essays on life based on scientific knowledge. He concludes that the scientific method is not applicable to the furtherance of art, music, literature or religion, but science can demonstrate its efficacy in modifying human essentials and can appraise the progress of man toward established spiritual goals.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R.C.S., F.I.C.S., Surgeon, Royal Northern Hospital, London. Tenth edition. Cloth. Price, $7. Pp. 375, with 573 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This gem of descriptive clinical surgery can boast without doubt that it is a familiar property to every medical student who reads English. While the text is clear and concise, its greatest value lies in the profuse and wonderful illustrations which it contains. The book is a bulwark of physical diagnosis and pointedly demonstrates how often the surgeon can arrive at a working diagnosis with the use of his five senses. Experience will create a sixth. There is little need of describing the content in detail; except for revisions of minor character and improvement and additions to the pictorial data, this edition is quite similar to previous editions. While the book is of the same size, there are many more illustrations than in former years. It is a delight to recommend the volume to every clinical clerk and intern.

Pointers for Parents. By Reinhard V. Lozier, M.D. Cloth. Price, $2. Pp. 141, with illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1947.

As suggested by the title, this book consists of instructions to parents. While, in general, the attitude of the author is kindly and friendly toward parents and children, it seems entirely too much weighted on the side of inflexible instruction and affords too little of the information concerning the basis of this instruction. "Do's" and "don'ts" entirely dominate "whys" and "wherefores." The differences in human personality are so complex that it is confusing to attempt to make such hard and fast rules when dealing with children and their parents. It is confusing to a mother to be told that nothing should ever interfere with her daily program with the baby. Such regimentation is impossible and probably not desirable in any family. The author advocates a training routine which is entirely too advanced in comparison with the schedule now accepted by most students in the field. This again is confusing to children and mothers. One finds oneself confused when the author mentions research which implies that breast milk may carry the hereditary tendency to cancer to children. While this point of view has been held by some students of genetics, it is not an accepted fact and therefore should not be broadcast to laymen without considerable caution. This book adds nothing constructive to the already voluminous literature on child care. The author does not seem to have the tentative attitude so important in discussion of human relationships. The many lists of hard and fast rules will tend to lend confusion rather than clarity to solution of the problems of parents.

Traitement chirurgical du cancer du rectum. *Par François d'Allaines,* professeur agrégé à la Faculté de médecine, Paris. Avec la collaboration de A. Le Roy et Ch. Dubost. Paper. Price, 1,100 francs. Pp. 218, with 67 illustrations. Éditions médicales Flammarion, 22, rue de Vaugirard, Paris, 6e, 1946.

In this volume the author and his co-workers discuss the results of treatment of 263 patients suffering from carcinoma of the rectum. The study covers a period of ten years. The first chapter deals with anatomic considerations and is devoted chiefly to information gained from the writings of leading authorities on the subject of lymphatics. In chapter two the authors discuss diagnosis and various factors which they believe important in determining the operability of malignant lesions. A clear statement is provided regarding operability when preservation of the sphincters is desirable. The advantages and disadvantages of the various operative procedures especially of those employed to preserve the sphincteric mechanism of the anus and of palliative procedures are explained. In chapter three the technics of operative procedures are presented. In the authors' series 92 per cent of the patients were considered to have operable lesions, and a radical operation was performed in 233 cases (85 per cent). These authors prefer a one stage combined resection. In chapter four the importance of creating a temporary colonic stoma at the time of the operation is stressed. This stoma should be made in the left portion of the colon, but if this portion is not available it can be made in the transverse colon. In chapter five a comprehensive discussion is provided regarding preoperative and postoperative care. In chapter six the method of abdominosacral resection with the preservation of the anal sphincters employed by the authors is described. More than thirty fine illustrations are provided to clarify their presentation. In chapter seven more fine illustrations with legends show the Kraske procedure, Babcock's method of preserving the sphincter and the variations of technic which are made necessary owing to a short colon, sex of the patient and so forth. In chapter eight the technic of combined abdominoperineal resection is illustrated and described in the legends. In chapter nine complications such as fistulas, abscess formation, herniation and stenosis are described. In chapter ten the authors compare their results with those of other authors, and a final plea for early diagnosis concludes this splendid work.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Cumulative Supplement 1946. Medical Progress 1946. Editor in Chief: *Rt. Hon.* Lord Horder, G.C.V.O., M.D., B.Sc., Physician to the King. Boards. Cloth. Price, $12. Pp. 267; 498. Butterworth & Co., Ltd., 1367 Danforth Ave., Toronto 6; 4-5 Bell Yard, Temple Bar, London, W. C. 2, 1946.

This summary of medical progress in 1945 begins with a brief statement by Lord Horder on social medicine. The book then takes up the various medical specialties seriatim and by references to available periodical literature indicates the innumerable brief steps in medical progress that occur in any given year. Essentially the work may be considered a collection of abstracts with an occasional brief critical review.

Food Values of Portions Commonly Used. Compiled by Anna de Planter Bowes, M.A., and Charles F. Church, M.D., M.S. Sixth edition. Paper. Price, $1.60. Pp. 58, with 1 illustration. Anna dePlanter Bowes, 311 S. Juniper St., Philadelphia 7, 1946.

This compendium has passed through many editions and has come to be recognized as one of the most valuable guides available on the values of foods as commonly served. The authors avail themselves of tabulations made by the government and other agencies, so that the figures presented are quite up to date.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RECURRENT MALARIA

To the Editor:—A man aged 40 had an acute attack of vivax malaria (discovered on a blood smear) following lobar pneumonia in January 1946. He had had malaria at the age of 15 without subsequent episodes and two attacks of sinusitis. He was not in military service. For the present attack he was given large doses of quinine, followed by atabrine 28 grains (2 Gm.) for one week and then 3 grains (0.2 Gm.) daily for three months. He has not felt well since January. In December 1946 he had symptoms of aching, chilliness and weakness. The smear was again positive for vivax malaria. The patient was given atabrine 12 grains (0.75 Gm.) a day. In four days he developed generalized severe pruritus, urinary frequency and burning, with frequent chilliness and leg aching. General physical examination is negative. Blood chemistry studies, blood counts and urine examination are negative. What treatment is suggested? Are any new drugs available?

M.D., Connecticut.

ANSWER.—Malarial recurrence after twenty-five years is not too infrequent, although most cases of this description are quartan malaria rather than vivax. It is unusual for vivax malaria to become reactivated after this length of time, even subsequent to shock or surgical operation. The refractoriness exhibited toward quinine and atabrine (quinacrine hydrochloride) could mean an infection acquired from a veteran from the Pacific. The large doses of both quinine and atabrine should have been adequate even if it was of this variety. Other kinds of infection should be excluded.

One of the new noncurative drugs, chloroquine, is now available, marketed as the diphosphate salt, under the name Aralen Diphosphate (Winthrop Chemical Company). The dosage is six tablets (0.25 Gm. each) the first day, then two tablets (0.25 Gm.) each of the two following days. Total dosage 2.5 Gm.

CORNEAL TRANSPLANT

To the Editor:—A patient is totally blind because of scar tissue from injury by a strong lye solution. The retina in this case is probably normal but he has been told that a transplanted cornea would soon become vascularized and therefore would not be successful. Is experimental work being done on global transplants? Who is doing this work?

M.D., Washington.

ANSWER.—Work is being done at the Wilmer Institute, Johns Hopkins University, Baltimore, and at the Eye Institute, Presbyterian Hospital Unit, Columbia University, New York, and at the Eye Bank for Sight Restoration, New York, on the use of x-rays in the treatment of vascularized scars of the cornea as preparation for a possible future corneal transplant. The transplantation of the entire eye is impossible because it is but an outgrowth of the brain, and the severance of the optic nerve produces irrevocable blindness. It is impossible to graft all the small blood vessels that are necessary for the nourishment of the interior of the eye.

VITAMIN A AND DARK ADAPTATION

To the Editor:—What is the current medical opinion concerning the efficacy of a daily dose of 50,000 units of vitamin A for promoting dark adaptation of eyes for fluoroscopy? Is a greater or lesser dosage necessary for the latter? What possible disadvantages are there to the taking of such large doses daily?

M.D., California.

ANSWER.—The consensus based on many reports is that the administration of vitamin A does not have any effect on the dark adaptation of persons who are not already deficient in this vitamin. Although many radiologists feel that daily ingestion of vitamin A improves their vision in fluoroscopy, there has been no experimental evidence advanced to substantiate this belief. In fact, unpublished reports have indicated that there is no improvement. However, if dark adaptation is subnormal the ingestion of vitamin A may increase the vision in fluoroscopy (Lerner, H. H.: *Am. J. Roentgenol.* **45**:753 [May] 1941).

The daily allowance of 5,000 international units of vitamin A for the healthy person was recommended by the National Research Council in 1945. If the radiologist has no vitamin A deficiency the daily doses of 50,000 units is excessive, although it is harmless.

HEXAETHYL TETRAPHOSPHATE

To the Editor:—Would you kindly advise me what toxic effects hexa-ethyl-tetra-phosphate (known as bladan in the German literature) has on man. I understand this substance is used as an insecticide.

M.D., California.

ANSWER.—This insecticide is manufactured by the Monsanto Chemical Company in St. Louis. After use on fruit trees the substance rapidly becomes innocuous because of hydrolysis in the presence of diluting water. For this reason it becomes unnecessary to wash fruits or vegetables prior to consumption —at least unnecessary so far as possible damage from this insecticide is concerned. So rapid is its disintegration that approximately four hours after admixing with water it loses its identity. Hexaethyl tetraphosphate ($C_{12}H_{30}O_{13}P_4$) is an amber liquid capable of corroding some metals and damaging some minerals such as some porcelains. Properly applied, it is not damaging to most vegetation but is destructive of most the forms of insect life unharmed by DDT. For animals it is highly toxic, but experience so far has not included man. It is presumed to be injurious to man. When applied to the skin of rats 0.2 cc. per kilogram of weight is fatal, and when administered orally to rats 0.005 cc. per kilogram is fatal. These animal results indicate that skin contact and inhalation by human beings should be avoided. Contaminated skin areas should be washed in water thoroughly and immediately. Respirators should be worn whenever there is the likelihood of inhalation or ingestion. Any exposed persons who develop headache or a sense of chest constriction should be removed promptly from further exposure until fully recovered. This information was obtained from the manufacturer, who has been unusually cooperative and is fully desirous that this substance be applied with due consideration for requisite safeguards.

HEMORRHAGIC STATE IN LEUKEMIA

To the Editor:—Please answer a question that has bothered me for a long time: "What is the mechanism of hemorrhagic disease in uremia?"

Merrill C. Beecher, M.D., Knoxville, Ill.

ANSWER.—There are several possibilities for a hemorrhagic state in uremia: necrosis of small arteries and arterioles in the nasal and gastrointestinal mucosa in persons with severe hypertension; increased capillary permeability on a toxic basis; low platelet count due to severe depression of bone marrow function; low prothrombin level in the blood due to dietary deficiency, impaired absorption of vitamin K or impaired liver function; vitamin C deficiency. The last three factors operate only rarely in the average case of uremia. Presumably the most likely reasons for uremic hemorrhages are toxic damage to capillaries, hypertensive arteriolar necrosis and gastrointestinal ulceration. The addition of congestive heart failure would aggravate the tendency to bleeding.

PREGNANCY AND MULTIPLE SCLEROSIS

To the Editor:—A primipara aged 23, who is eight months pregnant, is afflicted with multiple sclerosis. She can hardly walk at the present time. Abdominal reflexes are absent. What are the prospects for a normal delivery in such a case? Is a cesarean section indicated?

P. G. Berkhout, M.D., Paterson, N. J.

ANSWER.—Many patients with multiple sclerosis have had normal deliveries. When the patient has paraplegia and is unable to walk there is always the possibility that she might have difficulty in spontaneous delivery. Because the puerperium can precipitate or aggravate an attack of multiple sclerosis, cesarean section and sterilization are recommended.

DERMATITIS FROM COMMERCIAL ULTRAVIOLET LAMPS

To the Editor:—Have cases of dermatitis from "Pasturay" lighting fixtures been reported? This type of lighting is used in meat handling in some factories and purportedly emanates ultraviolet light for antiseptic purposes.

M.D., Ohio.

ANSWER.—It is possible to contract actinic dermatitis and conjunctivitis from excessive exposure to ultraviolet light used for antiseptic purposes. However, records of such cases are not common.

HARMFUL OCULAR EFFECTS OF PHOTOFLASH LAMPS

To the Editor:—Will any harmful effects on an infant's eyes result from the use of photoflash lamps when taking photographs? The child is 2 months old and the photoflash lamps are General Electric No. 5.

Ralph Burbridge Jr., M.D., Allentown, Pa.

ANSWER.—There are no known harmful effects.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. 134, No. 9 Chicago, Illinois June 28, 1947
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THE MOVING FINGER WRITES

Address at Centennial Dinner, American Medical Association,
Atlantic City, N. J., June 7, 1947

H. W. PRENTIS Jr.
President, Armstrong Cork Company; Past President, National Association of Manufacturers
Lancaster, Pa.

The law of compensation is inexorable. For threescore years I have been operated on physically, admonished mentally and laid upon orally by a countless succession of members of the American Medical Association. Now my hour has come. And you can rest assured that it is no small pleasure to me to have such a goodly company of you gentlemen at my verbal mercy—even though the expiation you are called on to render is necessarily vicarious in character.

A hundred years is but a split second in the chronology of the cosmos. It is a long time, however, in the calendar of mortal men. It is even more significant when applied to the life span of a voluntary organization of highly individualized professional experts scattered over a huge geographic area. Hence I consider it a signal honor to have been asked to join with you tonight in this, your Centennial Celebration.

In 1855 Dr. N. S. Davis predicted that, "of all the voluntary social organizations in our country, none are at this time in a position to exert a wider or more prominent influence over the temporal interests of our country than the American Medical Association." The decades that have since elapsed bear abundant testimony to the truth of his prophetic assertion. No grass has ever grown under the Association's feet. At its very first session in 1847 it began a fight for higher educational standards for the medical profession, urged the separation of "the business of teaching" from the "power of licensing," advocated uniform state laws for the registration of births, marriages and deaths and set about the preparation of a "General Nomenclature of Diseases" and a Code of Medical Ethics. In the year immediately following there came a resolution declaring that "every system of medical instruction should rest on the basis of practical demonstration and clinical teaching" and a memorial to Congress requesting the inspection of imported drugs to prevent adulteration—the forerunner, I take it, of our modern Food and Drug acts.

At the third annual meeting in Cincinnati in 1850 a discussion of medical literature led to the adoption of a petition to the federal government for an international copyright law along with what your old historian calls "an eloquent and truthful paragraph in relation to the nature and influence of a national literature of our own." With all of the subversive propaganda to which we are now subjected, that paragraph is well worth quoting: "Our institutions are peculiar and, in order to be legitimately carried out, should not only be well understood by all concerned but should be supported by habits of thinking and feeling in the community in full accordance with them." Had that sage advice been followed, our republic would not be facing many of the domestic problems with which it is confronted today.

The following year—1851—the fourth annual meeting was held in Charleston, S. C. Most of the Northern contingent journeyed down by sea. There was a heavy gale and it is duly recorded that "the rocking of the ship soon awakened a large proportion of our doctors, with feelings very much as though they had swallowed half of the ipecac in a respectable drug shop." Specific note is also made of the fact that in Charleston "for the first time in the history of the Association, wines and strong drink were freely furnished as a part of the entertainment!"

It has in truth been a remarkable hundred years—a century of well directed, collective effort of which the Association may indeed be properly and pardonably proud. Always in the forefront in the fight for higher standards of medical education and professional ethics, its far-flung technical services have set a mark for scope and efficiency unequaled in any similar organization elsewhere in the world. So both as an American citizen and as a grateful beneficiary of its myriad accomplishments in the field of private medicine and public health I congratulate and salute you—its members—confident that the second century of the Association's service will be even more fruitful than the one that has now come to such a praiseworthy conclusion.

Since we are honored tonight with the presence of the greatest military Omar in history—General Omar Bradley—it seemed not inappropriate to select for my subject "The Moving Finger Writes," a phrase from the poem of his namesake—"in reverse lend lease"—Omar Khayyam:

> The moving finger writes and, having writ,
> Moves on; nor all your piety nor wit
> Shall lure it back to cancel half a line,
> Nor all your tears wash out a word of it.

The moving finger of history is never still. Day by day it records relentlessly our national achievements and our popular follies; our vagaries of mass insanity and our decisions of collective wisdom. For good or ill, the revolutionary changes in our approach to the problems of government during the past fifteen years stand stark and irrevocable, filled with the promise of freedom or the latent menace of tyranny, as only the future will reveal.

Some of these changes, I fear, would seem strange and sinister indeed to the men who laid the foundations of this republic. For, as their writings clearly indicate, theirs was no makeshift experiment. It was based on an exhaustive study of all previous attempts at popular self government in the world's history; on a determined effort to discover the hormones of a free society—the basic principles on which men may associate themselves to enjoy permanently the priceless blessings of liberty.

THE HORMONE OF COURAGE

The word hormone, as you well know, comes directly from the Greek and means literally to set in motion. The founding fathers, in brief, sought in our peculiar system of government to set in motion those fundamental forces and safeguards and incentives that are essential for the maintenance of human freedom. So we may well ask ourselves in these days of confusion What are those social hormones? To what extent has their action been crippled by individual ignorance and apathy; constricted by misguided humanitarianism and lust for political power, circumvented by the impact of modern industrial civilization and the rising tide of world collectivism?

The hormones of a free society are not many in number, but all are vitally essential to the effective functioning of a free body politic: self reliance, local responsibility for local affairs, personal initiative, thrift that leads to individual economic competence, social cohesiveness—the absence of class consciousness, tolerance, patience, civic virtue—the willingness to work and sacrifice for the public interest, belief in the dignity of the individual, courage. You may think of other social hormones, but these at least must be kept flowing freely in the blood stream of our people if our republic is to survive. The thyroid extract of initiative, the pituitary secretion of civic virtue, the adrenal hormone of courage and all the others are of transcendent importance to any nation of free men that seeks to preserve its liberty.

THE THREAT OF STATE SOCIALISM

In recent years the moving finger of history has recorded quite a disturbing story in respect to these basic characteristics on which our free institutions rest. I cannot attempt to discuss all of them so, as a typical example, let me take self reliance. The idea is not popular these days. Too many of us are prone to try to shoulder our troubles off on government—men and women no better, no worse on the average than the rest of us. When we do that and cease to rely on ourselves, look what happens:

Government paternalism decreases local responsibility for local affairs and increases the size and cost of the central government. This inevitably leads to higher taxes, reduced personal incomes and less opportunity for the individual citizen to become financially competent. As a result, the amount of venture capital available for new enterprises is cut down, and more and more government intervention is demanded to maintain employment. This process still further increases the cost of government and thus, working in a vicious circle, eventually creates a state of national neurasthenia that deranges the entire social endocrine system. The ultimate outcome is the destruction of democracy and the emergence of some form of authoritarian government. The old Greek historian Polybius was right in observing two thousand years ago that, when there has been "created among the masses an appetite for gifts and the habit of receiving them, democracy in its turn is abolished and changes into a rule of force."

Now no one is more willing than I am to admit that the modern industrial age with all the benefits it has brought to the average man has also created a host of problems for him. In most cases the individual worker no longer owns his tools of production. He can no longer turn readily from factory to farm or from farm to factory as economic conditions change. Frequently he is powerless to find immediate means of support when technologic advances throw him out of work. But as I see it the mistake that we have made is that in seeking ways and means to compensate for such conditions we have slavishly copied procedures that were not developed for our kind of government.

When a transfusion is indicated, the type of the patient's blood must first be ascertained. So it is with the body politic. Whenever governmental intervention is deemed necessary, it should be thoroughly consonant with the activating principles—the social hormones—of our free society. As your Association pointed out in 1850, "our institutions are peculiar." Hence a social security program devised to placate the German people in the 1880's was not necessarily the type best adapted to the United States. Yet, when we did go in for old age pensions on a national scale ten years ago we adopted well-nigh lock, stock and barrel the centralized procedures originally recommended by Bismarck two generations ago. As a result we have a huge bureaucracy on our hands known as the Social Security Administration that costs us tens of millions of dollars a year. Would it not have been far wiser to install a system especially adapted to our own American traditions? Let me be specific: Approximately 3,750,000 workers in the United States were covered by private pension plans in 1929—long before the federal Social Security Act was passed. Suppose our government had set about to expand the development of such voluntary efforts. Several approved programs could have been set up for administration through private insurance companies. The employer could have been encouraged to adopt one or the other of such plans through appropriate tax credits and the right to use some official insigne indicating that the employer had a governmentally approved pension program. Under such procedure no unwieldy bureaucracy would have been required and a goodly portion of the reserves set aside to finance pensions would have been siphoned back at once into the blood stream of industry and commerce, creating more jobs and more production. As it is, the enormous funds that have been accrued are virtually sterile so far as the creation of new taxable wealth is concerned, since they are either being spent currently for the running expenses of government or invested in non-income producing public works. They actually do not exist except as entries on the government's books. Desirable as the objectives of our social security program are, the means employed have certainly not been those that are best adapted to the genius of our free institutions.

Now the moving finger of history is writing again: A similar centralized system of health and hospital insurance is being urged upon us. Do we intend to repeat the same process and strangle still further the principles of self reliance and local responsibility for local affairs, which are two of the root principles on which our freedom rests? I hope not. And therefore as a citizen I have rejoiced in the growth of the Blue Cross and other voluntary plans for hospital and health insurance which have been formulated and encouraged by this Association and its affiliated bodies.

Of course, the development of such voluntary programs will not satisfy those well intentioned but short sighted humanitarians who demand sweeping and immediate action regardless of the ultimate effect on our national character and way of life. The besetting sin of reformers has always been lack of patience—failure to recognize that, as Dr. Davis observed in 1855, "the whole history of the human race shows that all great and true reforms, whether social, moral or political, proceed slowly." One of the obvious virtues of voluntary plans for hospital and health insurance is that such programs do not require the setting up of ponderous public agencies to run them.

Four hundred years before Christ, Plato said "Democracy contains no long-range force which will check the constant tendency to put more and more on the public payroll." Certainly the truth of this assertion is thoroughly exemplified by the happenings of the past fifteen years. There were some 630,000 civilian employees in the federal government in 1933. The number rose to a peak of approximately 3,826,000 during the war and today stands—nearly two years after the close of hostilities—at approximately 2,247,000. The average cost of each civilian employee is approximately $2,650 per annum. So this huge governmental establishment is one of the factors that have raised federal expenditures to their present fantastic levels.

During the ten seconds that I have held this burning match in my hand the federal government has spent approximately $12,000. Spending is going on at this moment at the rate of $4,200,000 per hour; over $100,000,000 per day; about 40 billions per year. Incidentally, I wonder how many Americans have the faintest conception of what a billion is. If you had employed a thousand men at $5 a day in the year 1398, ninety-four years before Columbus discovered America, and worked them every day, year in and year out, you would have used up your first billion dollars in 1946!

During the war it was necessary, of course, to spend without stint or limit to gain a speedy victory. We find ourselves now, however, confronted with a proposed budget for the fiscal year which starts on July 1 of 37½ billions—equivalent to 37 eight story buildings where each inch of height is a million dollars! State and local expenditures will add up no doubt to another 15 billions. With a total national income estimated at $170,000,000,000, this means that more than one dollar out of every four dollars of value produced will be taken by the tax gatherer during the next twelve months.

Now political freedom cannot long endure in a republic in the absence of a financially competent citizenry. If even a substantial minority of our people became wards of the state, our two party system would evaporate and with it our liberty. Hence the present enormous tax burden creates a fiscal carcinoma that gnaws away at the very vitals of our free society. The American people generally do not realize what has been done to them in the past ten years. The social hormone of thrift that leads to economic independence is already seriously affected by a process of financial metastasis. With income and estate taxes and interest rates at their present levels it is now virtually impossible for a young man starting at scratch, in either a profession or in business, to accumulate a competency for his own later years and his family after he is gone. Thus the faith and courage of our people are being insidiously weakened as the prospect of a self-respecting and independent old age fades and disappears. The present personal income taxes, corporate taxes, capital gains taxes and the ever present threat of taxes on accumulated surplus make the development of small businesses in the future a well-nigh insurmountable task and seriously handicap the growth of many existing enterprises. Yet the expansion of existing businesses through the plowing back of earnings and the constant injection of new enterprises into the economic blood stream of our national economy are absolutely essential to the continued operation of our private, competitive business system. If funds for such purposes cannot be had from private sources and government supplies them, state socialism automatically results.

Consider too the plight of the one third of our population who allegedly are ill nourished, ill housed and ill clad. In the last analysis who but the financially competent among us can help that situation? Of course, government can tax away the savings of the competent of this and past generations and distribute them, but eventually when this accumulated fat is gone where is new productive wealth to come from in a free society if not from the ingenuity, initiative and thrift of the competent? It is therefore high time, it seems to me, for all believers in American liberty to raise their voices in behalf of the two thirds of our citizens who have proved able to take care of themselves and thus show some concern for the original "forgotten man" of William Graham Sumner—the quiet citizen who paddles his own canoe day in and day out, marries and raises a family, meets his bills promptly, pays his taxes, supports his church, contributes to the community chest, fights for his country when need arises, asks nobody to protect him from "cradle to the grave" and thereby does his quiet bit to maintain the American republic for his children and his children's children!

The moving finger writes. Little or no consideration has been given thus far to the ultimate effect of "cradle to the grave" paternalism on our standard of living.

When virtually all responsibility for the ordinary hazards of life are removed from the individual's shoulders, when the Biblical injunction "in the sweat of thy face shalt thou eat bread" is nullified, when a job hangs not on every limb but on every twig, what motive is left that is sufficiently impelling to insure the full production on which our high living standard depends? Personal pride, of course, may drive some men on, despite the fact that under present surtaxes the individual may find himself—figuratively speaking—netting one dollar for his first hour's work, seventy-five cents for the second hour, fifty cents for the third hour and fifteen cents for the fourth hour! But those for whom pride of accomplishment is a sufficient reason for giving the best that is in them are a microscopic minority of our whole population. In the absence of a certain modicum of fear as to what may happen if a man does not produce all he can, what is going to keep production at high levels in the face of full employment?

Sir William Beveridge, the great apostle of government planning to insure full employment, has never been able to answer that question. He fails to come to grips with it in his books and indulged in a lot of wishful thinking about it when pressed for an answer over the luncheon table. When the old proved hormones of self reliance, personal initiative, thrift and the willingness to work are neutralized by the virus of government paternalism, a sort of spastic paralysis ensues in the body politic. The wellsprings from which our high living standards flow are choked. The fountains of political freedom dry up.

Men apparently cease to exert themselves in about the same proportion that the state assumes their support. Then the Russian solution of the problem of full production, namely depriving the drones and laggards of food cards and living quarters, logically follows. Significantly enough, I noted a few weeks ago that one of the left-wing leaders in England was reproaching the Labor Government for not having adopted the Soviet procedure. Fantastic as such a recommendation sounds coming from British lips, it must be weighed in the light of other revolutionary happenings in a country that until recently was a mighty fortress of personal freedom.

You will be as shocked as I was the other day when I learned that no less than seventeen ministries in Great Britain now possess the power to enter private homes without search warrants in enforcing the rules and regulations dealing with the nation's planned economy. The Englishman's house is no longer his castle. Nevertheless, Herbert Morrison, Lord President of the Council, said on May 1 "It is not that we have governed too much, but that in some ways we have not governed enough." Yet here in the United States we have certain vocal advocates of the so-called "middle way"—that mythical type of government that could allegedly take over the planning of our economic affairs and still preserve our political, intellectual and spiritual freedom.

As I understand it, when the secretion of the adrenal glands is interfered with, Addison's disease ensues. The patient, among other symptoms, becomes terribly nauseated and, unless the endocrine deficiency can be soon compensated for, the malady is inevitably fatal. So it is with class consciousness in a representative democracy. When the hormone of social cohesiveness disappears in the body politic, history shows that the decline and fall of popular self government is sure to follow. In recent years class feeling has raised its ugly head in America. We have seen the rapid emergence of labor groups, farm groups, youth groups, veterans' groups—some of which class divisions have, sad to relate, been intentionally accentuated for partisan political purposes. The nation has been subjected to repeated attacks of violent economic nausea which now bid fair to result in political lesions of a horizontal nature instead of the vertical cleavages that have characterized our political contests in the past. The moving finger writes. In the face of the portentous record it has made of rising class consciousness in recent years, the patriotic citizen will spare no effort to restore that basic spirit of national unity on which the preservation of democratic government depends. It is later than we think.

THE DUTIES OF CITIZENSHIP

Francis Quarles—the old English poet—made this sardonic observation in the year 1638: "Physicians, of all men, are most happy. Whatever good success soever they have, the world proclaimeth; but what faults they commit, the earth covereth." Certainly there is one fault of doctors—and plenty of the rest of us too—that the future will not conceal, namely our apathy in respect to the duties of citizenship. The events of the past fifteen years have proved definitely that mere professional or managerial proficiency is not enough to preserve the environment of freedom. Too high a degree of self-centered specialization in the learned professions or in industrial management is self defeating in the field of politics and public relations. Many of us have become so absorbed in handling our personal jobs efficiently that we have forgotten that the game itself cannot continue very long if the fields—local and national—on which it must be played are not kept in good order. In other words, as you doctors have concentrated on being highly skilled professional experts and we men in industry on trying to be able managers, we have far too often become poor citizens and left the affairs of the major league—the national economy—to politicians and reformers. If our type of free society is to be preserved, professional and business men must not only be good technicians but also good citizens in every sense that those words imply. Civic virtue—the willingness to work and sacrifice for the public interest—is an indispensable hormone of freedom. A deepened and broader concern with public affairs on the part of the medical profession generally would add further luster to its well earned reputation for unselfish service so aptly expressed in Lord Bryce's pithy comment "Medicine is the only profession that labors incessantly to destroy the reason for its own existence."

Of all the hormones that have united to create what we call the American system, the most fundamental is the value that we have given to human personality. No former people has ever conceived of individual human dignity and worth in terms which have been common to us. This concept has a distinctly religious origin which can be traced back to the fifteenth century, when John Wyclif first placed his translations of the New Testament in the hands of the common people of England. How deeply rooted this concept became in the generations that followed is evidenced by John Adams's assertion, when the Constitution was under discussion, "You have rights antecedent to all earthly government; rights that cannot be repealed or restrained by human laws; rights derived from the Great Legislator of the Universe." Today, unfortunately, far too many people define the dignity of man in terms of his physical scale of living rather than by his moral and spiritual standards.

There, it seems to me, is the basic issue in the current world crisis. If one believes that as individuals we are endowed with certain divinely given, inalienable spiritual rights, then our system of government, our free economy, our civil liberties, have a firm foundation on which to rest. If the existence of such natural rights is denied, collectivistic principles displace the individualistic principles on which personal liberty depends. And to make collectivistic principles supreme requires inevitably the submergence of the individual and the emergence of the controls of the totalitarian state. Hence, without being a pietist or the advocate of any particular type of religion, one must recognize, it seems to me, that the idea of a sovereign God endowing the individual with certain inalienable spiritual rights is fundamental to the permanent existence of the American system. Here every thinking citizen might well examine the inner recesses of his own soul and determine conscientiously how best he can contribute toward the revival in America of that supreme hormone of liberty—the concept of the sacredness of the individual in the eyes of a sovereign God.

The Greeks said "Know yourself," the Romans "Be yourself," the Christians "Give yourself." The cult of civic competence—as our fathers knew and practiced it, fused these three swords of the spirit into the great instrumentality that set them free. To remain free we, their descendants, must pay the same price they paid, for freedom is not a gift of heaven. It must be won and rewon by every generation for itself. It is not ours for the asking, as so many complacent Americans seem to think. It is ours only for the taking—through competent personal effort in support of the eternal principles on which it rests.

The moving finger writes. What it writes about this fair land of ours in the momentous months and years ahead depends not on this thing we call government but on you and me and millions like us scattered all over America. As citizens we are masters of our fate, the captains of our national soul. Shall we let our priceless heritage of freedom go by default? Shall we permit the old historical cycle to repeat itself in America: From fetters to faith, from faith to freedom, from freedom to folly, from folly to fear and from fear back to fetters once more?

The moving finger writes. We sit here tonight at this banquet board celebrating the splendid achievements of that great company who during this century past have gone before us on life's journey and left the world better because they passed through it. It is fitting so to do—to add to our meed of praise and grateful appreciation. But as we do so in humility and reverence we might well descry again that moving finger of a bygone day, as it recorded its fateful message on the wall of Belshazzar's banqueting hall twenty-five hundred years ago, firmly resolving that it shall never be written of us twentieth century Americans that we were "weighed in the balance and found wanting" in the age-old struggle for human freedom.

THE AMERICAN WAY

Address at Centennial Dinner, American Medical Association, Atlantic City, N. J., June 7, 1947

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New York

I think I speak with modesty when I say that in the last quarter of a century, because of the opportunity I have had to work in the fight against infantile paralysis, no layman in this country has had closer or more contacts with the members of the American Medical Association than I have had. That experience in itself has made life tremendously interesting.

Each year I continue to be more than before amazed by the amount of time, thought and energy that the members of this great organization give to all the health, welfare and humanitarian organizations in this country, to say nothing of the charitable service which they give all over our land to the individual directly.

How these men can travel back and forth across the country to attend medical meetings from which comes the advice so badly needed by these health and welfare organizations; how they find time to study the problems these organizations have and still pursue their professional calling are still mysteries to me.

I am glad, therefore, to be here tonight if for no other purpose than to pay my respects to this great body of men and to say that in my time I am certain that no group has made a greater contribution to the American way of life than have the members of the American Medical Association.

In the advancement of our American way of life we have gradually developed patterns of thought and action which would in many instances seem to be the inevitable development of a democratic civilization such as ours. The whole world has become more and more security minded. There was a time when an American citizen thought that the only necessity of life was a job for the father, who then assumed the responsibilities for the care of his family, including such fundamentals of living as food, clothing, housing and medical care. The one contribution which he expected from his government was a public system of education so that every child born in a free nation would be given opportunity to develop to the utmost his intellectual faculties.

Under this concept of life we developed in the United States an independent people whose progress toward attainment of a high standard of living was greater than that of any other nation in the world, and no one can appreciate that more than I can, having just returned from another three weeks in Europe and Italy. True, the natural resources of our country played a considerable part in this result, as did also no doubt its climate and the building of a special type known as the American product of a melting pot to which all the peoples of the world made their invaluable contribution.

With the turn of the century came the introduction of new technics of mass production, first in the automobile industry and then gradually extending to every other type of industrial life. There are those, of course, who think that the tendency of such methods is to submerge the artist and craftsman and to level the mass of the people. No doubt much of the interest of the worker in his job was lost when he became a unit on a production line.

In 1883 the concept of social security was introduced in Germany—a concept that was strongly recommended by the ruling agencies of most European nations and indeed by practically all nations in which a small ruling class dominated the people. It introduced a system whereby the individual looked to the state to provide him and his family with many of the essentials of life and living that American workers were accustomed to provide for themselves. The state began to be responsible for education, for housing, for medical care, for the care of the aged, for employment, for relaxation, for protection and for the care of the veteran.

Some states moved more rapidly in this direction than did others. In Germany, for instance, the state assumed more and more of these responsibilities and increasingly took a share of the workers' wages and of the employers' income to support a swollen bureaucracy that administered the system. England displayed little interest in such proposals until 1912, but today Great Britain, with the rise of a socialist and labor party, seems to be moving toward the same governmental assumption of responsibility for every aspect of the individual citizen's activities that marked prewar Germany.

Now there are many who believe that Germany moved inevitably toward the totalitarian system that enslaved her people and destroyed their morals and broke down even the ethical tradition of her medical profession as a result of the extent to which the citizens lost more and more of their personal responsibilities. The Russian civilization is comparable in many of its aspects.

Now in the United States our people thought little of social security until the great depression of 1929, when it became necessary for the government to assume complete responsibility for vast numbers simply because of the rise of unemployment and the increasing age of our population. In planning to meet these contingencies, the Congress passed a federal security act which compelled the worker and the employer to set aside funds to care for those who are unemployed for at least a certain length of time and to provide a minimum of money for the aged with which they may purchase the necessities of life. The then President of the United States, Franklin D. Roosevelt, urged the devotion by the Congress increasingly of funds to care for the indigent and to aid particularly those states which were unable with their own resources to maintain a suitable level of disease prevention and medical care.

In the evolution of this society the people of the United States, as I have said, have developed certain patterns of conduct, certain types of finance, in considerable contrast to methods that prevail elsewhere. I think it very essential that from time to time these patterns of conduct be emphasized to the American people so that they may realize more and more how their needs are met and the part which they themselves play as free citizens of a democracy in assuring to all the people of our country a quality of security above that available anywhere else in the world. I refer, of course, to the growth of our great philanthropic agencies, such as the American National Red Cross, National Tuberculosis Association, American Cancer Society, American Heart Association, National Foundation for Infantile Paralysis, National Society for Crippled Children and Adults and many other similar groups. These organizations of a peculiarly American type are maintained by funds derived from the mass of the people. The money is given to them voluntarily by people who are convinced of the good that they do. The organizations are led by individuals who join together for the common good and who in the vast majority of cases devote themselves to the advancement of these organizations without any thought of emolument in terms either of money or of prestige.

There is among these organizations a friendly rivalry not only in seeking the funds by which they live but in the maximum accomplishment that they may attain with such funds. To the services of these agencies the medical profession devotes vast amounts of time and professional talent and even its own funds. The good that these organizations accomplish needs no recapitulation to the American people.

Where else in the world can a patient suffering with a crippling disease be given all the benefits of a modern hospital, the best possible attention of orthopedic surgeons and physical therapists and psychologists and mental hygienists and nutritionists, without thought of the immense costs that are involved? Where else in the world are millions of dollars freely contributed by the people devoted to the establishment of cancer detection centers in great numbers, whose services are available for whatever the patient can afford to contribute? Where else in the world is money contributed voluntarily by the people to the advancement of scientific research—yes at times in sums which even the scientists cannot use effectively?

Associated with this pattern of the individual philanthropies are the new technics for meeting the costs of medical care involved in the highly intensified growth of voluntary hospitals and sickness insurance plans. The hospitalization plans now provide for hospitalization of some 30 millions of people who have enrolled, and the economist can see the reaching of a saturation point of perhaps 60 millions of people within the next decade. The voluntary nonprofit sickness insurance plans have already enrolled more than 6 million people, and the private voluntary sickness insurance plans claim between 23 and 25 million workers. The American people are the best insured people in the world, with some 75 million people enrolled and total assets of some 40 billion dollars. There was no compulsion or coercion in attaining this height. The people acted in response to the usual methods by which American industries, American philanthropies and indeed American institutions have been built.

That the health and welfare problems of our country which affect at one time or another every one of our people are primarily in the public domain as an essential function of government at some if not at all levels, no one need deny. But time has shown again and again that, unless that governmental function is stimulated and supplemented by the activity of the great private health and welfare agencies, the best interests of the people are not fully served. Governmental officials would be the first to admit this. But we must never forget that the strength of such private agencies is in their voluntary and independent nature. Without their identity, integrity and independence these private agencies could not exist. The emotion, the effort, the service that the American people give and give so willingly and freely through such organizations cannot be bought or compelled.

The point of view of those who would coerce rather than invite, who would direct rather than cooperate, who would compel rather than educate, need not necessarily be achieved only by making government the coercing force. Deceived perhaps by the magnificent results that have been achieved by many of the voluntary agencies, envious perhaps of the response of the people to some appeals and their failure to respond similarly to others, there are those who propose from time to time new types of organization of voluntary agencies which would place the compulsion not on the people who support and who receive the benefits from them but on the leadership of the agencies themselves. I refer particularly to a report of a survey of philanthropic agencies especially in the health field which suggested the establishment of a central group with a permanent directorate which all agencies would join and which would by their joining be compelled to accept the dictums of the central directorate as to the time when they would seek their funds, as to the methods by which they would seek their funds, as to the amounts of money which they could use and the manner in which their funds would be distributed. I venture to doubt that such a plan would produce the efficiency that this leadership seeks. I venture to doubt that the agencies which would be thus united would in the long run gain by their union. I have no hesitation in saying that those agencies would by this method bring about their own destruction.

Most serious of the losses involved by such technics would be the loss of the humanity which is fundamentally responsible for the great success that our philanthropic health agencies in this country have had up to now. Every individual who contributes now feels that he is helping another human being like himself. He sees the results of the aid that he gives, not in just any sick person, but in a child with poliomyelitis, a person with cancer, a worker crippled through the accident of industry, another human being who has been unable to resist the stresses and strains of our modern mechanized life and who has fallen by the wayside and who needs a helping hand. He gives not to an abstraction. He gives to one of his fellow men. . . .

When we think of totalitarianism I'm sure that we think of it only in terms of government. There may, however, still be even more dangerous forms of totalitarianism in industries, in machine politics, even in voluntary philanthropies. Individual agencies must maintain their independence from collectivism even as individual citizens must oppose a totalitarian government. In the industrial life of our nation there is an aphorism to the effect that one does not experiment with an established success. Our government, our resources, our philanthropies, our standard of living are today the envy of all the world. True, there are among us those who do not have all the benefits that derive to the majority; but it is not the American way to lower the majority to aid the indigent and the incompetent.

Although the American way is partly through government, it is supplemented to a very large extent by private philanthropy in aiding and assisting the less fortunate so that they may participate in and enjoy our standard of life. But even more important than that, it always has been and still is an essential function of private health welfare and humanitarian organizations to eliminate those things which cause the unfortunate minority. These things the nongovernmental organizations of America can do only if they maintain, as I am so certain the American people wish them to maintain, that identity, integrity and independence without which they cannot function and with which they can continue to carry on not only the work they do so well today but can accomplish in the future those results still so badly needed by the people in our country.

THE EPIDEMIOLOGY OF POLIOMYELITIS

Problems at Home and Among the Armed Forces Abroad

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One of the most important and difficult jobs in science is to ask the right question of nature. The right question leads to the design of those experiments or tests which yield the pieces that are required to make a logical pattern out of an incomprehensible jigsaw puzzle. My paper will present more questions than answers, and I hope that among the many that have been asked those questions may be selected that will guide physicians to what must be learned in the future if the origin and evolution of epidemics of poliomyelitis is to be understood and if physicians are ultimately to know what, if anything, can be done to prevent them. From the point of view of public health the chief importance of poliomyelitis as a disease lies in its paralytic manifestations, and the main problem in the epidemiology of poliomyelitis concerns the cause or causes of the sudden appearance in certain parts of the world of large numbers of paralytic cases.

It has been stated that no circumstance in the history of poliomyelitis is so baffling as its change during the past fifty to sixty years from a sporadic to an epidemic disease.[1] While there are justifiable doubts regarding the adequacy of diagnosis and reporting in former years, the bulk of the evidence suggests that the epidemic outbursts, of the type which have occurred especially in the United States and a few other countries in the past thirty to forty years, are events that could not readily have been missed in the past. As a matter of fact it has been pointed out, and in my opinion correctly, that more adequate diagnosis and reporting are the effect rather than the cause of increased incidence. Nor can this recent origin of epidemics, although not of the disease, be doubted when it is realized that there are still large parts of the world, regardless of latitude, in which epidemics of poliomyelitis are as yet unknown. Another peculiar circumstance which may contain an important clue is that epidemics have occurred with greatest frequency and severity in the very countries in which sanitation and hygiene have undoubtedly made their greatest advances. In my opinion one of the most important problems in the epidemiology of poliomyelitis is the determination of the factors relative to the virus, host and environment, which are different in cities like New York, Chicago, Minneapolis, Los Angeles and Denver, among many others in the United States with histories of large outbreaks of the disease, and cities like Peiping, Tientsin and Shanghai, occupying approximately the same latitude in China, in which only rare sporadic cases have been recorded thus far, despite the presence in these cities for many years now of excellent western-trained physicians who could not have missed such outbreaks in the native population if they had occurred. Next in importance among the questions that may be asked with regard to the epidemiology of poliomyelitis

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Read at the Rocky Mountain Conference on Infantile Paralysis, sponsored by the University of Colorado School of Medicine and Hospitals and the National Foundation for Infantile Paralysis, Inc., Dec. 16, 1946.

[1] Poliomyelitis, Report of International Committee for Study of Infantile Paralysis, Baltimore, Williams & Wilkins Company, 1932.

is why paralytic poliomyelitis, with only rare exceptions, remains practically dormant during more than two thirds of each year, appearing in only an occasional person, and then seems to explode during the late summer and early autumn? Still another circumstance, for which a correct explanation would reveal much regarding the character of the soil in which epidemics grow, is to be found in the many observations that when epidemics make their first appearance in large urban centers (whether thirty to forty years ago, as in certain cities of the United States, Sweden and Australia, or in the more recent past in a few cities of Japan) approximately 80 to 90 per cent of all the cases of paralysis occur in children under 5 years of age; whereas, in recent years in certain American, Swedish and Australian cities the age incidence has changed so that now as many or more children become paralyzed in the 5 to 9 year age group as in the group under the age of 5, and in many parts of the United States 25 to 33 per cent of all paralyzed patients are now in the 10 to 19 year age group.[2]

In order to be able to analyze these basic questions one must have certain information (*a*) about the natural history of infection with poliomyelitis virus in human beings, (*b*) about the reservoir of the virus in nature, (*c*) about the immunologic and invasive characteristics of the poliomyelitis viruses and (*d*) about the immune response of human beings to infection. It cannot be denied even by the most cynical that much has been learned in these fields through the patient and persistent labors of many investigators, even though many gaps in present knowledge still exist. I shall present rather briefly what, in my opinion, may be accepted as established without going into the details of the work on which the conclusions are based and spend more time on the points that I recognize and regard as having an important bearing on the epidemiology of the disease.

To begin with, what can be accepted as established about the natural history of infection in man with regard to how the virus is acquired by human beings, where it multiplies after it gets in and, finally, by what route and for how long it continues to be eliminated. It may perhaps be well to point out that the important extension of knowledge in regard to the presence of the virus in human stools during the past ten years, was not by itself responsible for a change in the concept of the nature of the human disease, since there was no indication that the virus in the stools did not have its origin in swallowed nasal and salivary secretions. Thus, Aycock[3] in 1941 was quick to point out that in pulmonary tuberculosis bacilli may be found in intestinal contents and that hemolytic streptococci from the respiratory tract may also be found in the intestines. However, the extensive studies in recent years on the distribution of virus throughout the human body in fatal cases have indicated that two systems, the alimentary tract and the nervous system, are predominantly attacked.[4] The virus was not found in the nasal mucosa, salivary glands or urinary bladder, to mention only a few of the important zones which were shown to be uninvolved. In the alimentary tract, the virus has now been demonstrated in the tongue and in the walls of the oropharynx, duodenum, ileum and colon. While in some cases the virus could be localized in the tissues of the upper as well as lower levels of the alimentary tract, at times it was limited to one or the other level. It also became apparent that the virus could be found in some portion of the tissues of the alimentary tract in practically all cases of human poliomyelitis, when a sufficient number of levels were tested. Furthermore, an analysis of the distribution of the virus in the entire body indicated that the virus did not get to the tissues of the alimentary tract by centrifugal spread from the central nervous system but rather that it was there as a result of primary localization and multiplication. It still is not known whether the multiplication of the virus, which, judging from its persistence in the stools, may continue for many weeks, occurs in the collections of nerve cells within the walls of the alimentary tract or in the nonnervous elements. The possibility has, of course, been considered that this pattern of virus distribution having been obtained in fatal cases may not represent what is actually occurring earlier in the disease. It may be said, however, that among the 13 fatal human cases studied in great detail by Ward and myself[4] a number of patients died within two to three days after the onset of the first "systemic" symptoms and only twelve to twenty-four hours after the first appearance of signs of involvement of the nervous system, but no significant difference was found in the types of tissues harboring the virus in these cases. The important question of whether or not the virus may be in the blood of human beings at some stage of the disease in sufficient concentration to offer a source of infection to blood-sucking insects was recently investigated with great care by Ward, Horstmann and Melnick[5] who were able to detect it in only 1 of 111 specimens taken from patients in early stages of the disease. This observation together with the earlier demonstration by Ward and myself[4] of the presence of the virus in a pool of the viscera in 1 of 7 fatal human cases tested, would suggest that occasionally small amounts of the virus may be absorbed into the blood from foci in which the virus is multiplying, but there is no indication that blood-sucking insects could acquire significant amounts of the virus from human beings.

The many studies which have now been carried out on the elimination of the virus from the human body indicate that it would have to originate either from the pharynx or the stools. Recently Howe, Wenner, Bodian and Maxcy[7] were able to demonstrate the virus in 43 per cent of oropharyngeal swabs taken from 23 patients during the first three days of illness, but in none of 13 swabs taken from the fourth to the ninth day of the disease. Horstmann, Melnick and

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[2] Dauer, C. C.: Poliomyelitis in the United States in 1942, and a Summary of Its Prevalence from 1933 to 1942 Inclusive, Pub. Health Rep. **58:** 937 (June 18) 1943.

[3] Aycock, W. L.: Susceptibility to Paralysis in Poliomyelitis, Illinois M. J. **80:** 231 (Sept.) 1941.

[4] (*a*) Sabin, A. B., and Ward, R.: The Natural History of Human Poliomyelitis: Distribution of Virus in Nervous and Non-Nervous Tissues, J. Exper. Med. **73:** 771 (June) 1941. (*b*) Sabin, A. B.: Studies on the Natural History of Poliomyelitis (Béla Schick Lecture), J. Mt. Sinai Hosp. **11:** 185 (Nov.-Dec.) 1944.

[5] Ward, R.; Horstmann, D. M., and Melnick, J. L.: The Isolation of Poliomyelitis Virus from Human Extraneural Sources: IV. Search for Virus in the Blood of Patients, J. Clin. Investigation **25:** 284 (March) 1946.

[6] Footnote deleted by author.

[7] Howe, H. A.; Wenner, H. A.; Bodian, D., and Maxcy, K. F.: Poliomyelitis Virus in the Human Oropharynx, Proc. Soc. Exper. Biol. & Med. **56:** 171 (June) 1944. Howe, H. A.; Bodian, D., and Wenner, H. A.: Further Observations on the Presence of Poliomyelitis Virus in the Human Oropharynx, Bull. Johns Hopkins Hosp. **76:** 19 (Jan.) 1945.

Wenner,[8] following up this work, were able to recover the virus from the pharynx in only 2 of 19 patients (11 per cent) during the first week of illness and from none in the second week. The work of Horstmann, Ward and Melnick[9] on the persistence of the virus in stools after acute infection, indicated that the virus could be recovered in 70 per cent during the first two weeks, 50 per cent during the third and fourth weeks, 27 per cent during the fifth and sixth and 13 per cent during the seventh and eighth weeks. They found one stool positive at twelve weeks after onset out of 30 tested between the ninth and twelfth weeks and none of 23 after the twelfth week. The longest persistence on record was that reported by Lépine and his associates,[10] who recovered the virus from the stools of a child one hundred and twenty-three days after a mild abortive attack of poliomyelitis. In earlier studies by Ward and myself[10a] on a group of 20 patients during the first two weeks of illness, no virus could be recovered from the nasal secretions or the saliva and other secretions as they were expectorated over a period of three days. Ward and Walters[11] have recently reported that in extracts of cloth masks worn by children for periods of thirty minutes during the first three days of illness, they were able to detect the virus in 2 of 19 tested. It should be noted, however, that these patients were induced to blow and cough into these masks, activities which are not common for the poliomyelitis patient who, as a rule, does not have the nasal or tracheobronchial irritation which is present in infections affecting the upper part of the respiratory tract. It is also noteworthy that in a least 5 of Ward's patients from whom virus was recovered by throat swabs none was demonstrable in the masks into which they talked, blew, coughed and spit for one-half hour. It is fair to say that there is at the present time a difference of opinion as to whether droplets originating from the pharynx or the various means of dissemination which are possible for the virus in the stools play the dominant role in the spread of the disease.

One of the important issues in this respect is the extent to which infectious material present in the throat can under ordinary circumstances reach the environment in the form of droplets, which in the wet or dry state may subsequently be inspired by others. For as regards transmission by contact with hands and fomites, the opportunities for contamination from the stools would seem to be so much greater that the transitory presence of virus in the posterior pharyngeal wall would add little to this aspect of the problem. The interesting studies of Hamburger and his associates[12] on carriers of hemolytic streptococci seem to me to have considerable bearing on this problem. Their studies revealed first of all that those who are strictly throat carriers are relatively unimportant in the spread of infection, whereas those with strongly positive nose cultures are the dangerous carriers. They furthermore concluded that blowing the nose is the most important of the respiratory activities which result in dissemination of hemolytic streptococci under epidemic conditions and that contamination of the hands resulting from this act was probably the most important factor. However, extensive contamination of the hands by hemolytic streptococci was found in nasal carriers, but little in carriers with positive throat cultures but negative nose cultures. *Talking or breathing did not result* in the expulsion of significant numbers of streptococci, and relatively few were expelled by coughing. Sneezing usually resulted in the expulsion of a few streptococci in throat carriers but of many in nasal carriers, despite the fact that most of the droplets produced by a sneeze originate in the mouth. If one recalls, therefore, that the throat and not the nose or saliva is the source of virus in poliomyelitis, and that except for those with disturbances in swallowing the people who carry the virus of poliomyelitis do not usually have the nasal or tracheobronchial irritation which goes with infections of the upper part of the respiratory tract, one would not expect droplets to be a significant source of infection. Furthermore, if the aspiration of infected wet or dry droplets was an important source of infection in poliomyelitis, one would expect frequent invasion of the central nervous system from the nose by way of the olfactory pathway, which has now been amply demonstrated not to occur in human beings.[4] It may also be worth adding that while other droplet-transmitted infections have their own special prevalence during the late autumn, winter and spring, none has the seasonal incidence of poliomyelitis. For all these reasons, and quite aside from the fact that poliomyelitis virus is present in the pharynx for only relatively short periods of time, I am inclined to regard the various means of dissemination, both direct and indirect, which are possible for virus in the stools as playing the dominant role in the spread of the disease.

The circumstance of the stools being the most abundant source of the virus would have had little significance for the epidemiology of poliomyelitis, if it had not been established beyond doubt in recent years that experimental oral infection can be readily achieved. The controversy which existed less than ten years ago on this question was due to the fact that in the few reported successes infection by the olfactory pathway had not been ruled out and in the many reported failures the work was done usually in rhesus monkeys with virus that had been passaged for many years in the brains of monkeys. The controversy has been resolved by the demonstration that strains of virus of recent human origin could produce paralytic poliomyelitis by the oral route in chimpanzees[13] and cynomolgus monkeys[14] with considerable regularity without invading the central nervous system by the olfactory pathway. The importance of the strain of virus was particularly demonstrated in simultaneous experiments in my laboratory[15] in which a strain of recent human origin readily infected cynomolgus monkeys by the oral route while the old, virulent monkey-passaged M. V. strain of virus, with which almost all the unsuccessful tests had been reported in the past, failed to produce infection by the same technic in the same species of monkey. It may be worth noting here that there is no evidence now that infection by the oral route may not be possible even in rhesus monkeys, provided the proper strain of virus is used.

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[8] Horstmann, D. M.; Melnick, J. L., and Wenner, H. A.: The Isolation of Poliomyelitis Virus fro : I. Comparison of Virus Content of Pha Washings, and Stools of Patients, J. Clin. 1946.

[9] Horstmann, D. M.; Warc Isolation of Poliomyelitis Virus from Hun 'ersistence of Virus in Stools After Acute Infection, J. Clin. Investigation **25:** 278 (March) 1946.

[10] Lépine, P.; Sedallian, P., and Sautter, V.: Sur la présence du virus poliomyélitique dans les matières fécales et sa longue durée d'elimination chez un porteur sain, Bull. Acad. de méd., Paris **122:** 141, 1939.

[10a] Sabin, A. B., and Ward, R.: The Natural History of Human Poliomyelitis: Elimination of the Virus, J. Exper. Med. **74:** 519 (Dec.) 1941.

[11] Ward, R., and Walters, B.: The Elimination of Poliomyelitis Virus from the Human Mouth or Nose, Bull. Johns Hopkins Hosp., to be published.

[12] Hamburger, M., Jr.; Green, M. J The Problem of the "Dangerous Carrier" of 'Jumber of Hemolytic Streptococci Expelled and Negative Nose Cultures, J. Infect. Dis. II. *Spread of Infection by Individuals with* ures Who Expelled Large Numbers of Hemolytic Streptococci, ibid. **77:** 96 (Sept.-Oct.) 1945; IV. Observations upon *the Role of the Hands, of Blowing* the Nose, of Sneezing, and of Coughing in the Dispersal of These Microorganisms, ibid. **79:** 33 (July-Aug.) 1946.

[13] Howe, H. A., and Bodian, D.: Portals of Entry of Poliomyelitis Virus in the Chimpanzee, Proc. Soc. Exper. Biol. & Med. **43:** 718 (April) 1940.

[14] (*a*) Burnet, F. M.; Jackson, A. V., and Robertson, E. G.: Poliomyelitis: Use of Macacus Cynomolgus as an Experimental Animal, Australian J. Exper. Biol. & M. Sc. **17:** 375 (Dec.) 1939. (*b*) *Sabin, A. B.,* and Ward, R.: Behavior of Poliomyelitis Virus in Cynomolgus Monkeys Infected by the Oral Route, abstracted, J. Bact. **43:** 86 (Jan.) 1942. (*c*) Sabin.[4b]

The abundance of the virus in human stools together with the demonstration of its presence in sewage[16] has, by analogy with the bacterial enteric infections, naturally raised the question of the possible role of flies and drinking water in the causation of epidemics of poliomyelitis. The first extensive work on flies in relation to outbreaks of poliomyelitis was done in 1941 by Paul and Trask and their associates,[17] who recovered the virus from flies trapped in rural areas close to a potential source of virus in the form of exposed recently evacuated human feces, and simultaneously by Ward and myself,[18] who recovered the virus from flies trapped in urban areas. We were able to demonstrate the virus in 7 of 12 samples from Cleveland and in 1 of 3 from Atlanta under cirsumstances in which no obvious potential source of the virus was in evidence within a short distance of the traps, which were put out in the backyards of the homes of patients who were away in the hospital and where the other probable virus carriers used good flush toilets. The flies which yielded positive results were either of the blowfly or housefly varieties. Three years later Ward, Melnick and Horstmann[19] carried this work a step farther during an outbreak in North Carolina by demonstrating that the food which was exposed to flies in homes of poliomyelitis patients became contaminated with enough poliomyelitis virus to be capable of establishing the infection in chimpanzees that ate it. The high incidence with which virus could be demonstrated in flies caught even in some of the cleanest and most sanitary urban areas cannot, it seems to me, be dismissed as an incidental finding without epidemiologic implications. It must mean that at some time or other, somewhere in the vicinity within a radius of 1 or more miles, the flies must have had the opportunity to pick up the virus. Even if the virus were to undergo no multiplication within the flies, and this has not yet been adequately investigated, it would seem clear that as long as myriads of flies have the proven capacity to acquire and transport the virus and the obvious capacity to contaminate human food with it—and in view of the fact that the possibility of infection with poliomyelitis virus by mouth is now established beyond doubt, it is not difficult to visualize the important role that flies may play in the dissemination of the virus during the summer and early autumn months. That is not to say that outbreaks of the disease during any season may not occur in the absence of flies or that in the combination of a source of virus, enough flies and an adequate number of susceptible persons one has all the ingredients to explain an epidemic of poliomyelitis; but it may indeed be suggested that the special seasonal character of the majority of poliomyelitis outbreaks may be related to the greater dissemination of the virus through the agency of contaminated flies, superimposed on the dissemination through normal human intercourse which has been shown to occur throughout the year, winter[20] or summer. Intimate human contact, while undeniably a factor in the year-round dissemination of the virus and in the so-called radial spread sometimes seen during outbreaks, does not by itself explain the recurrent summer epidemics of paralysis. With the present high incidence of the disease among children of school age in the United States, it is remarkable that, unlike certain other infections of childhood, the epidemics of paralysis occur during the very months when the children are away from school.

All this brings one back to another old question in the epidemiology of poliomyelitis, namely: do more people acquire poliomyelitis virus during the summer and early autumn months, or is there only a difference in the ratio between the number exhibiting the paralytic and inapparent, nonparalytic forms of the disease during the different times of the year? If there was only some way of answering this question by direct laboratory tests instead of by speculation, analogy or evaluation of probabilities, one could end the controversy between those who maintain that certain unknown changes in the host rather than increased dissemination of the virus, are responsible for epidemics and for the greater incidence of the disease in summer. Unfortunately, the methods available at this time are so cumbersome and expensive that one cannot undertake a mass survey of the number of people carrying the virus in a given community at different times of the year, as one might, for example, in the case of typhoid, dysentery or diphtheria; and the difficulties that would be encountered in trying to do it by determining the appearance of antibodies will become apparent, when the types of poliomyelitis virus and immune response to infection are discussed. Perhaps the only lead in existing data, that I know of, is to be found in the periodic tests carried out in Dr. Paul's laboratory[16b] on the same sewer line in New York since 1940. These data indicated that virus could be isolated from the sewage during September 1940 and then again in October 1941 simultaneously with a small increase in the number of clinical cases in the community served by this sewer line, but not during the other months. In further tests carried out by Dr. J. L. Melnick between 1941 and 1945, Dr. Paul has reported [21] that the results have always been negative during interepidemic times, although he believes that no final conclusions are possible until more work has been done with more sensitive methods of virus detection, particularly during seasons when the community is free from any increase in clinically apparent cases. Additional data of this sort may be one way to establish that outbreaks of the disease are due to the fact that larger numbers of people are being infected, unless it can be proved, as has been suggested by Kling and his co-workers,[22] that the virus may perhaps multiply in some protozoa in the stools and sewage away from the human body. Evans and Osterud [22a] have tested this hypothesis recently in a well-designed series of tests and have obtained negative results with various species of protozoa and different strains of poliomyelitis virus.

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[15] Sabin and Ward.[14b] Sabin.[4b]

[16] (*a*) Paul, J. R., and Trask, J. D.: Occurrence and Recovery of Virus of Infantile Paralysis from Sewage, Am. J. Pub. Health **32:** 235 (March) 1942. (*b*) Trask, J. D., and Paul, J. R.: Periodic Examination of Sewage for the Virus of Poliomyelitis, J. Exper. Med. **75:** 1 (Jan.) 1942.

[17] Paul, J. R.; Trask, J. D.; Bishop, M. B.; Melnick, J. L., and Casey, A. E.: Detection of Poliomyelitis Virus in Flies, Science **94:** 395 (Oct. 24) 1941. Trask, J. D.; Paul, J. R., and Melnick, J. L.: Detection of Poliomyelitis Virus in Flies Collected During Epidemics of Poliomyelitis: Methods, Results, and Types of Flies Involved, J. Exper. Med. **77:** 531 (June) 1943. Trask, J. D., and Paul, J. R.: Detection of Poliomyelitis Virus in Flies Collected During Epidemics of Poliomyelitis: Clinical Circumstances Under Which Flies Were Collected, ibid. **77:** 545 (June) 1943.

[18] Sabin, A. B., and Ward, R.: Flies as Carriers of Poliomyelitis Virus in Urban Epidemics, Science **94:** 590 (Dec. 19) 1941; Insects and Epidemiology of Poliomyelitis, ibid. **95:** 169 (Feb. 13) 1942. Sabin.[4b]

[19] Ward, R.; Melnick, J. L., and Horstmann, D. M.: Poliomyelitis Virus in Fly-Contaminated Food Collected at an Epidemic, Science **101:** 491 (May 11) 1945.

[20] Ward, R., and Sabin, A. B.: The Presence of Poliomyelitis Virus in Human Cases and Carriers During the Winter, Yale J. Biol. & Med. **16:** 451 (May) 1944.

The idea that poliomyelitis is predominantly a water-borne disease has its foremost advocate in Kling [23] of Sweden. While it cannot be denied that water contaminated with virus-containing feces can theoretically be a source of infection, the available evidence is not convincing that the large epidemics occurring in American cities are related to water supply; [24] nor, if epidemics resulted from greater dissemination of virus by means of water, is there any known reason why they should occur during the late summer and early autumn and cease with the appearance of cold weather. The epidemics of dysentery occurring in the summer are usually correlated with flies rather than with water.

One cannot proceed in building the pattern of the epidemiology of any infectious disease without being certain of the reservoir of the causative agent in nature. For many years the assumption has been that the only reservoir of poliomyelitis virus in nature is the human being, and that it shares with certain other viruses like those of herpes simplex and measles the distinction of having no other natural host. The demonstration in recent years that the summer epidemic encephalitides are arthropod-borne and that their occurrence in man is only an accidental incident in the life history of those viruses, which may have a wide vertebrate and nonvertebrate distribution, has been responsible for repeated attempts to reexamine the position of poliomyelitis virus in nature. Despite the fact that poliomyelitis and encephalitis epidemics have occurred side by side in a number of instances during recent years, it has been clear that the epidemiology of the two diseases differs chiefly in that poliomyelitis continues throughout the year, while the summer virus encephalitides of man do not occur in the winter in the absence of the vector. Tests for poliomyelitis virus in various mosquitoes caught in the field, which have been carried out in the laboratories of Drs. J. R. Paul [17] and Thomas Francis,[25] have been negative. It was established a number of years ago that of the usual animals surrounding man young dogs, cats, rabbits, pigs, goats, lambs, calves, pigeons and chickens were not susceptible to poliomyelitis virus [1] and that it was, therefore, unlikely that they might be silent hosts. Pearson and his associates in Dr. Francis' laboratory [25] have recently reported negative results in their search for virus in the tissues or feces of a large variety of animals present in the environment of human cases of poliomyelitis. In the last few years this search has also extended to fish within polluted waters (unpublished studies carried out in 1941 by Ward and myself, and also Toomey and associates [26]) and, by Dr. J. L. Melnick, to birds like sea gulls above such waters [21] but thus far with negative results. The demonstration by Olitsky [27] and Theiler [28] of the many analogies between the spontaneous paralytic virus disease of mice and human poliomyelitis has led to speculation on a possible rodent reservoir of poliomyelitis virus that may be infectious for human beings. The murine poliomyelitis viruses are not pathogenic for monkeys, and there is no evidence that they are pathogenic for man. It would appear, therefore, that there is no reason at this time to modify the original assumption that the only reservior of poliomyelitis virus in nature is man. That does not mean that flies, certain monkeys or other as yet unknown animals may not get the virus under natural conditions from human sources, but it does mean that man is the ultimate reservoir.

There are a number of immunologic problems in poliomyelitis which undoubtedly have an important bearing on the epidemiology of the disease. Perhaps the most important of these is the problem of multiple immunologic types of virus. Although fifteen years have passed since the first data were published indicating that strains of virus isolated in Australia [29] and New York [30] were immunologically different from the standard monkey-passaged virus then in common use, and although this has been amply confirmed in a number of other laboratories in subsequent years, little if anything has been done thus far to correlate this important fact with the march of epidemics. While the data accumulated thus far are clear in indicating that there is more than one type of virus, it is not known whether the known strains fall into two, three or some indefinite number of distinct immunologic types. The determination of specific virus neutralizing antibody as an indicator of the occurrence of inapparent infection has proved a useful tool in elucidating the epidemiology of a number of virus diseases, notably yellow fever and the arthropod-borne encephalitides. For these and other infections it was established that, with few exceptions, the presence of these antibodies was a good index to previous infection with the virus. The same was at first believed to be true in the case of poliomyelitis. Thus, Harmon and Harkins [31] in 1936 collected from the literature the results of poliomyelitis neutralization tests on 512 normal serums, which study yielded the following significant figures: under 5 years of age,

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[21] Paul, J. R.: Personal communication to the author.

[22] Kling, C.; Olin, G.; Fahraeus, J., and Norlin, G.: II. Studies on the Conditions of Life of Poliomyelitis Virus Outside the Human Organism, Acta med. Scandinav. **112:** 250, 1942.

[22a] Evans, C. A., and Osterud, K. L.: The Failure of Poliomyelitis Virus to Grow in Certain Protozoa of Sewage, Science **104:** 51-53 (July 19) 1946.

[23] Kling, C., Olin, G., and Fahraeus, J.: Zur Frage der Übertragung der Epidemischen Poliomyelitis durch Trinkwasser und der dabei Entstandenen Immunitat, Acta path. et *microbiol.* Scandinav. **54:** 499, 1944.

[24] Maxcy, K. F.: [illegible] p of Water Supplies to Poliomyelitis, Am. J. [illegible]) 1943.

[25] Pearson, H. E., [illegible] tudies on the Distribution of Poliomyelitis Virus [illegible] of Sporadic Cases, Am. J. Hyg. **41:** 164 (M[illegible] nall Town, ibid. **41:** 179 (March) 1945. Pearson, H. E.; Brown, G. C.; Rendtorff, R. C.; Ridenour, G. M., and Francis, T., Jr.: III. In an Urban Area During an Epidemic, ibid. **41:** 188 (March) 1945.

[26] Toomey, J. A.; Takacs, W. S., and Tischer, L. A.: Attempts to Find Poliomyelitis Virus in Fish, Proc. Soc. Exper. Biol. & Med. **58:** 152 (Feb.) 1945.

[27] Olitsky, P. K.: A Transmissible Agent (Theiler's Virus) in the Intestines of Normal Mice, J. Exper. Med. **72:** 113 (Aug.) 1940.

[28] Theiler, M.: Studies on Poliomyelitis (DeLamar Lecture), Medicine **20:** 443 (Dec.) 1941.

[29] Burnet, F. M., and Macnamara, J.: Immunological Differences Between Strains of Poliomyelitis Virus, Brit. J. Exper. Path. **12:** 57 (April) 1931.

[30] Weyer, E. R.: Immunological Differences Between a Strain of Monkey Virus and Human Poliomyelitis Virus, Proc. Soc. Exper. Biol. & Med. **29:** 289 (Dec.) 1931.

[31] Harmon, P. H., and Harkins, H. N.: The Significance of Neutralizing Substances in Resistance and Recovery from Poliomyelitis, J. A. M. A. **107:** 552 (Aug. 22) 1936.

37 per cent neutralized; 5 to 14 years, 48 per cent, and over 15 years, 73 per cent neutralized. This was believed to be in accord with the concept of widespread, inapparent infection, and because similar tests on serums from native adults in China,[32] the Fiji Islands,[33] Africa and certain other regions,[34] in which only sporadic cases but no epidemics were known to occur, were positive in approximately 90 per cent of the subjects it was assumed that the same type of virus was present all over the world and that infection was widespread even in regions where epidemics were unknown. However, between 1935 and 1939 a number of reports stated that there seemed to be no correlation between an attack of the disease, or the passing of an epidemic through a community, and the appearance of neutralizing antibody, as tested for the most part against a single standard passage strain of virus and occasionally also against some other more recently isolated virus. Thus it was found that 20 to 40 per cent of patients with the disease had antibodies when tested early after onset and that in general no definite increase in antibodies developed during convalescence. Of those who were without antibody early after onset, almost none acquired antibody during convalescence. The results of others, which were fully confirmed by his own studies in Australia, led so critical an investigator as Burnet[35] to conclude in 1939 that "poliomyelitis antibody is not a result of exposure to or infection by the virus of epidemic poliomyelitis." If this conclusion is correct the whole concept that poliomyelitis virus is as widely disseminated in one part of the world as in another, without reference to the occurrence of epidemics, can no longer be accepted without reservations, because it is based chiefly on the results of a small number of neutralization tests whose significance remains in doubt. In the last few years many more neutralization tests have been carried out on normal persons and on acute and convalescent serums of patients with poliomyelitis, using Armstrong's Lansing strain of mouse-adapted virus,[36] and in general the results were the same as those obtained with the monkey virus. This is reasonable because the Lansing virus is immunologically identical with the old standard M. V. strain which had been used in most of the monkey tests. And yet Paul and Trask,[37] and Howitt[38] as early as 1933 and Aycock[33] in 1942 pointed out that in certain patients antibody developed against recently isolated strains but not against the standard monkey passage strain. In 1941 Ward and I[39] had an opportunity to study the immunologic reactions in 1 of our assistants in whom poliomyelitis developed while she was working with a strain of virus of recent human origin. Virus recovered from the stools soon after onset of paralysis was proved to be immunologically identical with the strain of virus to which she was exposed. However, both the original virus and that recovered from the stools were found to be immunologically different from the standard M. V. strain of virus. Serum taken from this patient early after onset failed to neutralize both the monkey virus and the strain with which she was infected. However, the serum obtained during convalescence, although still unable to neutralize the monkey virus, readily neutralized the new strain to which she was exposed. In future studies on the immune response to infection it would seem wise to test the serums from each patient against the virus isolated from his own pharynx or stools and not to assume that a single type of virus is responsible for a single epidemic. It must be clear that until more work is done on the immunologic classification of the poliomyelitis viruses and on the immune response to infection, the available immunologic data will not be of much help in arriving at a clearer picture of the epidemiology of the disease.

Poliomyelitis has occurred among American troops in certain foreign countries, especially the Middle East,[40] the Philippine Islands and during the past summer Japan and North China,[41] in numbers and under circumstances that raise puzzling questions. If the disease were occurring among American soldiers (and this holds true also for the British and Australians[41a]) at a time when the more numerous native children all around them were also having paralytic poliomyelitis, the situation would not be so puzzling—but that was not the case.[42] Sporadic infections occur but outbreaks of any appreciable size apparently do not occur. A report on poliomyelitis in the Philippine Islands published ten years ago[43] stated that 16 of 17 patients with the disease at the Sternberg General Hospital in Manila were Americans. In 1945 there were 246 cases of poliomyelitis with 52 deaths among American troops in the Philippines according to the official reports received by the Office of the Surgeon General. Since the

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32. Lennette, E. H., and Hudson, N. P.: Neutralization of Poliomyelitis Virus by the Serum of Native Chinese of Peiping, Proc. Soc. Exper. Biol. & Med. **30:** 449 (Jan.) 1933. Jungeblut, C. W.: The Power of Normal Human Sera to Inactivate the Virus of Poliomyelitis in Relation to Blood Grouping and Exposure, J. Immunol. **24:** 157 (Feb.) 1933.

33. Aycock, W. L.: Immunity to Poliomyelitis: Heterologous Strains and Discrepant Neutralization Tests, Am. J. M. Sc. **204:** 455 (Sept.) 1942.

34. Hudson, N. P., and Lennette, E. H.: The Neutralization of Poliomyelitis Virus by the Serum of Liberian Negroes, Am. J. Hyg. **17:** 581 (May) 1933; Incidence of Poliocidal Sera in Regions Where Poliomyelitis Epidemics Are Infrequent, Am. J. Trop. Med. **18:** 35 (Jan.) 1938.

35. Burnet, F. M., and Jackson, A. V.: Poliomyelitis: Significance of Neutralizing Antibodies in Human Sera, Australian J. Exper. Biol. & M. Sc. **17:** 261 (Sept.) 1939.

36. Haas, V. H., and Armstrong, C.: Immunity to the Lansing Strain of Poliomyelitis as Revealed by the Protection Test in White Mice, Pub. Health Rep. **55:** 1061 (June 14) 1940. Turner, T. B., and Young, L. E.: Mouse-Adapted Lansing Strain of Poliomyelitis Virus: Study of Neutralizing Antibodies in Acute and Convalescent Serum of Poliomyelitis Patients, Am. J. Hyg. **37:** 67 (Jan.) 1943. Turner, T. B.; Young, L. E., and Maxwell, E. S.: The Mouse-Adapted Lansing Strain of Poliomyelitis Virus: IV. Neutralizing Antibodies in the Serum of Healthy Children, ibid. **42:** 119-127 (Sept.) 1945.

37. Paul, J. R., and Trask, J. D.: Comparative Study of Recently Isolated Human Strains and Passage Strain of Poliomyelitis Virus, J. Exper. Med. **58:** 513 (Nov.) 1933; Neutralization Test in Poliomyelitis: Comparative Results with Four Strains of Virus, ibid. **61:** 447 (April) 1935. Trask, J. D., and Paul, J. R.: Neutralizing Antibodies in Abortive Poliomyelitis, ibid. **58:** 531 (Nov.) 1933. Trask, J. D.; Paul, J. R.; Beebe, A. R., and German, W. J.: Viruses of Poliomyelitis: Immunologic Comparison of Six Strains, ibid. **65:** 687 (May) 1937.

38. *Howitt, B. F.: Poliomyelitis: Further Studies on the Immunization* of Sheep to the Virus of Poliomyelitis, with a Comparison of Neutralization Tests, Using the Old and a Recent Strain of Virus, J. Infect. Dis. **53:** 145 (Sept.-Oct.) 1933.

39. Sabin, A. B., and Ward, R.: Poliomyelitis in a Laboratory Worker Exposed to the Virus, Science **94:** 113 (Aug. 1) 1941; unpublished data.

40. Paul, J. R.; Havens, W. P., and Van Rooyen, C. E.: Poliomyelitis in British and American Troops in the Middle East: Isolation of Virus from Human Feces, Brit. M. J. **1:** 841 (June 24) 1944.

41. Personal Observations While Serving in the Far East as Field Director of the Commission on Virus and Rickettsial Diseases, Army Epidemiological Board, Office of the Surgeon General United States Army.

41*a*. McAlpine, D.: Epidemiology of Acute Poliomyelitis in India Command, Lancet **2:** 130-133 (Aug. 4) 1945.

42. One important exception to this occurred in the islands of Malta and Gozo in 1942-1943, when a large epidemic of poliomyelitis appeared for the first time in at least forty years. There were 426 paralytic cases among 271,359 civilians and 93.2 per cent of these were in children under 5 years of age. Only 4 cases occurred in Maltese adults (20 to 50 years of age) and none in the Maltese troops. However, 57 cases (all but 2 were paralytic) occurred in the troops of the United Kingdom (20 to 40 years of age), with an incidence of 2.5 per 1,000. Seddon, A. J.; Agius, T.; Bernstein, H. G. G., and Tunbridge, R. E.: The Poliomyelitis Epidemic in Malta 1942-1943, Quart. J. Med. **14:** 1 (Jan.) 1945.

43. Hillman, C. C.: Poliomyelitis in the Philippine Islands, Mil. Surgeon **79:** 48 (July) 1936.

end of combat in the Philippines, poliomyelitis has been among the leading causes of death in American troops. Even though only the paralytic cases are reported from there, the incidence of poliomyelitis in American troops in the Philippines has been at least ten times as high as in the Army within the continental limits of the United States during the past two years. Actually, I believe that it is even higher because hundreds of cases which would have been diagnosed as nonparalytic poliomyelitis here are being diagnosed as dengue-like or sandfly-like fevers with pleocytosis under conditions which, in my opinion, would preclude the occurrence of both dengue and sandfly fever. And yet, checks of the surrounding native population revealed no outbreaks of poliomyelitis. Hernando and Alomia,[44] who reported small numbers of sporadic cases in Manila in 1933 and 1934, stated that epidemics of poliomyelitis were never observed in the Philippines. Doull, Hudson and Hahn,[45] reporting on the presence of neutralizing antibodies for poliomyelitis virus in the serum of 9 of 10 Filipinos from Cebu, stated that the disease was unknown there and that no evidence of sequelae were discovered. This past summer I had occasion to observe an outbreak of poliomyelitis among American marines stationed in the Tientsin area of North China. Four men died, 1 was severely paralyzed and at least 25 others had nonparalytic attacks. There was no evidence of an outbreak of poliomyelitis in the native population at the time, and Dr. Grice, a British physician in practice in Tientsin for twenty-five years, informed me that while he not infrequently saw paralytic poliomyelitis in children in the foreign colony he rarely saw the disease among the Chinese. The extraordinarily uncommon occurrence of poliomyelitis among the yellow races living in North China was also reported by Zia[46] in 1930. The 1 isolation of poliomyelitis virus reported from Peiping in 1941 by Yen and Hsu[47] was from a white girl. Scott[48] also commented on the rarity of poliomyelitis in China.

In Japan this year the incidence of poliomyelitis in American and British forces, while considerably less than that in the Philippines, was still higher than in the Army within the continental limits of the United States even if one does not count the large number of patients exhibiting the aseptic meningitis syndrome, in the majority of whom, in my opinion, the most likely diagnosis was nonparalytic poliomyelitis. Two strains of poliomyelitis virus were isolated in Dr. Paul's laboratory from stools of some of these patients which I sent from Japan Paralytic poliomyelitis is still an uncommon disease in Japan, but small epidemics have occurred in the Osaka-Kobe area between 1938 and 1942, and in these about 90 per cent of the cases occurred in children under 5 years of age (communication from Professor M. Kasahara of the Imperial University of Osaka).

This relatively higher incidence of poliomyelitis among foreign troops stationed in areas in which the clinical disease is relatively infrequent in the native population may be due to the fact that the virus is actually more widespread than in the United States and also that the immunologic types of virus prevailing there may be different from those to which these men had been exposed in their infancy and childhood. If it is suggested that the prevailing viruses are so widely disseminated in these countries that infection is acquired by almost every one early in infancy, then it must be asked why that infection is so inapparent and accompanied by so little paralysis? Is it possible that there is a time in infancy, and it would have to be less than 1 year of age, when infection with poliomyelitis virus is predominantly inapparent and results in lifelong immunity? The reason for setting this time at less than 1 year of age is based on the fact that when epidemics of poliomyelitis make their first appearance in countries where the disease had formerly been seen infrequently almost 90 per cent of the paralytic cases occur in children between 1 and 5 years of age. If there is such a hypothetic period of grace, one would have to suppose that immunity to all prevailing immunologic types is acquired during that short period of time. Does it follow, then, that epidemics begin to occur in a country when large numbers of children fail to acquire the poliomyelitis viruses during that important phase of their life? On the other hand if one assumes, as suggested by Burnet,[49] that "the major factor responsible for the epidemic appearance of paralysis is the occurrence of biologically irrelevant mutation in the virus to an unduly invasive type" and that such viruses have not yet made their appearance in countries like the Philippines or North China, how is one to account for the different behavior of the infection in the native populations and the foreign troops stationed there? If the first appearance of epidemics were due to the introduction of a new immunologic type of virus, one would not expect to find 80 to 90 per cent of the paralytic cases among children under 5 years of age, but rather would expect them to be more widely distributed through the population. And yet, in the recent severe epidemic in Malta,[42] which occurred after a quiescent period of at least forty years, paralysis among the native population appeared almost exclusively (93 per cent) in children under 5 years of age, while the adult troops of the United Kingdom in the area succumbed in relatively large numbers (2.5 per 1,000). To account for the occurrence of 422 paralytic cases in children under the age of 5 among a total (all ages) native population of 271,359 on an immunologic basis, the possibility must here be considered that a type of virus was involved to which the adult Maltese, but not the adult United Kingdom troops, were immune and also that this type of virus had had limited or no dissemination in Malta during the preceding five years.

In conclusion I wish to reiterate what I regard as perhaps the most important question: Why did paralytic poliomyelitis become an epidemic disease only a little more than fifty years ago, and as such why does it seem to be affecting more and more the countries in which sanitation and hygiene, along with the general standard of living, are presumably making the greatest advances, while other large parts of the world, regardless of latitude, are still relatively unaffected? If I have left the reader somewhat bewildered and with the impression that physicians do not know the answers to these and other basic questions regarding the origin and evolution of epidemics of poliomyelitis, I apologize, but I must confess that it was precisely what I intended to do.

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[44] Hernando, E., and Alomia, A. Epidemiological Aspects of Acute Anterior Poliomyelitis or Heine Medin Disease in Manila, Rev. filipina de med. y farmacol. **25:** 529 (Nov.) 1934.

[45] Doull, J. A., Hudson, N. P., and Hahn, R. C.: Note on Poliomyelitis, Diphtheria, and Scarlet Fever Antibodies in Serum from the Philippines, Am. J. Hyg. **21:** 540 (May) 1935.

[46] Zia, S. H. The Occurrence of Acute Poliomyelitis in North China, Nat. M. J. China **16:** 135 (April June) 1930

[47] Yen, C. H., and Hsu, Y. K. Isolation of Virus from Case of Acute Poliomyelitis in Peiping, with Histopathological Studies, Chinese M. J. **60:** 199 (Sept.) 1941.

[48] Scott, A. V. Anterior Poliomyelitis in China, Chinese M. J. **54:** 442 (Nov.) 1938

[49] Burnet, F. M. Virus as Organism: Evolutionary and Ecological Aspects of Some Human Virus Diseases, Cambridge, Mass., Harvard University Press, 1945.

ADDENDUM

Public health officers and other physicians frequently seek the advice of "poliomyelitis experts" on what to do during an epidemic. These "experts" are as a rule reluctant to supply even guiding principles because, as has been pointed out in this communication, much remains to be learned about the cause of epidemics and the dissemination of the virus. However, there are certain reasonable measures which may be taken during epidemics with a view to minimizing the chances of infection, even if there is no evidence or assurance that these measures will stop an epidemic of poliomyelitis "cold" as effectively as will the advent of "cold" weather.

Until information to the contrary becomes available, the following guiding principles may, in my own opinion, be offered to physicians:

A. More virus is being disseminated in a community during an epidemic than at other times.

B. Poliomyelitis virus is present for a short time in the throat and more frequently and for a longer time in the intestinal tract and stools of certain apparently healthy people as well as of acutely paralyzed patients during an epidemic.

C. From these sources of infection the virus may be transmitted to others by intimate contact, contaminated hands and fomites. There is no evidence that the virus is ordinarily present in the nose or that droplets emitted from the respiratory tract play a significant role, if any, in the dissemination of the virus.

D. During an epidemic the "filth" flies can be contaminated with the virus, which they can deposit in infective amounts on food, and consumption of such contaminated food can produce the disease.

With these guiding principles in mind, the following opinions are offered on questions which most frequently come up for consideration:

1. Measures designed to minimize spread by droplet infection, such as the closing of movies and churches or the refusal to admit patients with poliomyelitis on general hospital wards are not warranted.

2. Measures designed to diminish the chances of transmission by contact during intimate play of children whether out of school or in school are reasonable and warranted. Public playgrounds and swimming pools should be closed. Schools may be opened or should remain closed depending on whether the avoidance of contact among children can be enforced better in school or out of school. The mere presence of a large number of children in a single room cannot be regarded as conducive to transmission of the virus, while playing, shaking hands or using a common toilet without adequate washing of hands may be. Parents should have the right to decide for themselves whether or not they wish to send their children to school during an epidemic. Avoidance of strenuous physical exercise during an epidemic or in cases of known, intimate exposure is reasonable.

3. Measures designed to minimize contamination of food by flies, whether in stores or in homes, are reasonable and warranted.

4. Measures aimed at the mass destruction of flies by the spraying of DDT from airplanes or other moving vehicles on whole towns after an epidemic has appeared is of doubtful, if any, value.

5. Measures taken to prevent flies from breeding in or having access to the sludge beds and other parts of metropolitan sewage disposal plants and creeks containing raw human sewage are reasonable and warranted.

6. Disposal of stools from patients with poliomyelitis in homes or hospitals into the sewer system without previous disinfection of the virus is not contraindicated, because during an epidemic the sewer system is contaminated with greater amounts of virus by the many persons who are infected and do not know it. Where no flush toilets are available, the stools may be emptied in the privy used by the rest of the family, but special precautions should be taken to prevent access of flies to it.

7. Patients with poliomyelitis can be admitted on general hospital wards but should be treated with so-called typhoid technic. Bedpans used only for 1 patient need only be washed after the contents are emptied into the sewer system; if they are used interchangeably they should be sterilized by live steam. This typhoid technic should be applied for at least four weeks dating from the onset of the first "systemic" symptoms.

8. Bedsheets, towels and other laundry during poliomyelitis epidemics may be regarded as potentially contaminated, and advice in regard to the wearing of gloves and washing of hands by workers handling such laundry before it is washed is reasonable and warranted.

9. Isolation in the home of patients whose disease is diagnosed as poliomyelitis is indicated for at least two weeks and is reasonable for a period of four weeks dating from the first onset of symptoms. The children of such households and older members who may be engaged in the handling of food in stores or restaurants, or whose occupations may bring them into intimate contact with children, should remain at home for a period of at least two weeks. The same procedure may be advocated for other children who may have been exposed in intimate play with members of an infected household. While it is unquestionably true that isolation at best can control only an indefinite fraction of those who may be disseminating the virus, it is nevertheless reasonable to attempt to protect a small number of persons, even if the risk for the community at large may not be affected appreciably by such a measure.

Finally, it is necessary to repeat that all these measures are advocated not with the idea that they will stop an epidemic but rather in the belief that in as far as they are carried out diligently at least some persons may escape infection who might otherwise have become paralyzed.

THE BULBAR FORM OF POLIOMYELITIS

I. Diagnosis and the Correlation of Clinical with Physiologic and Pathologic Manifestations

THE MINNESOTA POLIOMYELITIS RESEARCH COMMISSION
Minneapolis

Despite the fact that most of the deaths from acute poliomyelitis are commonly conceded to result from involvement of the medulla oblongata and immediately contiguous brain centers, comparatively little special attention has been given to this form of the disease by either clinical or laboratory investigators. This obvious neglect of one of the most important aspects of the problem of poliomyelitis can be attributed, in part at least, to two erroneous assumptions. The first of these is that the incidence of the bulbar form of poliomyelitis is low, the 6 per cent figure of Wickman [1] still being relied on by many authorities as a basis of estimation. The second is that there is little to offer the victims of this form of the disease in the way of therapy. It is not unusual, for instance, to hear the glib statement that patients with bulbar involvement are divisible into but two groups, those who will recover spontaneously without any therapy and those who are so severely afflicted that they will die no matter what form of treatment is applied.

Because our experience on the neurologic and pediatric services of the University Hospitals during the recent epidemic in Minnesota (largest in the United States in 1946) was quite at variance with these views, we wish to call renewed attention to the overall importance of the bulbar form of poliomyelitis, emphasizing in particular the need for earlier recognition of pathognomonic signs and for prompter and more intensive treatment. The incidence of bulbar involvement among the unselected cases of the disease in patients admitted to our special emergency clinic, with or without spinal manifestations, was 23 per cent in children under 16 years of age and even higher in patients beyond this age. That symptomatic treatment can be to some avail in many cases of severe bulbar involvement is indicated in an accompanying paper which deals with therapy. These two communications on the general clinical aspects of the subject will be supplemented by a series of detailed reports to be made by our colleagues, who have investigated different phases of the problem.

SYMPTOMATOLOGIC AND PATHOLOGIC CLASSIFICATION OF BULBAR POLIOMYELITIS

A detailed study of symptomatology as related to special functional disturbances observed during life and pathologic changes found post mortem in fatal cases led to a comprehensive classification, which will be reported elsewhere in detail by two of us.[2] While there is obviously a considerable degree of overlapping between the various categories as far as many individual cases are concerned, early recognition of signs or symptoms on the basis of their site of origin has often proved to be of distinct value in both diagnosis and treatment. For the sake of simplicity in terminology, the word bulbar has been used with some degree of license to denote involvement of the entire brain stem, including the medulla, pons and midbrain.

The classification finally evolved to include all cases of the bulbar form of poliomyelitis was the following: (1) those in which the nuclei of the cranial nerves are involved—(*a*) upper cranial nerve group and (*b*) lower cranial nerve group; (2) those in which the autonomic centers are affected—(*a*) respiratory center group and (*b*) circulatory center group; (3) those in which there is combined bulbar and encephalitic involvement—(*a*) diffuse encephalitic group and (*b*) focal encephalitic group, and (4) those in which bulbar and upper spinal involvement are combined.

1. BULBAR-CRANIAL NERVE NUCLEI GROUP

The clinical symptoms of the group of cases in which the nuclei of the cranial nerves are involved has been long recognized in bulbar poliomyelitis. These symptoms are readily noticed and easily explained. They result predominantly from involvement of the motor nuclei of the cranial nerves.

(*a*) *Upper Cranial Nerve Group.*—The upper cranial nerve nuclei group includes involvement of fifth, sixth, seventh and eighth cranial nerves as well as the ocular nerves. This produces the syndromes known as polioencephalitis superior and polioencephalitis inferior of the older literature.[3] For convenience all the various ocular manifestations of bulbar poliomyelitis have been placed in this group, although some of these manifestations are not related directly to the oculomotor nuclei. Isolated ocular neural palsies as well as total external ophthalmoplegias have been described in poliomyelitis.[4] Pupillary disturbances, including Horner's syndrome and hippus, have also been reported. Apparently any combination of palsies may occur. Although ocular manifestations were not common in the patients seen at the University Hospitals, 1 patient suffered a complete external ophthalmoplegia with bilateral ptosis. His pupillary responses were normal. Choked disk was observed on one occasion in a patient who was in a respirator.

Disturbances of mastication result from damage to the motor portion of the fifth cranial nerve. Palsies of the fifth nerve may be unilateral or bilateral and may involve part or all of the muscles supplied by the fifth nerve. On examination the patient may be unable to close his mouth, but in less severe cases it may be necessary to test the movements against resistance. In unilateral lesions of the fifth nerve the jaw may deviate spontaneously when the patient opens his mouth, while at other times the action of the pterygoid muscles must be tested by sideward deviation of the jaw against resistance. Palsies of the fifth nerve were observed on a few occasions in the patients considered in this paper.

Paralysis of the facial nerve was observed fairly frequently among the poliomyelitis patients. It was observed with sufficient frequency to make it unreliable

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Aided by a grant from the National Foundation for Infantile Paralysis, Inc., to the University of Minnesota Medical School.

Written by Drs Joe R. Brown, A. B. Baker, J. Adams and I. McQuarrie, assisted by Drs J. Bosma, D. Daly, J. Elam, A. Feinstein, C. G. Grulee Jr., G. Gullickson, M M. Hammond, A. Hemingway, G. Holt, W. Kubicek, J. Levin, T C. Panos, W. Schulze, D. Simmons, F. Tichy and M. Visscher as well as interns in the Department of Pediatrics and Neurology, University of Minnesota Medical School.

[1] Wickman, I.. Acute Poliomyelitis (Heine Medin Disease), translated by W. J. M A. Maloney, Nervous and Mental Disease Monograph 16, New York, Nervous and Mental Disease Publishing Company, 1913.

[2] Brown, J. R , and Baker, A. B.: Poliomyelitis: I. Bulbar Poliomyelitis; Neurophysiological Interpretation of the Clinical and Pathological Findings, to be published

[3] Koplik, H.: Prevailing Clinical Manifestations of Poliomyelitis: Cerebral Type, J. A. M. A. **57:** 152 (July 8) 1911.

[4] Posey, W. C , and Swindells, W. C.: The Ocular Complications of Anterior Poliomyelitis, Ophth. Rec. **25:** 609, 1916.

in the differential diagnosis between poliomyelitis and Guillain Barré's disease. At times the entire area of distribution of the facial nerves was involved, and at other times the weakness was limited to the upper or lower part of the face.

Bilateral deafness and also vestibular disturbances have been reported in the literature on poliomyelitis.[5] The only symptoms referable to the eighth nerve observed in the University Hospitals' patients were vertigo and vomiting. These were present in a few instances and were distressing though transient, lasting only twenty-four to forty-eight hours. Nystagmus was observed in several patients.

The involvements of the cranial nerves discussed so far hold no threat to the life of the patient with poliomyelitis. They may, however, be annoying, and the residuals may produce definite handicaps. They are of importance, nevertheless, because they make the physician alert to the possibility of the implication of more vital centers. If the symptoms remain strictly limited to the upper group of cranial nerves the prognosis for life should be good.

(*b*) *Lower Cranial Nerve Group.*—Involvement of the nuclei of the lower cranial nerves, particularly the tenth, affords a definite threat to the life of the patient with bulbar poliomyelitis. This nerve in conjunction with the eleventh and twelfth is essential for consummation of the act of deglutition. Brahdy[6] reviewed the function of deglutition in relation to poliomyelitis and came to the conclusion that swallowing is initiated by movement of the tongue forcing the bolus of food through the isthmus faucium. The mylohyoid muscle then forces the bolus into and through the pharynx, the larynx and nasopharynx being shut off from the pharynx. To accomplish this requires innervation of the soft palate, faucial pillars, vocal cords, elevators of the larynx and depressors of the epiglottis. These functions are subserved by the cranial nerves previously named. Peristaltic movement continues the passage of food down the esophagus. Brahdy described the following four types of difficulty in swallowing in poliomyelitis: regurgitation through the nose, accumulation of food or fluid in the pharynx, regurgitation of food from the esophagus and cough due to failure to shut off the larynx.

Patients with bulbar poliomyelitis may have any of these symptoms from involvement of the lower cranial nerves, especially the tenth. On examination, one notices nasal speech and failure of equal movement of the soft palate. There is puddling of saliva in the throat, the patient being unable to handle his secretions by swallowing. These secretions may be so profuse that one is forced to think of the possibility of excessive secretion of saliva. In some, the voice is hoarse due to paralysis of the vocal cords. Laryngeal stridor may be present. Weakness of the tongue may be unilateral or bilateral and may impair the movement of food through the mouth and impede the expectoration of saliva. Weakness of the sternocleidomastoid and trapezius muscles occurs but is not of much immediate importance. Difficulty in swallowing was the commonest sign of cranial nerve palsy in the group of patients with bulbar poliomyelitis at the University Hospitals. Brahdy[6] recorded difficulty in swallowing in 87 of the 123 cases of bulbar poliomyelitis.

Considerable importance must be placed on lesions of the tenth cranial nerve because, as has been noted, such lesions furnish an immediate threat to the life of the patient with bulbar poliomyelitis. With the inability to swallow there is the constant tendency toward pooling of saliva and food in the pharynx. This accumulation produces an obstruction to the airway. A further threat to the airway results from the aspiration of fluid into the larynx or from reflex spasm of the glottis. Lesions of the tenth nerve may also produce impaired innervation of the vocal cords. This may manifest itself by a warning stridor or by a rapid abductor paralysis of the vocal cords with sudden asphyxia and death. Direct laryngoscopic examination of a patient in such an asphyxial crisis showed the vocal cords to be approximated in the midline.[2] Immediate insertion of a Mosher lifesaving tube in that instance reestablished the airway.

Interference with the airway by the accumulation of fluid in the throat has been combated by postural drainage and by suction. This, however, will not prevent approximation of the vocal cords in the midline. The importance of maintaining an adequate airway is apparent when it is remembered that any period of anoxia, whether acute or chronic, can do irreparable damage to nerve cells which are already suffering from an inflammatory disease. A further complication from occlusion of the upper airway is the production of acute pulmonary edema. The following cases are typical examples of involvement of the nuclei of the lower cranial nerves.

Case 1.—C. S., a boy aged 7 years, was admitted to the University Hospitals on July 31, 1946. The past history was not relevant except for a tonsillectomy which had been performed July 12. Two days before the patient's admission general malaise, nausea, vomiting and fever developed. The day before admission he had difficulty in swallowing, and a nasal twang was noticed when he spoke. Abnormal ocular movements were noted by his mother.

On examination he appeared acutely ill. The cranial nerves were extensively involved. The ocular movements were incoordinated, and a horizontal nystagmus was present to both the left and the right. The mouth could not be opened. The masticatory muscles were tender. Weakness of the right facial muscles was present. He was unable to swallow, and his voice was nasal in character. The tongue would not protrude, and he could not hold up his head. The reflexes in his extremities were normal, and no weakness of the arms or legs was noted. The tremor of his hand was violent, and the neck and back were rigid.

The cerebrospinal fluid contained 149 cells per cubic millimeter, 85 polymorphonuclear and 64 mononuclear. The protein level was 84 mg. per hundred cubic centimeters.

The temperature on admission was 103.2 F. Shortly after admission a large amount of blood-stained mucus was aspirated from the pharynx. However, the color of the patient was good at the time. Restlessness and disorientation developed rapidly. About eight hours after admission the boy was cyanotic and frothy mucus was coming from his nose and mouth. He died suddenly.

At autopsy the lungs were heavy and edematous, the right weighing 350 Gm., the left 250 Gm. There was frothy, orange to pink fluid in the trachea and bronchi. The cut surface dripped edematous fluid. The microscopic examination confirmed the gross observation of massive pulmonary edema.

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[5] Miller, R.: A Case of Relapsing Acute Poliomyelitis Showing Nystagmus with Pathologic Examination, Brain **30:** 117, 1907.

[6] Brahdy, M. B., and Lenarsky, M.: Difficulty in Swallowing in Acute Epidemic Poliomyelitis, J. A. M. A. **103:** 229 (July 28) 1934.

CASE 2.—N. M., a farmer aged 33, first noticed excessive salivation and a mild sore throat about one week prior to his admission to the hospital. During this period, in spite of his malaise, he continued to work and to do the chores around his farm. Two days before admission there developed a severe headache, a backache and a stiff neck. He came to the hospital because of an abrupt appearance of dysphagia and a nasal quality to his speech.

When seen his temperature was 102 F., the pulse rate, 110 and the respiratory rate 24. He was acutely ill. There was an involvement of the fifth and seventh cranial nerves on the right side and a paresis of the ninth and tenth nerves bilaterally. Muscle function was otherwise intact. A spinal puncture revealed 81 cells per cubic millimeter, with 24 polymorphonuclears.

Shortly after his admission hoarseness developed, with increasing difficulty in phonation and swallowing. Saliva was accumulating in the hypopharynx. A tracheotomy was performed to provide an adequate airway, and oxygen was administered through the tracheotomy tube. His temperature dropped slowly. During the next few days, the patient was a little restless and was confused at times. A great deal of mucus was removed by suction through the tracheotomy tube. His cranial neural involvement appeared to remain stationary. By the seventh hospital day he began to swallow a little. The next day he was able to take sips of water. His voice remained hoarse and squeaky. Improvement continued, and on the twenty-third hospital day the administration of oxygen was discontinued. On the twenty-fifth day the tracheotomy tube was removed. The patient was discharged on the thirty-first hospital day, at which time he had completely recovered.

Paralysis of the nuclei of the lower cranial nerves can produce death by occlusion of the airway. The prognosis is good if an adequate airway is maintained and if the pathologic process remains limited to the cranial neural nuclei without involvement of the central autonomic system. Symptoms of such involvement are of serious prognostic import.

2. BULBAR-CENTRAL AUTONOMIC GROUP

It has been frequently observed in the past that patients may have extremely serious forms of bulbar poliomyelitis with only minimal evidence of involvement of the nuclei of the cranial nerves. Several authors [7] have suggested that death in these cases must be due to involvement of vital centers. McMillan [8] has noted a lack of relationship between the temperature and the pulse rate. In some of his patients the temperature rose rapidly as high as 110 F. before death. In others the temperature remained around 102 F. or less, while the pulse rate reached 150 and the respiratory rate was 50 per minute before death. A reference has been noted to an article in a foreign journal [9] on the function of the autonomic nervous system during the acute stage of poliomyelitis. Because of wartime delay of shipping this article is at present unavailable to us. As far as we have been able to determine, the recent communication by Brown and Baker [2] is the first correlation of clinical evidence of disturbed central autonomic function in poliomyelitis with the pathologic lesions and the recent advances in neuroanatomy and neurophysiology. Lesions in the reticular formation have been mentioned previously [10] but without clinical correlation. In the Minnesota poliomyelitis epidemic of 1946 a number of patients were seen with evidence of only mild paralyses of the cranial nerves but with severe disturbances of autonomic functions. These cases were studied clinically and pathologically. The observations have been reported in a recent communication.[2] The cases reported in the following groups are further examples of this correlation.

(*a*) *Bulbar-Respiratory Center Group.*—In our experience, symptoms of involvement of the respiratory center in the medulla have come on a number of days after the onset of pareses of the cranial nerves. The patients in this group have shown some palsies of the cranial nerves and also some evidence of circulatory and encephalitic involvement. However, the outstanding symptoms have been respiratory. During the course of the illness there develop irregularities of rhythm and depth of respiration. Respirations tend to be shallow, and there are prolonged intervals between inspirations. Following this, prolonged periods of apnea occur, and finally respirations cease. These respiratory symptoms have occurred despite strong intercostal muscles and a strong diaphragm. During and previous to the development of respiratory symptoms these patients are extremely anxious and apprehensive. They require frequent reassurance to calm them. There are periods of confusion. These symptoms frequently are caused by a hypoxia and may be present before the appearance of cyanosis. The use of the oximeter may aid in the detection of these early hypoxic states. Ultimately the temperature and pulse rate trend upward. The blood pressure may be elevated or may fall to shock levels terminally. In fatal cases there develops increasing cyanosis which defies attempts at adequate oxygenation. At necropsy there is pronounced hemorrhagic pulmonary edema.

Microscopic examination of the medulla oblongata at the level of the inferior olivary body has shown extensive inflammatory necrosis bilaterally in the ventral reticular substance. Pitts,[11] with Magoun and Ranson,[12] on the basis of stimulation experiments in cats, located the inspiratory and expiratory centers for respiration at the level of the inferior olivary body. The inspiratory center was found to be dominant and was located ventrally in the reticular substance. The expiratory center overlaps the inspiratory center and extends more dorsally and cephalad. The location of the respiratory center in cats corresponds almost exactly with the areas of inflammatory necrosis seen in patients who have died of central respiratory failure. Some patients with less severe symptoms involving the respiratory center recovered but required temporary use of the respirator in some instances. In general, involvement of the respiratory center is of serious prognostic import.

CASE 3.—D. T., a boy aged 13, was admitted to the pediatric service of University Hospitals on Aug. 17, 1946. He had become ill three days previously with sore throat, headache and an elevation of temperature to 101 F. He was listless and tired until the day of admission, when he suddenly began to vomit and his temperature rose to 103 F. At this time a nasal tone of voice was noticed, and he had difficulty in drinking water.

On admission he appeared acutely ill and decidedly lethargic. His blood pressure was 118 systolic and 80 diastolic. Slight weakness of the left facial muscles and paralysis of the right side of the palate with deviation of the uvula was evident. He had difficulty in swallowing and speaking, and large amounts of mucus were present in the posterior pharynx. Examination of the spinal fluid performed at another hospital was reported to have shown 27 mononuclear cells per cubic millimeter.

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[7] A Case of Palatal Paralysis, Cabot Case 18021, New England J. Med. **206**: 88, 1932. Neal, J. B.: Recent Advances in the Diagnosis and Treatment of Acute Poliomyelitis, M. Clin. North America **25**: 677, 1941.

[8] McMillan, M. B.: The Temperature and Pulse in Poliomyelitis, M. Rec. **91**: 204, 1917.

[9] Lundbäk, K.: Experimental Investigations on Functions of Autonomic Nervous System During Acute Phase of Poliomyelitis, Acta med. Scandinav. **114**: 565, 1943.

[10] Sabin, A. B.: Pathology and Pathogenesis of Human Poliomyelitis, J. A. M. A. **120**: 506 (Oct. 17) 1942.

[11] Pitts, R. F.: The Respiratory Center and Its Descending Pathways, J. Comp. Neurol. **72**: 605, 1940.

[12] Pitts, R. F.; Magoun, H. W., and Ranson, S. W.: Localization of the Medullary Respiratory Centers in the Cat, Am. J. Physiol. **124**: 673, 1939; Origin of Respiratory Rhythmicity, ibid. **124**: 654, 1939.

The facial weakness and difficulty in swallowing progressed during the first few hours in the hospital. The boy became nearly aphonic. Six hours after admission a tracheotomy was performed. He continued to be toxic and lethargic. His temperature rose to 106 F. on occasion during the next few days. The blood pressure fluctuated, rising to 150 systolic and 100 diastolic at times. On the fifth hospital day the patient became cyanotic with respiratory distress; oxygen was administered directly into the tracheotomy tube. His respiratory rate was irregular, and he had periods of apnea which lasted for one to three minutes. On the sixth hospital day he ceased breathing. A 25 per cent solution of nikethamide and artificial respirations were used, and irregular respirations were again established. The respirator was used only for the apneic periods, as the patient worked against it when breathing. On the seventh day, he became comatose, the temperature rose to 104 F. and the blood pressure fell to 80 systolic and 50 diastolic. The respirator was used continuously at first, but by the tenth day he could be out at intervals and gradually improved. By the thirteenth day he could take sips of water. The tracheotomy tube was removed on the thirty-fourth day without incident.

On December 13 he still showed left facial paresis and mild palatal involvement, but there were no other residual symptoms of consequence.

(*b*) *Bulbar-Circulatory Center Group.*—Symptoms of involvement of the circulatory center may be seen developing concomitantly with symptoms of palsies of the cranial nerves. In a few instances the circulatory symptoms are the predominant part of the clinical picture and those involving the cranial nerves are minimal.

The clinical symptomatology which results from involvement of the central control of circulation often is quite characteristic. The patient's lips are a deep cherry red, and the skin has a flushed, florid appearance. The pulse rate is extremely rapid, ranging between 150 and 200. It is often irregular and at times difficult to palpate. The blood pressure is low and later becomes unobtainable. The pulse pressure is small even with relatively normal systolic levels. The difference between systolic and diastolic pressure is often as little as 10 mm. of mercury. Terminally the skin is cold and clammy and has a mottled cyanosis. Hyperthermia is noted at that time, and the respirations tend to be shallow. These patients are apprehensive, anxious, restless and confused. The heartbeat is inaudible before respirations cease. Circulatory symptoms of milder intensity are observed in patients classified in the other groups of bulbar poliomyelitis. As long as symptoms referable to the circulatory center are present the prognosis remains guarded.

At necropsy the lungs are the site of severe hemorrhagic pulmonary edema. Sections through the medulla at the level of the inferior olivary body reveal intense inflammatory necrosis bilaterally within the dorsal reticular substance just below the floor of the fourth ventricle.[2] The dorsal motor nucleus of the vagus nerve and the nucleus ambiguus show almost no involvement.

Wang and Ranson [13] conducted experiments in cats using the Horsley-Clarke stereotactic instrument to study the effect of stimulation of the brain stem on blood pressure. They obtained decided pressor responses from the dorsal reticular substance of the medulla just beneath the floor of the fourth ventricle at the level of the inferior olivary body. Depressor responses were more diffuse and were located in the dorsolateral and, to a less degree, the ventromedial reticular substance of the medulla oblongata at the level of the inferior olivary body. They also observed mild pressor responses in the tegmentum of the pons. From this work it seems warranted to consider the dorsal reticular substance of the medulla oblongata at the level of the inferior olivary body an important area in the control of vasomotor responses. This area was the site of intense inflammatory necrosis in patients with bulbar poliomyelitis who died of circulatory collapse. Intact vagal nuclei would seem to rule out the vagus nerve as an essential part of the clinical picture.

Case 4.—Y. L., a white girl aged 16, first became ill Oct. 7, 1946, at which time there developed headache, stiffness of the back and neck and some nausea and vomiting. The following day she noticed difficulty in swallowing and was sent to the hospital by her physician.

On admission the patient revealed only a mild degree of dysphagia, a slightly stiff neck and some weakness of the left deltoid muscle. Her temperature was 104.6 F., and her pulse rate was 24. She was coughing up large amounts of mucus. Because of the bulbar symptoms a tracheotomy was performed shortly after admission. During the next twenty-four hour period, the patient became somewhat more restless. An oxygen-helium mixture was administered through the tracheotomy tube. Her pulse rate gradually rose to 150, and her respirations became slightly shallow. Her blood pressure varied between 108 systolic over 88 diastolic and 30 systolic over a questionable diastolic reading. Toward the end of the second hospital day the patient had become very restless. Her pulse was feeble, rapid and irregular, and her blood pressure was difficult to obtain. In spite of all supportive measures, the respirations became shallow and the patient expired after a twenty-six hour hospital stay.

3. BULBAR-ENCEPHALITIC GROUP

Encephalitic symptoms are not infrequently seen in patients with bulbar poliomyelitis. Lemmon [14] reported cerebral symptoms in 17 of 49 cases he studied. Because of the frequency with which these symptoms are observed in bulbar poliomyelitis, their appearance should lead one to consider a tentative or expectant diagnosis of bulbar poliomyelitis even in the absence of objective evidence of palsies of the cranial nerves. This presumption was usually verified in our cases by the subsequent course of the disease. This was true of the symptoms we have classified in the diffuse encephalitic group but was not as true of those in the focal encephalitic group.

(*a*) *Diffuse Encephalitic Group.*—The following symptomatology is observed frequently among patients with bulbar poliomyelitis and in our experience is universally present among the more severely ill patients. The presence of these symptoms should alert one to the possibility of a bulbar involvement even in the absence of objective signs of cranial neural pareses. These patients show great anxiety and apprehension. They are keenly aware that something serious is wrong with them and frequently feel (often correctly so) that they are going to die. They require repeated reassurance that things are progressing satisfactorily. *Ideas come* to them with unusual rapidity, and *minimal* stimuli produce rapid responses. Some patients comment on the fact that ideas race through their minds. In the motor sphere these patients show quivering, trembling, twitching and jerking of the facial muscles and to a lesser degree of the extremities. The face is flushed and there is a tremor of the hands. All movements are extremely rapid as a part of the general hyperactivity. These patients have a pronounced urgency about getting rid of pharyngeal collection of fluids, about having the pillows rearranged or about having the tracheotomy tube readjusted. Their urgency is indicated by snapping of fingers, quick movements of the head or extremities or sudden sitting up in bed. Many of these patients are unable to sleep and remain awake several days and nights before their hyperactivity subsides. In the fatal cases confusion becomes prominent and is often followed by lethargy, coma and death. At first we considered some of these bulbar patients to be neurotic, but further experience taught us to respect their premonition that things were not going well.

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[13] Wang, S. C., and Ranson, S. W.: Autonomic Responses to Electrical Stimulation of the Lower Brain Stem, J. Comp. Neurol. **71**: 437, 1939.

[14] Lemmon, G. B., Jr.: An Analysis of Forty-Nine Cases of Acute Anterior Poliomyelitis, Pennsylvania M. J. **45**: 1039, 1942.

Prolonged somnolence has been reported by Tilney.[15] This occurred once among the adult patients observed at the University Hospitals, but was more commonly observed in the children.

In many patients, especially those in respirators, a typical toxic confusional state appears about one week after the onset of the illness and lasts about a week. These persons develop fixed ideas and stubbornness *which* gradually merge into paranoid projections about members of the nursing or medical staff. These ideas are occasionally replaced by obvious misinterpretations, hallucinations and irrationality. Contact with reality can be restored in some persons by lighting the room more brightly, by permitting a view of the street outside the window or by a visit from a close member of the family.

Although many patients with bulbar poliomyelitis showed the clinical [illegible] indicative of cerebral involvement, [illegible] actually had inflammatory changes within the cerebral hemispheres. However, it was noticed that the cerebral symptoms would frequently disappear after measures were taken to insure adequate oxygenation of the patient. This was accomplished by tracheotomy, suction or oxygen under positive pressure by mask or tracheotomy. This led to the conclusion that many of the cerebral symptoms seen in bulbar poliomyelitis were secondary to cerebral anoxia rather than to direct involvement of the brain by the virus. In poliomyelitis the common factors that may result in deficient oxygenation of the blood are as follows: obstruction of the air passages by *secretions or* by *paresis* of the vocal cords; failure of the peripheral or central respiratory mechanism; failure of circulation; pulmonary complications, especially atelectasis or hemorrhagic pulmonary edema, and failure of the mechanical devices used in treatment. The appearance of the encephalitic symptoms, therefore, serves as a warning to reexamine these patients for the various causes of anoxia. Persistence of the symptoms despite attempts to improve the oxygenation is of serious prognostic import. The following case is an example of the encephalitic group of bulbar poliomyelitis.

Case 5.—K. M., a man aged 36, first had abdominal pain on Aug. 30, 1946. The following day he noticed malaise, sore throat and anorexia. On Sept. 1, 1946 there developed severe headache, vomiting and some stiffness of the neck and back. The local physician performed a spinal puncture and found 660 cells per cubic millimeter.

On admission his temperature was 102.8 F., his pulse rate 96 and his respiratory rate 18. There was no bulbar or spinal involvement. However, the patient appeared mildly confused. On the second hospital day the patient appeared to have some difficulty in breathing and was placed in a respirator. He became decidedly apprehensive and restless. In spite of apparently adequate oxygenation he soon became completely disoriented. He slept only at short intervals and when awake was *often uncooperative*. He refused to take food and fluids and at *times talked* incoherently for long periods. He complained of diplopia. He appeared to be getting along fairly well when he suddenly became cyanotic and expired.

(b) Focal Encephalitic Group.—Clinical evidence of focal cerebral lesions has been reported on numerous occasions in the literature on poliomyelitis. In addition focal lesions which were clinically silent have been demonstrated pathologically. It seems probable that the focal signs are due to actual inflammatory involvement of the implicated structure. We observed a discrete inflammatory destruction of a considerable portion of the dentate nucleus in 1 patient.

Aphasic disorders have been reported rather infrequently. Nielsen and Von Hagen[16] reported 1 case of visual verbal agnosia due to poliomyelitis. Cerebral motor phenomena have been reported with greater frequency. These include myoclonic jerks as well as grand mal convulsions. In some instances the convulsions have been reported as persisting long after recovery from the acute phase of the disease. Spastic hemiparesis[17] has been reported not uncommonly in the literature. Hydrocephalus has been attributed to acute poliomyelitis.

Among the patients observed at the University Hospitals during the 1946 epidemic there were a few examples of focal encephalitic lesions. In 1 patient there developed ataxia of voluntary movements of the left arm and leg. Several had severe recurring convulsions. Focal complications did not appear frequently enough to warrant any opinion as to their prognostic import. One patient with repeated convulsions died of central respiratory failure.

4. COMBINED BULBAR-CERVICOTHORACIC CORD GROUP

The patients in this combined bulbar-cervicothoracic cord group in addition to their bulbar symptoms required treatment in a respirator because of severe damage to the cervical and thoracic cord, which produced failure of the diaphragm and intercostal muscles. In this combined clinical group there were a considerable number of patients. The prognostic importance of a combined lesion, particularly in adults, is emphasized by the fact that only 5 of these patients survived. In children this combined lesion was not nearly so critical. The most frequent findings at necropsy in this group, aside from lesions of the nervous system, were hemorrhagic pulmonary edema, atelectasis, bronchopneumonia, pulmonary abscess and, in 1, a massive pulmonary embolism.

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[15] Tilney, F.: Poliomyelitis with Prolonged Somnolence, Neurol. Bull. New York 1:7, 1918.

[16] Nielsen, J. M., and Von Hagen, K. O.: Three Cases of Mind Blindness (Visual Agnosia): One [illegible] Occipital Lobes (Autopsy), One Due to Anterior [illegible], One Due to Drugs (Transient), J. Nerv. & M[illegible].

[17] Poynton, F. J.: Case of Polioencephalitis Affecting the Midbrain, Showing Involvement of the Pyramidal and Extrapyramidal Systems, Proc. Roy. Soc. Med. 13:53, 1919-1920.

CASE 6.—W. H., a boy aged 14, was admitted to the pediatric service of the University Hospital on Aug. 9, 1946. He was acutely ill and complained of pain in the neck, extreme weakness, inability to swallow and a nasal voice. There was mucus in his throat in large amounts. His temperature was 103 F.

Examination revealed paresis of the soft palate and a right lower facial weakness. His neck and back were rigid, and the Kernig's sign was bilaterally positive. The knee jerks were absent, but ankle reflexes were normal. His blood pressure initially was 115 systolic and 60 diastolic; it continued to rise until August 12, when it was 180 systolic and 106 diastolic. On this day the patient appeared much worse. The temperature, which had fallen to normal, rose again to 102.6 F. There was evidence of diaphragmatic paralysis, and the boy appeared disoriented. The facial musculature was weak on the right side, with partial involvement on the left. The sternocleidomastoid muscles were decidedly involved bilaterally. This boy was intelligent and cooperative and was able by postural drainage and suction to handle the fluids in his throat. Although use of the respirator was seriously considered on several occasions, it never became necessary. The blood pressure gradually fell. By the seventh hospital day it was 150 systolic and 90 diastolic, and by the eleventh day it had returned to 110 systolic and 80 diastolic. He recovered comparatively rapidly. On his fifteenth hospital day he took 2,160 cc. of fluids orally without choking.

SUMMARY

1. Bulbar poliomyelitis is not a single clinical entity but can be divided into a number of clinical groups, depending on the region of the medulla which is involved by the pathologic process.

2. The most frequently recognized form of bulbar poliomyelitis consists of involvement of the nuclei of the cranial nerves. Only destruction of the tenth cranial nerve furnishes an immediate threat to the life of the patient by producing an obstruction to the airway and subsequent asphyxia.

3. When the autonomic centers within the medulla are injured in poliomyelitis, symptoms of respiratory or circulatory failure result, even in the absence of severe cranial neural, intercostal or diaphragmatic paralysis.

4. Clinical symptomatology indicative of cerebral involvement is common in bulbar poliomyelitis. These symptoms usually are caused by anoxia and clear up after adequate oxygen therapy.

The Chemical Mediation of Nerve Impulses.—The studies of Loewi, Dale, Cannon and others have firmly established the validity of the concept of the chemical mediation of nerve impulses. It is now generally accepted that the effects of the somatic and parasympathetic nervous systems are produced by the liberation at the nerve endings of acetylcholine. This substance is quickly destroyed by cholinesterase, an enzyme present in the blood and tissue fluids. The effects of postganglionic sympathetic nerve impulses are the result of the liberation at the nerve terminals of epinephrine. The clinical implications of these findings are emphasized by the fact that in at least one disease, namely myasthenia gravis, the primary dysfunction may be attributed to interference with the mechanism of acetylcholine activity.—Bloomfield, Sylvan: Relative Deficiency of Parasympathomimetic Activity in Aqueous of Eyes with Chronic Simple Glaucoma, *Arch. Ophth.*, May 1947.

PENICILLIN INHALATION THERAPY IN RESPIRATORY INFECTIONS

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Therapeutic aerosols with oxygen flows may be administered for topical therapy of the respiratory tract or for rapid systemic effect through absorption from the tremendous inner surface area of the lung. It has been demonstrated in animals[1] and in man[2] that inhalational material may be uniformly distributed and penetrates the outermost air sacs of the lungs. It is thus possible to obtain high local concentrations with varying blood levels via the "pulmonary route."

Continuous aerosolization with oxygen of bronchodilator, vasoconstrictor and chemotherapeutic agents has been employed in patients with asthma, pulmonary emphysema, pneumonia, gas poisoning and other types of bronchopulmonary diseases.[3] The specific advantages of penicillin over the sulfonamide compounds suggested its superiority as an aerosol[4] in the treatment of serious disease of the respiratory tract.

The physiologic rationale of penicillin aerosol therapy has been well established. Bryson and his colleagues[4d] demonstrated that penicillin aerosol penetrated the lungs, diffused into the blood stream and was excreted into the urine. Barach and his associates[5] confirmed

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Dr. Claire M. Ryder, Dr. William H. Ainslie and Dr. William G. Duprey cooperated in this work.

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Read before the Section on Internal Medicine at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

This paper has been abbreviated on account of lack of space. The complete paper, including summary and case histories, can be found in the authors' reprints.

[1] Krueger, A. P., and others: The Prophylaxis and Treatment of Experimental Influenza by Inhalation of Immune Serum, Federation Proc. **2:** 101, 1943; The Inhalatory Route for Prophylaxis and Treatment of Experimental Influenza: I. The Distribution of Inhaled Material; II. Immune Serum in Prophylaxis and Treatment, Am. J. M. Sc. **207:** 40-60, 1944

[2] Mutch, N., and Hoskins, H. L.: Inhalation of Chemotherapeutic Substances, Lancet **2:** 775-780, 1944.

[3] (*a*) Richards, D. W., Jr.; Barach, A. L., and Cromwell, H. A.: Use of Vaporized Bronchodilator Solution in Asthma and Emphysema: Continuous Inhalation Method for Severe Asthmatic States, Am. J. M. Sc. **199:** 225-232, 1940. (*b*) Barach, A. L.: Principles and Practice of Inhalation Therapy, Philadelphia, J. B. Lippincott Company, 1944. (*c*) Segal, M. S.: Inhalation Therapy in Treament of Serious Respiratory Disease, New England J. Med. **229:** 235-241, 1943. (*d*) Segal, M. S.: Inhalation Therapy in Treatment of Serious Respiratory Disease, ibid. **229:** 235-241, 1943; Inhalation Therapy, ibid. **230:** 456-465 and 485-493, 1944. (*e*) Segal, M. S., and Aisner, M.: Management of Certain Aspects of Gas Poisoning with Particular Reference to Shock and Pulmonary Complications, Ann. Int. Med. **20:** 219-227, 1944.

[4] (*a*) Segal, M. S., and Ryder, C.: Penicillin Aerosol in the Management of Lobar Pneumonia, Bronchiectasis, Lung Abscess and Infective Bronchial Asthma, Bull. New England M. Center **7:** 279-286, 1945; (*b*) Penicillin Aerosolization in the Treatment of Serious Respiratory Infections: Preliminary Report, New England J. Med. **233:** 747-756, 1945. (*c*) Segal, M. S.: *Progress in Inhalation Therapy*, Mod. Med. **14:** 63-79, 1946. (*d*) Bryson, V.; Sansome, E., and Laskin, S.: Aerosolization of Penicillin Solution, Science **100:** 33-35, 1944. (*e*) Barach, A. L.; Oppenheimer, E. T., and Forman, J.: Inhalation of Penicillin in Bronchopulmonary Infection, News Letter, A. A. F. Rheumatic Fever Control Program, 1945, vol. 2, pp. 10-21.

[5] (*a*) Barach, Oppenheimer and Forman.[4e] (*b*) Barach, A. L.; Silberstein, F. H.; Oppenheimer, E. T.; Hunter, T., and Soroka, M.: Inhalation of Penicillin Aerosol in Patients with Bronchial Asthma, Chronic Bronchitis, Bronchiectases and Lung Abscess: Preliminary Report, Ann. Int. Med. **22:** 485-509, 1945. (*c*) Eckman, M.; Rumsey, C. C., Jr.; Barach, B., and Barach, A. L.: Demand Apparatus for Automatic Delivery of Aerosols During Inspiration, J. Lab. & Clin. Med. **30:** 608-610, 1945. (*d*) Barach, A. L.; Garthwaite, B.; Soroka, M., and Anderson, F. F.: An Apparatus for the Introduction of Penicillin Aerosol into the Nasal Accessory Sinuses with a Case Report of a Patient with Chronic Sinusitis, Ann. Int. Med. **24:** 97-103, 1946.

these observations in a group of patients with bronchopulmonary disease and developed the proper equipment and technic for penicillin aerosol therapy. In their detailed investigation of the fate of aerosols in the lungs Mutch and his colleagues[6] demonstrated the efficacy of aerosol therapy. They suggested the use of penicillin aerosol for the management of purulent bronchitis and bronchiectasis and as a prophylactic against the secondary pyococcic infection in influenza. Knott and Clark[7] carried these studies further. They demonstrated effective bacteriostasis in closed chambers and suggested a technic for the control of air-borne infections. Other investigators[8] have employed penicillin with encouraging results in the management of pulmonary infections. In most cases effective therapeutic levels in the blood and good topical effects have been obtained.

The present report concerns itself with a summary of our findings in the use of penicillin aerosol in the treatment of 118 patients with bacterial pneumonia, infective bronchial asthma, bronchiectasis, purulent sinusitis, pulmonary abscess, infective laryngotracheobronchial edema and chronic pulmonary emphysema.

TREATMENT AND TECHNIC

The maintenance of a constant high level of penicillin in the blood is not essential in purely local pulmonary infections without bacteremia. Topical penicillin levels can best be attained by administering concentrated doses six times daily. In patients with toxemia or septicemia additional doses, administered intramuscularly five or six times daily, may help in producing blood levels sufficiently high to clear the blood stream of bacteria. Infections of the lung, occurring as they usually do in well vascularized soft tissues, generally respond to concentrations of penicillin which are completely ineffective in the relatively avascular hard tissues.

The patients with pneumococcic pneumonia were treated for three to seven days; those with bronchiectasis or pulmonary abscess for seven days prior to surgical treatment or for six weeks for purely medical therapy; those with infective bronchial asthma, from three days through three weeks; those with streptococcic or staphylococcic pneumonia complicated with formation of abscess, generally for a minimum of three or four weeks. The other patients were treated until there was no further evidence of infection and the penicillin-susceptible organisms were eradicated.

The sodium or calcium salt of penicillin was used. Generally 25,000 units of penicillin were dissolved in 1.0 cc. of isotonic solution of sodium chloride and given at three hour intervals for six to eight doses daily. The patients with pneumococcic pneumonia generally received 25,000 units at two hour intervals for six doses and then at three hour intervals thereafter. The patients with the more serious types of pneumonia and pulmonary abscesses received 50,000 units in 2.0 cc. of isotonic solution of sodium chloride. Those with acute or chronic sinusitis were treated with the 25,000 unit dosage. We found these patients able to take with complete tolerance 50,000 or even 100,000 units in 2.0 cc. of isotonic solution of sodium chloride via the nasal route.

In our earlier series[9] of cases we observed no systemic, toxic or allergic manifestations. However, more recently[10] we have observed local and generalized manifestations which consisted of edema of the lips or mucosa of the mouth and, in several instances, the development of a generalized urticaria. The local reactions generally cleared up after changing to another type of penicillin. The urticaria of 1 patient cleared up promptly when treatment ceased and did not return later when a different lot of penicillin was used. In a recent case with complicating urticaria we were able to continue with the same lot of penicillin by adding diphenhydramine hydrochloride ("benadryl hydrochloride" N. N. R.) orally. This new synthetic antihistamine agent apparently was of value.

The apparatus generally used in our studies was the basic "vaponefrin nebulizer" enlarged to a 2 liter size to permit the utilization of the expired penicillin. This nebulizer produced a fine voluminous mist or smoke screen with a particulate size of most of the molecules of less than 1 micron. A piece of rubber tubing connected the nebulizer with a regulator attached to an oxygen tank. Oxygen flows of 5 to 7 liters were generally sufficient to aerosolize 1.0 cc. of the penicillin solution in approximately fifteen minutes. To avoid loss of the drug in expiration, a glass Y tube, or simple opening, was placed just proximal to the inlet of the nebulizer. The patient or nurse was instructed to close the open end with one finger on inspiration and to remove the finger on expiration. With this technic the oxygen by-passed the nebulizer in the expiratory phase of respiration and no penicillin was lost through the carburetor opening of the nebulizer. Occasionally an Emerson demand valve system was attached. This had the advantage of automaticity and did not require the patient's cooperation with the Y tube. This was of particular value in the seriously ill patients.

For those patients unable to use the above technic the O. E. M. mask can be incorporated. The oxygen entrance tube may then be closed off. Infants and small children can best be treated in enclosed plastocele hoods or in specifically constructed closed chambers utilizing the basic nebulizer and oxygen flows as described.

The basic "vaponefrin nebulizer" can also be attached to the tracheotomy tube whenever topical penicillin aerosol therapy is desired in tracheotomy cases. We found this of particular value in 2 patients with acute laryngotracheobronchial edema characterized by pronounced cyanosis and inspiratory retraction. These patients were moribund at the outset of therapy. For these patients instead of using oxygen we have introduced a mixture of 75 per cent helium and 25 per cent oxygen directly through the nebulizer. One cubic centimeter of "vaponefrin inhalant" (a solution of synthetic racemic epinephrine hydrochloride) was aerosolized just preceding the penicillin aerosol for the relief of bronchospasm. This technic may prove to be of life-saving value in patients with laryngotracheobronchial obstructive disease.

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[6] Mutch and Hoskins.[2] Mutch, N., and Rewell, R. E.: Penicillin by Inhalation, Lancet **1**: 650-652, 1945.

[7] Knott, F. A., and Clark, W. H.: Absorption of Aerosol Penicillin via the Lungs, Lancet **1**: 468-469, 1945.

[8] Olsen, A. M.: (*a*) Nebulized Penicillin: Preliminary Report of Its Role in the Management of Surgical Bronchiectasis, Proc. Staff Meet., Mayo Clin. **20**: 184-194, 1945; (*b*) Streptomycin in the Treatment of Chronic Bronchiectasis: Preliminary Report, *ibid.* **21**: 53-54, 1946. (*c*) Hagens, E. W.; Karp, M., and Farmer, C. J.: Inhalation Method for Penicillin Therapy: Preliminary Report, Arch. Otolaryng. **41**: 333-336 (May) 1945. (*d*) Vermilye, H. N.: Aerosol Penicillin in General Practice, J. A. M. A. **129**: 250-257 (Sept. 22) 1945. (*e*) Hanks, R. J.: Nebulized Penicillin in Treatment of Respiratory Infections, Texas State J. Med. **41**: 253-254, 1945. (*f*) Engelsher, D. L.: Aerosol Penicillin, Correspondence, J. A. M. A. **134**: 61 (May 4) 1946. (*g*) Finke, W.: The Use of Penicillin Aerosol in Respiratory Infections, Bull. M. Soc. County of Monroe, New York **3**: 386-393, 1946.

[9] Segal and Ryder.[4a,b] Segal.[4c]

[10] Segal, M. S., and Ryder, C. M.: Progress in Penicillin Inhalation Therapy, address before the Massachusetts Medical Society, May 21, 1946; New England J. Med. **236**: 132-138, 1947.

LEVELS OF PENICILLIN IN THE BLOOD

Absorption of penicillin from the pulmonary tree into the blood stream was demonstrated by the effective levels of penicillin in the blood, which ranged from 0 015 to 0 225 unit per cubic centimeter in one hundred and eighteen determinations. Generally higher levels were obtained in those with extensive pulmonary involvement of a pyogenic type, that is, those with pneumonia or pulmonary abscess. Peak levels were observed at the end of one half hour, and in some cases they persisted for as long as two hours. Higher levels in the blood were obtained with the higher doses The absorption of penicillin into the blood stream is not necessarily a measure of the topical effectiveness of penicillin aerosol. The levels will vary according to the individual breathing pattern, equipment, dosage and type of penicillin, absorption variations of accumulated pus and secretions and, finally, the technic for the determination of the penicillin levels. In most of the cases the determination of levels in the blood is more of academic interest than of practical value. The clinical course is sufficient proof of the topical effectiveness of penicillin aerosol and is best demonstrated in the patients with pneumonia and pulmonary abscess.

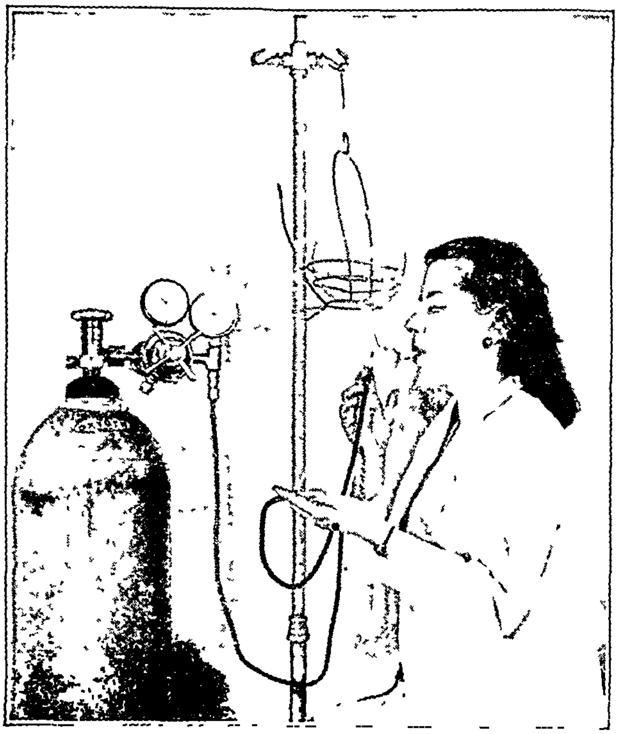

Fig 1 —Penicillin aerosol apparatus suspended from a clysis stand The "Vaponefrin" nebulizer (Vaponefrin Company) with a 2 liter rebreathing glass bulb, Y tube for controlling the flow of oxygen only and rubber tube connection to the oxygen regulator

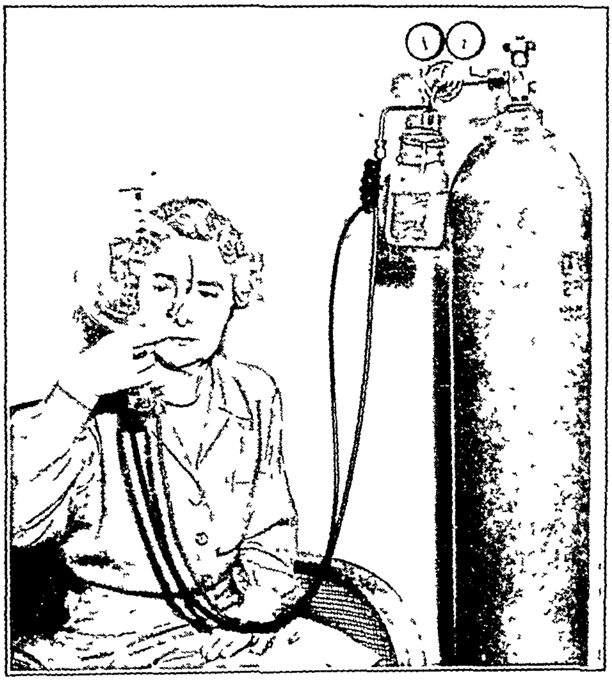

Fig 2 —Penicillin aerosol rebreathing apparatus with humidifier and Emerson demand valve (J. H. Emerson Company) to supply aerosol on inspiration only The apparatus is most suitable for the sickest patients

We[10] compared the levels of penicillin in the blood in a series of normal subjects[21] receiving 50,000 units of penicillin-saline aerosol and, at a later time, 50,000 units of penicillin and 1 per cent "neo-synephrine" aerosol. The average curve obtained with the penicillin and "neo-synephrine" aerosol appeared slightly lower than the one obtained with penicillin-saline aerosol, particularly at one half and at one hour. This may be interpreted as indicating that "neo-synephrine" delays the absorption of penicillin through the pulmonary tree. We are carrying these studies further. A therapeutic agent which could achieve greater topical efficacy and less systemic effect would prove of considerable value in combating chronic pulmonary disease.

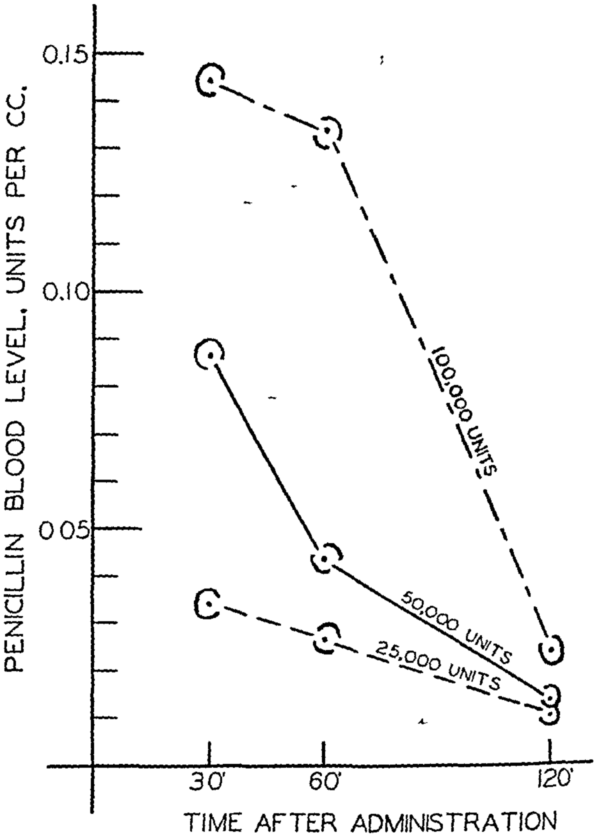

Fig 3 —Levels of penicillin in the blood after administration of penicillin aerosol; thirty seven trials

PNEUMONIA

Observations in this group definitely proved the topical bacterial effectiveness of penicillin aerosol on the organisms in the bronchial mucosa and alveoli and can serve as the pharmacologic rationale for its subsequent use in suppurative pulmonary disease. We believe that these are the first cases of bacterial pneumonia in which treatment was with penicillin aerosol.

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[21] This work was aided by a grant from Frederick Stearns & Company.

Wilson and his colleagues[11] recently demonstrated the effectiveness of penicillin aerosol in experimental type I pneumococcic pneumonia in rats. Somewhat better results were obtained from inhalation than from intramuscular injections of the smaller dose of penicillin (250 units per dose), while with the larger dose (500 units per dose) there was no difference in the percentage of survivals.

We obtained clinical cures in 11 patients with pneumococcic pneumonia and in 1 patient with an acute pulmonary infarct and pneumonitis. The response was striking. Their clinical charts returned to normal promptly, they felt fine throughout treatment, and no complications were encountered. The sputum became negative on the second or third day and remained so at time of discharge six to ten days after hospitalization. The case histories of the first 6 patients appear on figure 4.

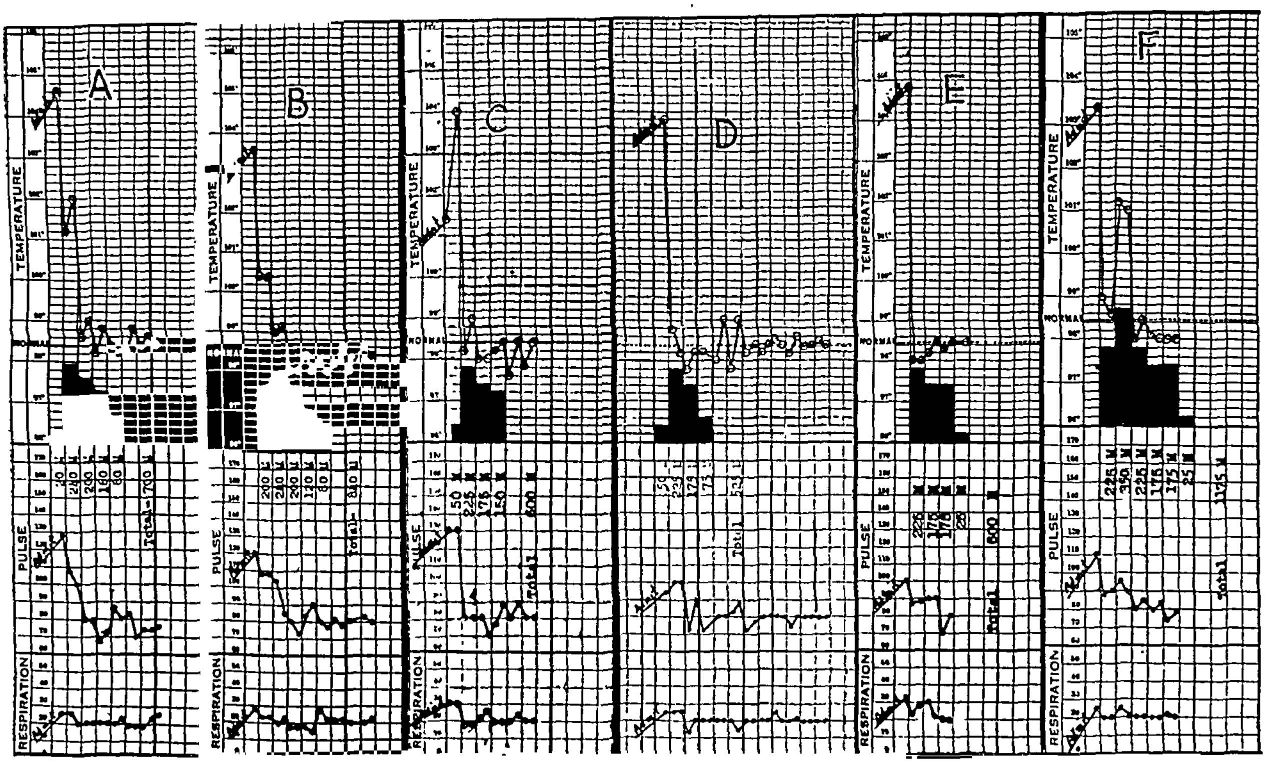

Fig. 4.—Patient A was a 34 year old woman with type 4 pneumococcic pneumonia of the lower lobe of the left lung. Patient B was a 26 year old woman with type 12 pneumonia of the lower lobe of the left lung. Patient C was a 16 year old girl suffering from type 33 pneumonia of the lower lobe of the left lung. Patient D was a 68 year old woman with pulmonary infarct and acute pneumonitis. Patient E was a 24 year old woman suffering from type 1 pneumococcic involvement of the lower lobe of the left lung. Patient F was a 39 year old man suffering from type 1 pneumococcic pneumonia in both the lower lobe of the left and the upper lobe of the right lung.

We do not advocate penicillin aerosol for the routine therapy of patients with pneumococcic pneumonia. The simpler procedures employing the sulfonamide compounds or penicillin are preferable. However, for the management of streptococcic and staphylococcic pneumonia and pneumonia due to penicillin-susceptible strains of Friedländer's bacillus, we are of the opinion that penicillin aerosol therapy is more effective than parenteral therapy alone. Combined aerosol and intramuscular therapy may be employed in patients who are seriously ill, particularly patients with septicemia.

Fullerton and Shane[12] recently reported their observations with penicillin aerosol in 14 patients with bronchopulmonary disease. They confirmed our previous observations[13] and reported dramatic improvement in 3 patients with pneumococcic pneumonia.

For patients with staphylococcic pneumonia the therapy should be continued for at least one week after all the clinical and roentgenographic signs of infection have subsided. As these lesions tend to become fibrosed and walled off, protracted therapy is advisable to insure complete eradication and to prevent exacerbations and formation of abscesses.

In order to control pneumonia due to penicillin-susceptible strains of Friedländer's bacillus we have employed massive doses of 100,000 units at three hour intervals in 2 such patients. In 1 of these patients a blood level of 0.250 unit of penicillin per cubic centimeter was obtained one half hour after the inhalation of 100,000 units. In both these patients the organisms rapidly disappeared and remained absent during the course of therapy. In 1 of these patients, however, the organisms recurred, although the patient remained symptom free for some time after discontinuance of therapy.

It appears from the literature that streptomycin may prove of value in infections of the lungs with Friedländer bacillus, Hemophilus influenzae and tubercle bacilli. The combined intramuscular and aerosol routes may prove most efficacious in such cases. Durant and his colleagues[14] reported on the remarkable effectiveness of streptomycin therapy in 3 patients with type B H. influenzae pulmonary infections. The intrabronchial route of administration alone was effective in 2 cases with chronic suppurative disease. In a third case, of extremely acute bilateral suppurative pneumonitis, the combined intramuscular and intrabronchial routes were used most effectively. A recent case report from the Mayo Clinic[15] described a rather remarkable cure of isolated laryngeal tuberculosis with parenteral and aerosol administration of streptomycin. Our own experience has been limited to 2 patients with bronchiectasis due to gram-negative Friedländer organisms in whom streptomycin-resistive strains rapidly appeared which could not be eradicated despite tremendous doses. We have not observed the appearance of penicillin-resistive strains in our cases in which penicillin aerosol was used. The evidence so far available suggests that except for staphylococcic infections penicillin resistance will probably not be of any great clinical importance. The possible appearance of streptomycin-resistive strains with aerosol therapy should be taken into consideration before instituting such therapy. Unfortunately, streptomycin also has toxic potentialities which may possibly be attributed to the impurities now present in many commercial preparations. Serious and fatal histamine-like reactions and damage to the eighth nerve in human beings, and delayed fatty infiltration of the kidneys in animals, have been observed. These difficulties will no doubt become minimized with more careful control of the production of streptomycin.

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[11] Wilson, C. E.; Hammond, C. W.; Bryne, A. F., and Bliss, E. A.: The Control of Experimental Pneumonia with Penicillin: I. Comparison of Inhalation and Injection Therapy, Bull. Johns Hopkins Hosp. **77:** 411-421, 1945.

[12] Fullerton, C. W., and Shane, S. J.: The Treatment of Acute and Chronic Pulmonary Disease with Penicillin Aerosol, Canad. M. A. J. **54:** 535-539, 1946.

[13] Footnotes 4b and 10.

The case histories[16] and clinical charts of the first 6 patients with pneumonia treated with penicillin-aerosol appear on figure 4.

INFECTIVE BRONCHIAL ASTHMA

A course of penicillin aerosol lasting from three days to three weeks was given to 22 patients with severe chronic infective bronchial asthma. The penicillin-susceptible organisms promptly disappeared and in most cases remained absent during hospitalization. We found such therapy generally disappointing in these patients, although striking improvement was occasionally observed. In these patients the proper control of the primary bronchial infection with intramuscular administration of penicillin and oral administration of sulfonamide drugs has proved equally disappointing. Engelsher[8f] recently commented briefly on his observations in 74 cases of bronchial asthma, stating that he found it of questionable value in a small percentage and of no value in the majority of cases of bacterial asthma. Most of our patients observed, however, that they were able to raise sputum more easily while getting the penicillin aerosol. Many objected to the taste and irritating qualities of the aerosol. The danger of local or generalized allergic reaction to penicillin aerosol in the asthmatic group must always be kept in mind. Most of the local and urticarial reactions which we have observed have been in patients with bronchial asthma or bronchiectasis. We have recently observed the onset of mild bronchial asthma in 2 patients receiving penicillin aerosol therapy for the management of chronic bronchitis and emphysema and in 2 patients with bronchiectasis. The patients were free of asthma before these attacks. The attacks subsided promptly when inhalations of epinephrine were given after the penicillin aerosol had been discontinued.

One of our most striking remissions was observed in a patient with chronic intractable bronchial asthma who was treated in the Barach rebreathing hood apparatus with mixtures of 75 per cent helium and 25 per cent oxygen under positive pressure. In addition the penicillin aerosol was introduced directly into the hood apparatus. Marked clinical improvement occurred after several days of such therapy. However, it was rather difficult to evaluate the specificity of penicillin aerosol therapy in this particular case, for we have made similar observations in many patients who were being treated with helium and oxygen under positive pressure without penicillin aerosol.[3c, d]

BRONCHIECTASIS

A series of 42 patients with chronic bronchiectasis were treated with penicillin aerosol. Eight of the patients had subsequent surgical treatment. Most of the patients received an initial course of therapy of at least six weeks and subsequently returned for an additional seven days of therapy at three to six month intervals. Postural drainage was carried out just prior to each treatment. Several of these patients continued to take penicillin aerosol therapy once daily at home throughout this period of time. We have found this procedure most effective in preparing the patient for operation and in preventing postoperative infections. Defervescence, lessening of toxicity, diminution in the amount of daily sputum, loss of its foul character, rapid disappearance of the penicillin-susceptible organisms, improvement in the patient's appetite and gain in weight were uniformly observed. Considerable improvement was observed in the bronchograms of several patients with involvement of a single lobe. This therapy was most helpful in the control and prevention of pneumonitis, which recurs in many patients with bronchiectasis. It was also of value in those patients who were considered to be unsuitable for lobectomy or pneumonectomy or who refused to undergo such procedures.

We are ever mindful that the anatomic changes accompanying bronchiectasis are generally permanent ones and cannot be changed by any type of therapy save resection. These patients are subject to repeated episodes of infection, pneumonitis or involvement of other lobes. The mucosal secretions in bronchiectasis largely result from the structural changes in the endothelial lining of the small bronchioles. Invasive organisms contribute by further destruction of the bronchioles. Infection can be eradicated or eliminated by penicillin aerosol. We are in full agreement with Olsen[8a, b] that it thus becomes the ideal therapy for preoperative and postoperative cases.

Many of our patients had previously received courses of penicillin administered intramuscularly and sulfonamide drugs given orally without the striking effects obtained from penicillin aerosol therapy. The vital capacities of most of these patients increased from 30 to 40 per cent above the levels before aerosol therapy and have remained fairly constant at the improved figure. Penicillin aerosol therapy can easily be carried out in the patient's home under supervision.

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[14] Durant, T. M.; Sokalchuk, A. J.; Norris, C. M., and Brown, C. L.: Streptomycin Therapy in Hemophilus Influenzae Pulmonary Infections, J. A. M. A. **131**: 194-196 (May 18) 1946.

[15] Figi, F. A.; Hinshaw, C. H., and Feldman, W. H.: Treatment of Tuberculosis of the Larynx with Streptomycin: Report of Case, Proc. Staff Meet., Mayo Clin. **21**: 127-130, 1946.

[16] These histories were previously published in full.[4b]

The penicillin-susceptible organisms uniformly disappeared from the sputum under such therapy. Frequently we observed the appearance of gram-negative organisms which were refractive to penicillin aerosol therapy. A recent report by Olsen[8b] demonstrated the value of streptomycin aerosol in 9 patients with whom penicillin aerosol therapy had failed. He employed doses of 500,000 units in 20 cc. of isotonic solution of sodium chloride per day by nebulization. The streptomycin-susceptible organisms were uniformly eradicated and a reduction in the volume of sputum followed immediately. Our experience with streptomycin aerosol has been limited to 2 patients with gram-negative Friedländer organisms. In our first trial with this drug the streptomycin-susceptible organisms rapidly disappeared when 100,000 units at three hour intervals were employed, but returned after several days of therapy. We then found it necessary to increase the dose. After a while the organisms became more resistive and could not be eradicated despite tremendous doses. The possible appearance of streptomycin-resistive strains with aerosol therapy should be taken into consideration before instituting such therapy. Also the practical usefulness of the drug may be limited by its possible toxicity, the appearance of resistive strains and its cost.

SINUSITIS[17]

In evaluating a preliminary report such as this clinical study of penicillin aerosol in the treatment of sinusitis one must be careful to diagnose whether the sinusitis be acute, subacute or chronic. Of the 18 cases thoroughly studied clinically and by roentgen rays there were 9 cases of chronic sinusitis complicated by bronchiectasis, 5 cases of chronic sinusitis uncomplicated by pulmonary disease and 4 cases of acute sinusitis. Most of the patients classified as having chronic sinusitis with bronchiectasis had previously had radical sinus operations and subsequent reinfection. The patients with acute sinusitis had previously had local therapy, including penicillin administered intramuscularly, without much satisfactory progress.

After an examination of the nasal passages of a patient having sinusitis with edema of the nasal mucosa it is not difficult to realize the problem of getting any substance, whether in the form of a fluid or a mist, through the edematous ostiums and into the respective sinuses despite shrinkage of the passages with vasoconstrictor drugs. Theoretically one must be reminded of the obstacle offered by the turbinates as baffle plates in disturbing the inflow of the penicillin aerosol. The presence of secretions in the nose also acts as an obstacle in preventing absorption and utilization of the penicillin aerosol.

At the onset of the study it was felt that if penicillin could be brought to all the sinuses in greater concentration and kept there for longer periods of time a more beneficial result could be obtained. Studies were therefore undertaken to determine whether penicillin actually found its way into the sinuses by way of the ostiums or whether it was brought to the sinuses through other channels. Certain radiopaque aqueous substances such as "skiodan" N. N. R. and "diodrast" N. N. R., ranging in concentration from 10 per cent to 60 per cent, were aerosolized into the nasal passages. Immediate follow-up roentgenograms showed that radiopaque material had not found its way into the sinuses. This experiment, simple as it was, seems to imply that penicillin gets into the sinuses by way of the veins and lymphatics from the mucosal lining of the nose rather than by way of the ostiums.

The procedure followed in the treatment and study of the patients included follow-up cultures of the nose, throat and sputum and roentgenograms of the sinuses and chest before and at the conclusion of the treatment. In the early days of the study 16,000 units of penicillin in 2.0 cc. of isotonic solution of sodium chloride were given every three hours except at 3 a. m. Later this was increased to 25,000 units every three hours. "Neo-synephrine hydrochloride" N. N. R., 0.25 per cent, was utilized as the shrinking agent before treatment in most cases. If pulmonary disease was present the nasal inhalations preceded the oral inhalations.

Two case histories follow:

Case 1.—The patient, aged 19, had been given a diagnosis of bilateral chronic pansinusitis with subacute exacerbation. Since the age of 4 she had had almost no sense of smell. She had had frequent exacerbations with innumerable local treatments. Prior to her admission to the hospital the patient had had a fresh exacerbation which persisted for weeks despite local treatments and instillation of penicillin directly into the nose after shrinking and suction. Cultures taken from the nose and throat before treatment showed hemolytic streptococcus, group A, and coagulase-positive hemolytic Staphylococcus aureus. After four days of penicillin aerosol therapy only, preceded by nasal shrinkage and with one daily postnasal wash, the thick purulent nasal discharge became mucoid and disappeared completely on the fifth day. For the first time in years her sense of smell returned. A subsequent check-up revealed no purulent secretions in the nose and pronounced subjective and objective improvement. A culture taken one week after the beginning of the treatment showed the absence of the originally noted virulent organisms.

Summary of Cases of Bronchiectasis

42	Total treated
8	Subsequent operation—no postoperative complications
14	Considered unsuitable for operation—multiple lobe involvement—temporary clinical improvement in hospital—diminution in amount of sputum and in cough—recurrence in most of these cases within one to six months
20	Purely medically managed; involvement of one or two lobes, mostly lingula; marked clinical improvement in 14 cases and remission for as long as a year and a half in 2 cases; no recurrence of pneumonitis in 6 cases under observation for as long as nine months; failure to get a lasting remission in 6 cases for longer than three to five months; repeated courses of therapy necessary in this group
Reactions	Two patients had their first attacks of bronchial asthma; 2 patients had severe generalized urticaria; 4 patients had temporary stomatitis and sore tongue

PULMONARY ABSCESS

We have employed penicillin aerosol therapy in a series of 11 patients with pulmonary abscesses. Seven patients with the aerobic nonodoriferous, postpneumonic type of pulmonary abscess recovered completely. Two patients with the anaerobic, putrid type failed to respond and subsequently recovered with surgical drainage. A third patient with a fulminating putrid pulmonary abscess failed to respond to penicillin aerosol therapy and died shortly after surgical intervention. One patient with a chronic putrid pulmonary abscess was prepared for lobectomy by penicillin aerosol and made an uneventful postoperative recovery. Our observations have impressed us with its value in the aerobic, nonodoriferous, postpneumonic type of pulmonary abscess. Results with the anaerobic, putrid, atelectatic types were disappointing. Doses of 50,000 units of penicillin given at three hour intervals were usually adequate. Postural drainage was generally carried out prior to each treatment. In the cases of more toxic and putrid disease we employed simultaneously 25,000 units of penicillin intramuscularly. Therapy was continued for at least four weeks. With an effective program of penicillin aerosol therapy it is possible to avoid operation in most of these cases. The occasional intrabronchial instillation of penicillin or streptomycin, depending on the organisms cultured, may also be of tremendous aid in aborting surgical treatment. In most of our cases cure was further confirmed by bronchograms by means of iodized poppy-seed oil 40 per cent. Treatment was employed for a minimum of four weeks and for a maximum of ten weeks. A report of 1 of our cases follows. Detailed case histories may be found in our earlier papers.[13]

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[17] This work was carried on at the Massachusetts Eye and Ear Infirmary.

One typical patient presented a clinical picture of extreme toxicity associated with a postpneumonic pulmonary abscess. The odor of his sputum was extremely foul. A course of penicillin aerosol for five weeks produced a clinical cure. A bronchogram by means of iodized poppy-seed oil 40 per cent then revealed a small residual cavity, presumably in the lingula. An additional ten days' course of therapy completed the cure.

ACUTE LARYNGOTRACHEOBRONCHIAL EDEMA

Six patients with acute laryngotracheobronchial edema associated with serious infection were treated with penicillin aerosol. The first 3 patients were moribund at the outset of therapy. The conventional methods of employing sulfonamide drugs, penicillin given parenterally and oxygen therapy by catheter, mask and tent had been tried with little benefit. Dramatic improvement was observed as soon as the inhalation program was instituted. Mixtures of 75 per cent helium and 25 per cent oxygen were employed in these patients because of the evidence of localized inflammatory narrowing of the upper part of the laryngotracheal tree. It was the opinion of the many observers that the recovery of these 3 patients could be directly attributed to the therapy described. The other 3 patients were treated with oxygen flow and responded remarkably well. We have observed the most spectacular results in this group of patients.

A brief abstract of 2 cases follows:

Case 1.—A 46 year old man entered the hospital because of sore throat, high temperature and difficulty in breathing of twenty-four hours' duration. Previously he had contracted acute sore throat which was treated with irrigations and high doses of sulfonamide drugs. Just prior to admission the family physician found him struggling for breath. There was pronounced edema of the hypopharynx. In the hospital an emergency tracheotomy was performed. During this procedure he aspirated much blood and massive atelectasis and pneumonia developed. He appeared moribund and cyanotic. Despite suction, oxygen and high doses of penicillin intramuscularly, marked inspiratory stridor, severe cyanosis and anoxia developed and the temperature rose to 105 F. About sixteen hours after hospitalization a program of therapy was instituted consisting of the following: A flow of 75 per cent helium and 25 per cent oxygen was directed through the "vaponefrin nebulizer" which was attached directly to the tracheotomy opening in this fashion. Intermittent suction was carried out at periodic intervals just prior to such therapy. The change was striking almost as soon as this therapy was instituted. The stridor became less pronounced and the patient more rational and cooperative. This treatment was continued for several days; the temperature promptly returned to normal and the signs of atelectasis and consolidation of the base of the right lung improved by clinical and roentgenographic observations. The patient made an entirely uneventful recovery.

PULMONARY EMPHYSEMA AND EMPHYSEMATOUS BLEBS

Patients with chronic pulmonary emphysema generally present a history of cough, progressive dyspnea even at rest, loss of weight and weakness. The lung has lost its "pre-war rubber," and in its place a "synthetic quality" has developed. Many have severe clubbing of the fingers and cyanosis, and a small number have severe emphysematous blebs. Bronchiectasis and evidence of bronchospasm may also be found in many of these patients. They are subject to recurrent bouts of infections of the respiratory tract and their pulmonary reserve diminishes with each bout. The prognosis is generally poor, and progressive respiratory failure ensues. The patients can be made more comfortable with the use of 50 per cent concentrations of oxygen, theophylline ethylenediamine and aerosolized bronchodilator drugs. Supplemental elevation of the diaphragms by manual manipulation in expiration[19] and the use of a proper abdominal belt may be of considerable value. Oral administration of sulfonamide drugs has proved of little value in our patients for the prevention of recurrent infection.

Recently we have observed striking improvement in a series of 7 patients with severe pulmonary emphysema when penicillin aerosol was added to the program described. In one of these patients diffuse emphysematous blebs and a minimal basal bronchiectasis complicated the picture. In another patient a giant acquired cyst occupied the entire upper lobe of the right lung. Five patients had uncomplicated pulmonary emphysema secondary to recurrent bronchial infections. These patients were considerably improved after a course of penicillin aerosol therapy of from one to six weeks. They had been treated with oxygen and bronchodilator drugs first, but despite this more progressive dyspnea, cyanosis and cough developed. After administration of penicillin aerosol their vital capacities improved slightly, and they have been able to maintain this improvement at home while continuing the previously outlined therapy. These remissions have been striking although probably temporary.

CONCLUSIONS

Penicillin aerosol therapy is of definite value in the management of bronchopulmonary disease. It can be carried out best with the simple rebreathing technic described. This may be modified according to the age of the patient and the nature of the illness. For patients manifesting obstructive disease of the respiratory tract streams of helium and oxygen may be developed in the place of oxygen. The penicillin aerosol may also be directed into tents, masks and tracheotomy openings. If indicated, other chemotherapeutic, antibiotic and chemical drugs may be substituted for penicillin. Finally, the penicillin aerosol may be directed nasally for the management of patients with acute and chronic purulent sinus disease, preferably with the technic of intermittent negative pressure and replacement with penicillin aerosol.[16b]

Penicillin aerosol therapy should not be employed by the nasal or pulmonary route for the management of the common cold. This infection generally runs a self-limited course despite all useful therapy, and one must always bear in mind the possible appearance of penicillin-resistive strains after repeated or prolonged use of penicillin aerosol therapy.

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[19] Barach, A. L.: Inhalation Treatment of Bronchial Asthma, New York State J. Med. 46: 1002-1008, 194

Penicillin aerosol therapy should be reserved for patients having the following conditions: purulent sinusitis, bronchiectasis, pulmonary abscess, infections of the lungs with streptococcic or staphylococcic organisms or with penicillin-susceptible strains of Friedländer's bacillus, acute laryngotracheobronchial edema and infections secondary to underlying primary disease of the lungs, such as pulmonary emphysema, pulmonary cysts and infarcts. Before instituting therapy every attempt should be made to identify the organisms of the nose, throat and sputum.

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ABSTRACT OF DISCUSSION

Dr. William J. Kerr, San Francisco: We have known for some time that bronchiectasis and some other pulmonary diseases outside of pneumonia will respond favorably to the use of intramuscular or intravenous administration of penicillin and other antibiotics. We now have good evidence, I think, that penicillin is useful in this manner. One must, however, deplore the promiscuous use of penicillin by the oral route or by the use of aerosols. Almost everywhere it is being used for all sorts of nasopharyngeal disturbances or nasal disturbances in the respiratory tract, many of which are not on an infectious basis at all. I for one could not believe that a common cold is an infectious disease, although that is a matter of definition, perhaps, and subject to argument on some other points. One thing which has interested me about the use of penicillin as an aerosol is that one of the patients that we had who was using this method suffered from fungous infection, Monilia albicans infection involving the lungs and possibly other parts of the body. He had been given penicillin intramuscularly without any serious trouble about two monhts before, and when we tried the aerosol method, almost immediately this young man had a most remarkable attack resembling bronchial asthma; we thought that he was going to die. Fortunately, he recovered from this, and we have not tried it again, but cutaneous tests show remarkable reactions—positive reactions with infinitely small doses of penicillin. Another patient was a man interested in the manufacture of penicillin, and he had much of it available. A few months ago he took some lozenges of penicillin for a sore throat, with good response. About two months later, another sore throat developed, and he took by mouth a large single dose of about 1,000,000 units; the mucous membranes of his nasopharynx and the inside of his mouth, excepting the tongue, then began to burn terrifically. He had remarkable symptoms, and within a few hours he had sloughing of the tissues of the soft palate and in the nasopharynx. It was several weeks before he recovered from this episode. The question arises whether it was sensitivity to the drug taken orally or whether something else had happened which I believe may be of importance in this general field. Many of us are interested in the balance of nature in relation to plant and animal life. The ecologic factors in the body of man and his organisms must be kept in mind. There is fairly good evidence now that if we use some of the antibiotics we can eliminate some of the organisms that live a more or less balanced existence with other organisms in the respiratory tract or the genitourinary tract or the gastrointestinal tract. It is possible that if we eliminate the streptococci, some of the other cocci and Monilia which may be in the mouth in a suppressed state will multiply in great numbers and cause some of the reactions which we have seen. Already there are patients subject to certain diseases which have, after long treatment with penicillin, developed other complications, and these may be on the basis of fungous infection or other infections arising from organisms which ordinarily are in balance or are suppressed. Here may be something of great biologic importance that we must not overlook in the use of the antibiotics.

Dr. Alvan L. Barach, New York: This interesting paper demonstrates that inhalation of penicillin as an aerosol has therapeutic effectiveness in cases of advanced bronchiectasis, pulmonary abscess and acute lobar pneumonia. It is our purpose, in presenting a relatively new technic, to determine whether this method of administration is required, whether it does anything that intramuscular or oral administration of penicillin will not do. The advantage of topical application of penicillin is illustrated in empyema, in which systemic administration is without value, whereas 30,000 units instilled in the pleural cavity every other day results in cure in the majority of early cases. In some cases of pulmonary abscess observed by Dr. Segal and in our clinic, penicillin aerosol has resulted in cure when previous intramuscular injection of the drug was ineffective. The pathologic situation in certain cases of pulmonary abscess and bronchiectasis may be characterized by the growth of bacteria on a purulent or fibrinopurulent exudate that is not reached by the capillary blood supply. The deposition of penicillin droplets on the bronchoalveolar surface may then result in a local concentration of the drug as well as an effective level in the blood. For prolonged treatment, inhalation of penicillin is also more feasible than either oral or intramuscular administration. Inhalation of penicillin aerosol does result in the disappearance of gram-positive organisms from sputum cultures and the finding of gram-negative bacteria, which we have observed in the majority of approximately 200 cases of bronchopulmonary disease. However, these gram-negative bacteria may disappear spontaneously later or, if their pathogenicity is established, may be treated by other antibiotics. About 15 per cent of treated cases manifest either a red tongue or a black tongue, and in perhaps 20 per cent of the allergic group urticaria develops. These reactions can be handled in various ways. The main objective in the use of penicillin aerosol is to offer the patient not only an effective method but one that he can use over long periods of time. Our penicillin levels in the blood, after inhalation of 50,000 units, which at first were 0.02 unit per cubic centimeter, are now 0.1 to 0.2 unit per cubic centimeter with the same dose. I think that no technic of administration of penicillin aerosol is desired which does not give an effective blood level. In our early use of sulfonamide aerosols we wanted a low blood level and a high topical concentration because of the hazards of long-continued high levels of sulfonamide drugs in the blood; with penicillin we have no such cause for alarm. A reasonably effective level in the blood is an added gain along with topical application of the drug. I think that the series of cases presented by Dr. Segal provides additional justification for the trial of this relatively new technic.

Dr. Arthur M. Olsen, Rochester, Minn.: Dr. Segal has demonstrated that penicillin aerosols have a wide range of usefulness in the treatment of serious respiratory disease. For various reasons, my reports on inhalation therapy have been restricted to its use for chronic suppurative bronchiectasis. However, at the Mayo Clinic we have had a limited experience with nebulization therapy in certain other respiratory conditions. For several years we have used nebulizers to moisten the oxygen given after tracheotomy to children who have acute laryngotracheobronchitis. Distilled water or isotonic solution of sodium chloride alone or in combination with propylene glycol have been nebulized by a stream of oxygen which passes through the nebulizer into the tracheotomy tube. The prognosis of this condition has been significantly altered as a result of this treatment. No longer does the bronchoscopist have to maintain a constant vigil to remove the dry crusts which constantly threaten to block the trachea or bronchi. Recently weak solutions of penicillin in isotonic solution of sodium chloride have been employed, and the results have been encouraging. In the treatment of bronchial asthma our results with the use of penicillin aerosol are similar to those reported by Dr. Segal. The aerosol helps to thin out tenacious secretions, and in some instances the volume of sputum has been reduced. However, the results have been temporary and disappointing in our cases of asthma. Four patients who had chronic pulmonary abscess have been treated at the Mayo Clinic with aerosols of antibiotic preparations. Two of these patients who had single pulmonary abscesses of several months' duration were treated with combined penicillin and streptomycin aerosols for four weeks. Both patients were greatly improved, and complete relief of fever, cough and expectoration was obtained. Roentgen examination revealed complete clearing of the lesion in one case and considerable improvement in the other case. The other 2 patients did not respond to aerosol therapy. A fifth patient who had an acute postoperative pulmonary abscess improved after treatment with penicillin aerosol. In my experience patients who had emphysema have not been greatly benefited by aerosol therapy. Poor mixing of tidal and residual air appears to account for the poor results obtained. Perhaps the patients whom we treated were too breathless to inhale the penicillin aerosol efficiently. The concentration of penicillin in the blood has been negligible in these cases, and little penicillin has been excreted in the urine. For those patients who had limited respiratory reserve associated with bronchiectasis, the supraglottic instillation of aerosols has been used to good advantage. We have had little experience with the aerosol in the treatment of sinusitis. However, after successful aerosol treatment of bronchiectasis it is remarkable how much improvement has been observed in the condition of the sinuses. As yet we have not used aerosols in the treatment of acute pneumonias. The development of bacterial resistance to antibiotic preparations has been emphasized by Dr. Segal. In my experience resistant bacteria are likely to appear in pulmonary secretions after treatment with both penicillin and streptomycin. I agree that streptomycin-resistant, gram-negative bacteria are encountered more frequently than gram-positive bacteria which are not sensitive to penicillin. The average daily output of sputum of one of our patients who had bronchiectasis in all five lobes was 800 cc. when he entered the hospital. Hemolytic streptococci were abundant. After four weeks of treatment with penicillin aerosol his daily output of sputum was reduced to 200 cc. Gram-negative bacteria then were demonstrated which were sensitive to streptomycin by in vitro tests. After continued treatment for two more weeks with streptomycin and penicillin aerosols, the output of sputum was reduced to 100 cc. daily and has remained constant. The sputum contained a strain of Escherichia coli in large numbers. Growth of these bacteria was not inhibited in vitro by 200 units of streptomycin per cubic centimeter of culture medium. I agree with Dr. Segal that aerosol therapy with antibacterial agents has a real place in the treatment of respiratory infections caused by bacterial organisms. It seems unlikely that the method will be helpful in combating acute infections of the upper respiratory tract of virus origin. In the further evaluation of this method of therapy I should like to emphasize the necessity of careful bacteriologic studies.

Dr. Maurice S. Segal, Boston: With reference to Dr. Kerr's comments, we too have repeatedly stressed that one should not promiscuously use penicillin aerosol therapy. It has a distinctly limited place and its use should be restricted to those indications which we all have stressed from time to time. We have observed reactions; the onset of bronchospasm, 2 cases of urticaria, and 4 cases of serious stomatitis. In most instances, by changing to another type of penicillin or, as in 2 striking cases, by adding "benadryl," we were able to continue with penicillin aerosol therapy. Dr. Barach has stressed an excellent point: namely, that some of his patients had received parenteral penicillin therapy and sulfonamide drugs with failure prior to receiving the penicillin aerosol therapy. Such was our experience, particularly in pulmonary abscess, staphylococcic pneumonia and several cases of bronchiectasis. Two of our patients with penicillin-susceptible strains of Friedländer organisms had received large amounts of penicillin parenterally without success, but when penicillin aerosol therapy was used, the results were striking, indeed. The question of levels in the blood, I think, will depend a lot on the type of apparatus used, the breathing pattern, the tidal air exchanged, the amount of suppurative disease and the vascularity of the lung. In most instances an effective level in the blood can be obtained with 50,000 and 100,000 unit doses. Our minds should be receptive, albeit critical, regarding the future of all types of aerosol therapy. We may be entering a new era of pulmonary route therapy in place of, or supplementing, the more usual routes. The value of such therapy can be appreciated if one recalls that the inner surface of the lung has an area five hundred times as great as the surface of the body and absorbs so rapidly as to give an effect similar to that of an intravenous injection.

SPERMATOGENESIS AND THE THERAPY OF INFERTILITY

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and
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Los Angeles

In recent years the problem of infertility has been undergoing a decided change. Formerly looked on by many physicians as essentially a woman's problem, with little responsibility attached to the husband, it is now considered one in which the husband is probably at fault nearly as often as the wife. Many investigators in the past few years have placed the husband's responsibility in infertile matings at figures that range from 30 to 50 per cent, and even higher. For example, Keshin and Pinck[1] found in a series of 135 cases that defective semen was a factor in 68 per cent. Meaker and Vose[2] reported that the responsibility for infertility was divided between husband and wife in 78 of 100 cases. Lane-Roberts[3] quoted results in study of a series of 26 women who attended an outpatient sterility clinic, in which the semen of the husband showed impaired fertility in 19 instances.

Analysis of Sixty-Five Couples Previously Treated by Physicians for Two to Sixteen Years and Referred Primarily as Gynecologic Problems

Trouble Found Primarily	No. of Cases
Female	21
Male	17
Both male and female	27
Total	65

Male factor important in 44 cases

In a problem like infertility, in which there are so many etiologic considerations, it is often impossible to assign definite responsibility to any one factor in either the husband or the wife. Many times the cause is a combination of several factors which, in the average couple seeking help, combine to make pregnancy impossible. It is generally considered that the fertility of a union is a combination of the individual fertility of each partner and that when the summation of the two falls below a theoretic threshold level clinical sterility exists. Accordingly, some degree of inadequacy on the part of one mate may be offset by a high potentiality on the part of the other.

In analyzing a series of 65 cases primarily referred as gynecologic problems, we found that the major responsibility occurred in the female in 21 instances and in the male in 17, and that there were important etiologic factors in both in 27 cases. It is important to note that the husband was involved in two thirds of the cases.

In the past much attention has been given to the woman from the point of view of obtaining accurate diagnosis and providing therapy; comparatively little

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Read before the Section on General Practice of Medicine at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

[1] Keshin, J. G., and Pinck, B. D.: Am. J. Surg. **66**: 346, 1944.

[2] Meaker, S. R., and Vose, S. N.: Nature of Human Infertility, J. A. M. A. **115**: 1426 (Oct. 26) 1940.

[3] Lane-Roberts, C.: Sterility and Impaired Fertility, New York, Paul B. Hoeber, Inc., 1939.

attention has been given to the same problem in the man. However, in view of the recently recognized high incidence of masculine abnormalities, investigation and therapy of the man must be adequately correlated with the diagnosis and treatment of the woman.

SPERMATOGENIC PHYSIOLOGY

Spermatozoa are produced in the seminiferous tubules of the testes under the stimulative influence of pituitary gonadotropic hormones. According to current theory, the so-called follicle-stimulating fraction of the anterior pituitary stimulates sperm development and the luteinizing factor causes the testicular interstitial tissue to produce male hormone. Male hormone acts on the accessory sex glands, stimulating their activity and external secretion.

Mature sperm develop from primitive spermatogonia which pass through the stages of primary spermatocyte, secondary spermatocyte and spermatid in the process of maturation. The successive stages of development proceed from the periphery of the tubule to the center of the lumen, so that when the spermatozoa are developed they are released into the lumen and transported through the efferent ductules into the epididymis. The epididymis serves as a storage place for sperm, where they apparently ripen and become fully mature. Many investigators believe that the further maturing of the sperm in the epididymis endows them with independent motility. Semen, at ejaculation, is a mixture of sperm with the secretions of the epididymis, vas deferens, seminal vesicles, prostate, bulbourethral gland and urethral gland. The bulk of seminal secretion generally comes from the prostate.

Little is known concerning the time required from the onset of development of sperm as spermatogonia to their appearance in the ejaculate. No significant data are available for human beings. In the guinea pig, however, Toothill and Young[4] deduced that fourteen to sixteen days were required for sperm to traverse the male tract. Whether a similar time interval is necessary in man is a question. Numerous reports have suggested extremely prompt therapeutic responses, which, however, could conceivably be explained by an emptying out of the more distal portions of the tract under the stimulation of treatment.

SEMEN REQUIREMENT FOR FERTILITY

There is much conjecture as to what constitutes an adequately fertile specimen of semen. Arbitrary average standards have been set, and we know that many fertile males produce semen which falls into this category (fig. 1). It is generally accepted that a normal specimen of semen will contain a volume of 2 to 5 cc., a count of 75 to 100 million spermatozoa per cubic centimeter, with approximately 85 per cent normal morphologically (figs. 2 to 6) and 85 per cent actively motile. The specimen will be of an arbitrary normal viscosity and should liquefy readily. How far a specimen may deviate from these standards and still be fertile is, of course, not known. It is logical to assume that there can be no hard and fast criterion, since much will depend on the fertility level of the partner.

Whether nature has been needlessly abundant in producing so many million sperm per ejaculate to fertilize but one egg is still a philosophic question. However, more and more evidence seems to indicate that a fairly large number of sperm are required to reach the egg before fertilization will occur. The work of Rowlands[5] and others on hyaluronidase gives support to the view that some enzyme such as hyaluronidase is transported by the sperm to the egg, and must be present at the site of fertilization in adequate amounts to facilitate penetration of the egg. There is support of this view in observations on lower animals, in which a large excess of sperm is known to be needed for fertilization; this has been shown by A. Tyler[6] to be due to the necessity for neutralizing excess specific egg substances present in the medium.

Some investigators have reported the occurrence of fertilization when the semen specimens have been quite subnormal. Hotchkiss,[7] for example, has reported the occurrence of pregnancy, using centrifuged insemination specimens, in an instance in which the count was as low as 6.5 million per cubic centimeter. In a few cases we have utilized for artificial insemination specimens of the husband's semen which were about 50 per cent below average and have obtained pregnancies. In view of this it is important to get the maximal improvement obtainable in even apparently hopeless cases, for it is impossible to predict when a relatively poor specimen may prove effective.

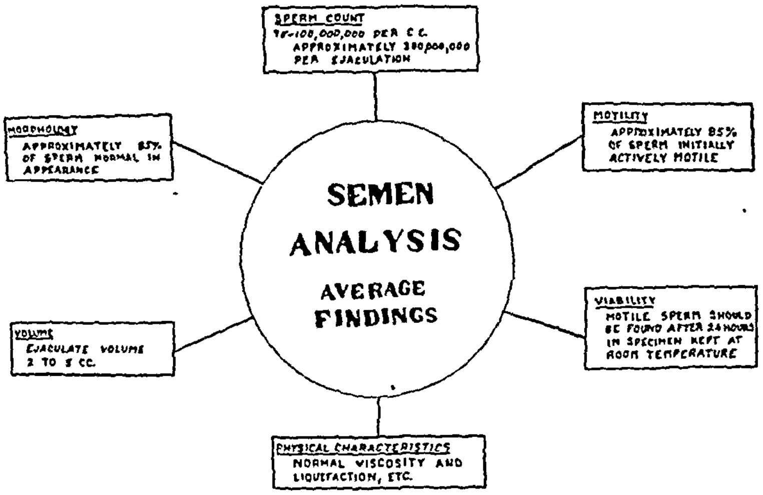
SPERM COUNT
75-100,000,000 PER C.C.
APPROXIMATELY 300,000,000 PER EJACULATION
MORPHOLOGY
APPROXIMATELY 85% OF SPERM NORMAL IN APPEARANCE
MOTILITY
APPROXIMATELY 85% OF SPERM INITIALLY ACTIVELY MOTILE
SEMEN
ANALYSIS
AVERAGE
FINDINGS
VOLUME
EJACULATE VOLUME 2 TO 5 CC.
VIABILITY
MOTILE SPERM SHOULD BE FOUND AFTER 24 HOURS IN SPECIMEN KEPT AT ROOM TEMPERATURE
PHYSICAL CHARACTERISTICS
NORMAL VISCOSITY AND LIQUEFACTION, ETC.

Fig. 1.—"Normal" standards for semen in fertile persons. Specimen should be collected in clean glass container after three or four days' continence and preferably examined within an hour of ejaculation. At least two specimens should be evaluated.

CORRELATED THERAPY

Theoretically, there are only about thirteen days in the year when the average woman may conceive. By most recent estimates, the life of the unfertilized ovum after extrusion is probably no more than twenty-four or forty-eight hours. Some investigators have even stated that the actual length of time during which the ovum may be capable of being fertilized is only a period of several hours. In view of this fact any therapy of sterility must take into account the necessity for providing an adequate specimen of semen at the approximate time of ovulation.

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[4] Toothill, M. C., and Young, W. C.: Anat. Rec. **50**: 95, 1931.

[5] Rowlands, I. W.: Nature, London **154**: 332, 1944.

[6] Tyler, A.: West. J. Surg. **50**: 126, 1942.

[7] Hotchkiss, R. S.: Fertility in Men, Philadelphia, J. B. Lippincott Company, 1944.

It is highly important, therefore, to determine the time of ovulation as accurately as possible and to make every effort to obtain the maximal quality of semen at that time. Various technics have been employed to determine the time of ovulation. These include the analysis of daily vaginal smears, sequential endometrial biopsies, electrometric recordings and pregnandiol determinations. Undoubtedly the most practical method currently available is the study of basal body temperature (that is, the daily temperature taken on awakening and prior to any activity). Tompkins,[8] Rubenstein,[9] Zuck,[10] Greulich[11] and others have reported in detail concerning the relation of basal temperature curves to ovulation. In general it may be said that the daily basal temperature curve during the normal ovulatory menstrual cycle is a diphasic one (fig. 7). During the first half of the cycle the temperature tends to fluctuate at a low level. Near midcycle there may be a dip followed by a rather precipitous rise, and in the second half the temperature maintains a higher level and falls at about the time of menstruation. Should pregnancy intervene the higher level is maintained. At exactly what point in the tracings ovulation can be assumed to occur is still an undecided question. Some investigators believe that it takes place at the point of the drop which precedes the rise. Others have reported that ovulation does not occur until immediately after the temperature has started to rise. Greulich,[11] for example, in an interesting investigation noted the temperature curves in a number of patients prior to pelvic operative intervention and then studied the development of corpus luteum as found at operation as a criterion of when ovulation had occurred. He concluded that ovulation does not take place until after the temperature rise occurs.

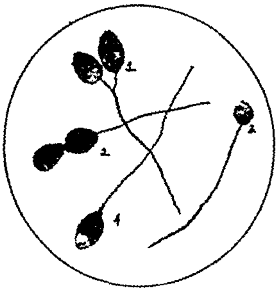

Fig. 2

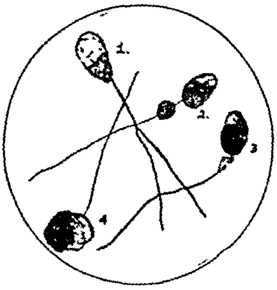

Fig. 3

Fig. 2.—Smears of some of the commoner types of normal and abnormal spermatozoa stained after the method of Keaty and Hamblen: (1) double head; (2) cytoplasmic mass; (3) round head, and (4) normal.

Fig. 3.—Normal and abnormal forms: (1) double tail; (2) cytoplasmic mass; (3) normal, and (4) abortive.

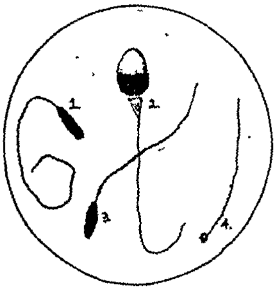

Fig. 4

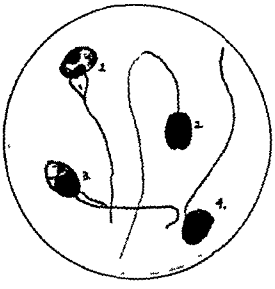

Fig. 5

Fig. 4.—Normal and abnormal forms: (1 and 3) tapering head; (2) normal, and (4) pinhead.

Fig. 5.—Normal and abnormal forms: (1) two nuclei; (2) double head; (3) normal, and (4) abortive.

By the observation of tracings of given patients over a period of a few months one may form a reasonably accurate estimate of the average time of occurrence of ovulation in that particular patient. The timing of coitus relative to ovulation depends on the speed of travel of sperm and egg and their periods of viability. Roughly it may be estimated that coitus approximately twelve hours after actual ovulation would be well timed.

That pregnancy does ensue on occasions when the apparently fruitful coitus has taken place several days distant from the theoretic time of ovulation is undoubtedly true. In such instances it is conceivable that under certain circumstances spermatozoa may remain viable and maintain their fertilizing capacity for several days in the fallopian tubes. It is also conceivable that the ovum at times may remain in the tubes and be capable of being fertilized for several days beyond the average.

However, in dealing with infertile patients it is reasonable to assume that the most we can hope for is the average physiologic relationship. Therefore it is important that the best specimens of semen be obtained at the time of ovulation. Since in many instances we are dealing with husbands whose semen potentialities may be relatively low grade, management of the husband should be correlated with the wife's cycle.

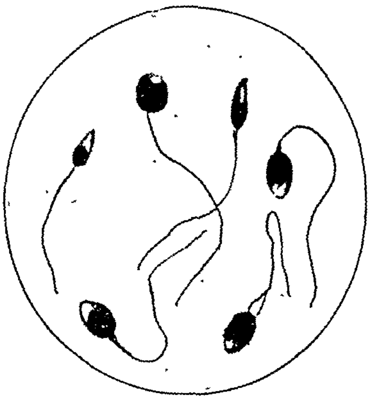

Fig. 6.—Normal sperm, anteroposterior and lateral views.

With such correlation in view, it is best to follow certain general rules. For example, to avoid wasting a possibly good specimen, it is not sound to perform semen analysis a few days, or even three or four days, before ovulatory time unless the specimen is to be used for artificial insemination. A good specimen may otherwise be wasted, and in a male with relatively low fertility the ability of quick regeneration is not to be expected. In the normal male the spermatozoa are rapidly and readily regenerated, and it is generally believed that emptying of the epididymis and other factors furnish additional stimulation for production of sperm, but this stimulation is probably not adequate in the abnormal case. It is preferable to take semen specimens for evaluation purposes at about the time of onset of the wife's period. In that way there is a considerable interval of time during which spermatic regeneration may occur. For the same reason it is advisable to restrict coitus to those days of the month which would theoretically be most likely to prove fruitful.

Relative to artificial insemination using husband's semen, it should be stated that this procedure is of conjectural value except in a few specific instances in which delivery is faulty, or in situations in which one wishes to evaluate specimens at the time of ovulation.

The treatment of male infertility requires careful attention to general health and well-being as well as to therapy designed toward correcting any genitourinary pathologic conditions. Satisfactory improvement often follows regulation and improvement in dietary habits; regulation of working hours; avoidance of fatigue and strain, both physical and mental; improved program for recreation and exercise, and avoidance of excessive smoking and use of alcoholic beverages.

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[8] Tompkins, P.: Use of Basal Temperature Graphs in Determining Date of Ovulation, J. A. M. A. **124:** 698 (March 11) 1944.

[9] Rubenstein, B. B.: Endocrinology **22:** 41, 1938.

[10] Zuck, T. T.: Am. J. Obst. & Gynec. **36:** 998, 1938.

[11] Greulich, W. W.; Morris, E. S., and Black, M. E., in Proceedings of Conference on Problems of Human Fertility, 1943, p. 37.

Various pharmaceutic agents have been used in attempting to improve the quality of semen in cases in which there is no tubular obstruction and in which gonadal atrophy, if present, is incomplete. Theoretically, pituitary gonadotropic preparations would afford the most effectiveness, but unfortunately the therapeutic results from these substances are inconsistent and often disappointing. Many of the so-called pituitary preparations on the market are those of chorionic gonadotropin which contain essentially the luteinizing fraction. These would not be expected to have much effect on sperm production. Whatever effect they might conceivably have on semen could be mediated through the testicular interstitial tissue and production of male hormone. The latter seems to be an important agent in maintaining sperm motility, possibly indirectly through the accessory sex glands.

There are a few preparations which are said to contain fairly substantial amounts of follicle-stimulating hormone. It is our opinion, however, that all these preparations in moderate dosage are weak. In utilizing them in enormously high dosage we have obtained some satisfactory but limited results. Administration of a preparation of equine gonadotropin[12] in daily dosage of 4 to 5 cc. for two week intervals has apparently furnished definite stimulus to spermatogenesis in a few instances. For example, in a man aged 56 whose sperm count on several occasions showed a low concentration and a low motility, a dosage of 5 cc. daily brought the count up to 123 million per cubic centimeter with 50 per cent motility following one 2 week cycle, and then with the addition of a little methyltestosterone and prostatic massage over another two week cycle the semen increased to 183 million per cubic centimeter with 75 per cent motility. In a patient of this type who is certainly not in the age group of maximum fertility it seems fairly reasonable to credit the treatment with the degree of improvement observed. However, it must be emphasized that such therapeutic effectiveness is the exception rather than the rule. Our series with this preparation is as yet too small to permit an accurate evaluation or any recommendation of its use, but the results thus far would appear to justify further experimentation, especially if more potent material becomes available.

In certain patients male hormone may be of value in improving sperm motility. The use of small doses, such as 5 mg. of methyltestosterone daily by mouth; coincidental with gonadotropic therapy helps attain some degree of improvement in motility. In large doses testosterone is said to depress spermatogenic activity through its inhibitory effect on the pituitary.

Many other agents have been utilized in treating seminal inadequacy. Thyroid, for example, has long played an important role and in instances in which there is some evidence of subnormal metabolism may prove useful. However, its administration should be limited to those persons who are thyroid deficient because continued use of it by patients with normally functioning thyroid glands may ultimately cause depression of their own thyroid activity, as pointed out by Farquharson,[13] Shelton[14] and others.

Amino acids, notably arginine, appear to be valuable as adjuvant therapy. It has been demonstrated by Shettles,[15] Zittle[16] and other investigators that this substance is an important constituent of the sperm head. Shettles found that even a temporary deficiency of arginine in the diet may cause pronounced disturbances of spermatogenesis in human beings. If there is evidence of nutritional inadequacy a suitable amino acid concentrate should be prescribed.

Vitamin B complex apparently plays an important role in sperm metabolism, although the details of this are not completely known. Biskind and Falk[17] have reported a good percentage of successful results in utilizing vitamin B complex in therapy of seminal inadequacy. A dosage of 50 mg. of thiamine daily with crude liver extract and other factors of the B complex was employed in a recently reported series.[18] MacLeod[19] considers vitamin B complex one of the most important medicaments that can be given to improve sperm motility.

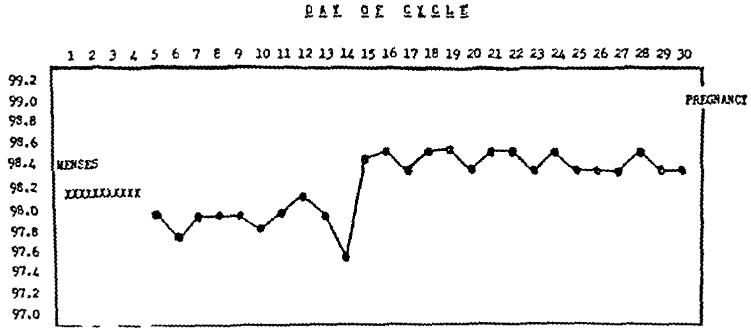

Fig. 7.—Basal temperature curve in an ovulatory menstrual cycle during which pregnancy occurred. Note low level during preovulatory phase, precipitous rise at ovulation and high postovulatory level. With pregnancy the higher level is maintained.

Pregnenolene, an intermediary in the production of progesterone from cholesterol, has been found to stimulate spermatogenesis in lower animals. We have used it experimentally in a daily dosage of 50 mg., but results as yet are inconclusive.

Another therapeutic adjuvant is the use of the dextrose-Ringer's douche. MacLeod has shown that spermatozoa metabolize dextrose for motility. Hotchkiss and MacLeod[20] reported a series of infertile cases in which the use of a buffered Ringer's-dextrose douche shortly before intercourse appeared to be the one factor which brought about pregnancy in a substantial percentage of difficult cases in which etiologic factors were vague. The Ringer's-dextrose douche has more physiologic basis than the older alkaline douche and is used as a routine procedure by many investigators.

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[12] Supplied through the cooperation of Mr. F. D. Studer of E. R. Squibb & Sons.

[13] Farquharson, R. G., and Squires, A. H.: Tr. A. Am. Physicians **56**: 87, 1941.

[14] Shelton, E. K.: To be published.

[15] Shettles, L. B., in Proceedings of the Conference on Sperm Biology, 1942, p. 30.

[16] Zittle, C., in Proceedings of the Conference on Sperm Biology, 1942, p. 42.

[17] Biskind, L. H., and Falk, H. C.: Infertility in Male and Vitamin Therapy, J. A. M. A. **122**: 706 (July 3) 1943.

[18] Biskind, L. H.: Read at the meeting of the American Society for the Study of Sterility, 1946.

[19] MacLeod, J.: Personal communication to the authors.

[20] MacLeod, J., and Hotchkiss, R. S.: Am. J. Obst. & Gynec. **46**: 424, 1943.

CONCLUSION

The problem of sterility need not necessarily be one for the specialist. True, a certain percentage of patients will present pathologic conditions that require treatment and observation by the gynecologist or the urologist, but there are indeed a fair percentage which can be handled by the general practitioner who is willing to devote the time and careful study required.

The masculine role has been purposefully stressed in this study of infertility in an effort to emphasize that the husband is probably at fault nearly as often as the wife and merits more than the cursory attention which is so often given.

ABSTRACT OF DISCUSSION

Dr. Walter W. Williams, Springfield, Mass.: The adequate staining of a specimen of spermatozoa of a sperm population, contrary to the general belief, is easily done in around three to five minutes. In a pathologic specimen of semen one sees the shadow of the centrosomic material in the base; there is a narrow nucleus, and at times a small cell which is pathologic. The general picture is quite different from the normal. The essentially normal cell, shows the neck, the body, the nucleus, the centriolar mass and the acrosome. A cell of this nature rotates, so it is difficult to get the cellular morphology. In the examination of semen occasionally double forms are described. Usually they are due to a lack of the development of the centriole in which the cells do not become separated during the last stages of spermatogenesis. The actual filament, the narrow nucleus and the enlargement of the middle piece are all readily observed with a properly stained specimen. A cell with a lack of acrosomic development is ordinarily called a round cell. In spermatic dysplasia or hyperplasia, in many instances the germ plasm is severely diseased and if stimulation of the germ plasm is attempted there are fewer spermatozoa and the quality becomes poorer. The germ plasm is not in fit condition to function.

Dr. Fred A. Simmons, Boston: I congratulate Dr. Tyler for his fine presentation. However, I do not think it would be fair for a group of specialists to leave this room with the idea that testosterone or gonadotropin have any place in the treatment of the average sterile man or woman. I have seen patients in the East who have been treated by the family physicians and by specialists with these hormones, and, as far as I can make out from the off-the-record remarks of persons who worked in the laboratories where these hormones are used, there is no place for them at the moment in the average case of sterility. Dr. Tyler mentioned therapeutic agents, and I think he probably would agree that the most valuable therapeutic agents in the treatment of the infertile male are things in the hands of all practitioners. The sterility problem is no mystery. All you have to do is spend the time on it. The agents which I would suggest as adjuncts to the measures already outlined would be the denial to the husband of the use of tobacco in any form or the use of alcohol in any form, an adequate high protein diet, an adequate amount of exercise, particularly in those men who may have been active in exercise in college or high school days, a degree of continence and reduction in the frequency of intercourse as the fertile time is approached. Physicians doing this work often get patients who are told they are sterile. If the physician is not interested in this subject, let me suggest that the patient be sent to someone who is. Don't make the mistake of telling him, "In two or three years you will probably have a baby. If not, come around." The thing to do is to get a specimen, and if that is not normal on two occasions and you don't want to treat the patient, send him to someone who knows how. If you do want to treat him, then pay attention to what Dr. Tyler said to you this morning.

Dr. Edward T. Tyler, Los Angeles: The sperm morphology is an extremely important factor. I cannot say that the staining and observation of these smears is simple. It is time-consuming. It takes a good technician quite a while to master the technic of making a smear that is not full of extraneous material, in which one can actually observe some real distinctions in the spermatozoa. When the technician is familiar with the procedure of demucifying the slides and so forth she is able to do it rather rapidly. I agree with Dr. Williams on the importance of morphology. I hope I haven't left you with the thought that pituitary gonadotropins are the things to use. Most of these preparations that have been used are ineffective. I qualified my remark by saying that this particular preparation which we have been using has only been used in relatively few cases. I do say, however, that when we have tried heavy dosage on some of these patients, while the percentage isn't high we occasionally have gotten a successful result. The only reason I recommend trying it in certain cases is because one's hands frequently are so tied that one is willing to try anything, and if this preparation has any possibility of working, I believe it is worth a trial if the patient can afford it. In a few cases it has apparently helped. But we do not consider that there has been enough success to recommend this agent. Another point which I should have emphasized was all those factors which Dr. Simmons stressed and which probably are more important than anything else, namely, general health, exercise, restriction of alcohol, if that seems to be a factor, and prostatic massage, which is extremely useful. It is done particularly in cases in which sperm motility remains low. Prostatic massage is given about three times a week routinely.

Dr. L. C. Burwell, Los Angeles: I should like to have Dr. Tyler elaborate more on the use of tobacco. Abstinence for how long? And should it be abstained from by only the man or both the man and woman?

Dr. Edward T. Tyler, Los Angeles: I think if you can secure abstinence from tobacco for the duration of the time you are observing the patient, that is the best. We have had a few patients who were chain smokers; where we believe that tobacco alone was the factor which was depressing their semen. If one is going to have them abstain, the point is to keep them off it right along. Sometimes you don't get cooperation. I remember 1 patient for whom we tried everything and he was taking a lot of alcohol. He seemed to think he needed it to keep him going in his work. We agreed to let him go for a while without depriving him of alcohol, because we knew if we told him he would have to stop drinking we wouldn't get anywhere at all. After a short while we decided that there was no use in temporizing any longer. We asked him definitely to stop drinking completely. Whereupon, we didn't see him again. I think in some of these cases the physician has to try to do the best he can with the patient, but the actual importance of these things can't be overstressed.

Dr. L. C. Burwell, Los Angeles: How about the effect of nicotine on the ovum?

Dr. Edward T. Tyler, Los Angeles: It is difficult to determine in mammals, because it is so difficult to get mature ova from these experimental mammals. One certainly could tell something about it in invertebrates, from which eggs are readily obtained, but whether results can be transposed from invertebrates to mammals is questionable. I don't think it has been feasible from a technical point of view to observe any results directly on the ovum.

Agricola, Paracelsus and Occupational Medicine.—Nearly twenty years after Paracelsus sent his manuscript on mining diseases to the public authorities for their approval of its publication—he never received an answer or heard of it before his death—and twelve years before it was published by a faithful follower from the long-hidden sheets, there came out in 1556, from the famous press of the old friend of Paracelsus at Basel, Froben, a book, "De re metallica," on mining. Its author, George Agricola, like Paracelsus a physician but more famed as a chemist and technologist, raised himself with this book to the foremost place as a mining expert of greatest authority, and for scores of years the book kept the rank of the encyclopedia of mining. . . . In spite of all the injustice, ignorance and enmity which Paracelsus met with, his pioneer work in the field of occupational diseases never was disputed.—Frankel, Walter K.: Paracelsus, the Founder of Occupational Medicine, *Occupational Medicine,* March 1947.

CESAREAN HYSTERECTOMY

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This study was undertaken to determine the present status of cesarean hysterectomy. An operation originally devised to combat postcesarean infection and hemorrhage, its indications have gradually been widened to include many conditions for which removal of the uterus is necessary or desirable. In 1876, Porro[1] extirpated the gravid uterus for the avowed purpose of reducing the frightful mortality then associated with cesarean section. Due credit must be given Porro's carefully planned effort because in 1874, experimenting with pregnant rabbits, he demonstrated the feasibility of this procedure.

However, Porro was not the first to consider or the first to perform cesarean hysterectomy. In 1768 Cavallini[2] made the statement that "all things having been duly weighed, I do not doubt that the uterus is not at all necessary tó life, but whether it may be plucked out with impunity from the human body we cannot be certain without a further series of experiments of this kind which perhaps a more fortunate generation may obtain."

In 1809 Michaelis[3] of Marburg pointed out that "when in ignorance the uterus has been cut away, the reaction has been much less. It is indeed a question whether cesarean section would not be made less dangerous if with it were combined the extirpation of the uterus, an organ which is, after all, under such circumstance nothing but harmful." Blundell in his lectures at Guy's Hospital in 1828 said, "In speculative moments I have sometimes felt inclined to pursuade myself that the danger of the cesarean operation might be considerable diminished by the total removal of the uterus. Perhaps this method of operating may prove an eminent and valuable improvement." Blundell[4] also described the survival of 3 out of 4 pregnant rabbits in which the uterus had been extirpated.

Actually the first cesarean hysterectomy was reported by George H. Bixby[5] in 1869 in an article entitled "Extirpation of the Puerperal Uterus by Abdominal Section." The patient was operated on by H. R. Storer because of dystocia arising from a pedunculated and adherent fibroid. The cesarean section was followed by hysterectomy because of uncontrollable bleeding. The cervical stump was sutured to the lower part of the abdominal incision; the patient died in seventy-eight hours.

This operation is cited by Porro, who described a technic similar to that used by Storer. At first Porro's proposal was received with disfavor in spite of the fact that his patient survived. Undaunted by the failures of several Italian obstetricians, Spaäth and Carl and Gustave Braun adopted this procedure. Compared to the almost 100 per cent mortality of the classical cesarean operation at that time, their results were startling and encouraging.

In 1880 Isaac E. Taylor[6] reported the second American case in which the patient was operated on early and "by the method of Lister." The pedicle was dropped in the pelvis and no drains were employed. Unfortunately this patient died on the twenty-sixth day of embolism following phlegmasia dolens. Eighteen days before Taylor, Veit,[7] of Bonn, employed the same technic of returning the pedicle to the pelvis. His patient also died. The same year Robert P. Harris[8] analyzed the 50 known operations of hysterectomy following cesarean section and reported a 58 per cent mortality. By 1883 the total reported cases numbered 134. These were summarized by Clement Godson.[9] Godson made two improvements: (1) He used a transverse incision of the lower portion of the uterus for removal of the baby and (2) he left the placenta in situ. He compared intraperitonealization and extraperitonealization of the uterine pedicle and showed that intraperitoneal placement of the stump was associated with a 77 per cent mortality against a 53 per cent mortality for extraperitoneal placement.

The basic premises of the operation described by Porro include (1) the complete ablation of the uterus and its appendages accomplished by the use of some type of occluding ligature, often metallic; (2) the external placement of the uterine pedicle, and (3) the employment of cul de sac and/or abdominal drainage. These technical procedures are mentioned only because cesarean hysterectomy now differs so greatly from that originally proposed. In the first 50 cases reported, only the first was performed by Porro, but due credit must be given him because his patient survived and through his writing the world learned of a new and valuable procedure.

Almost coexistent with the introduction of cesarean hysterectomy came the new concept of infection, surgical technic and cleanliness. In evaluating the statistics compiled before 1870, as compared with those after that date, it becomes difficult to decide whether the new found knowledge concerning infections, plus newer concepts of physiology, may not be as important as the procedure recommended by Porro. Physicians and surgeons in practice today are apt to forget that for the period of one hundred years preceding 1876 the mortality associated with cesarean section in such institutions as La Maternité in Paris and the Lying-In of Vienna approached 100 per cent. They also forget that it was not common practice to suture the wound in the uterus. It is surprising that any patient should have survived rather than that so many died. It was not until 1880 that Max Sanger introduced the use of a large number of sutures, deep and superficial, in the uterus in order to secure a complete closure and thereby control hemorrhage and prevent the lochia from draining into the peritoneal cavity. This operation effectively reduced the mortality of the cesarean section and competed with the increasing popularity of the

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Read before the Section on Obstetrics and Gynecology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. Porro, E.: Della amputazione utero-ovarica come complemento di taglio cesareo, Milan, frat. Rechiedei, 1876.

2. Cavallini, J.: Medico-Chirurgical Experiences on the Successful Excision of the Uterus in Certain Animals, Florence, 1768; cited by Godson.[9]

3. Michaelis, G. P.: Lucina **5**: 87, 1809; cited by Godson.[9]

4. Blundell, J.: Lectures on the Theory and Practice of Midwifery, Lancet **2**: 163, 1827.

5. Bixby, G. H.: Extirpation of the Puerperal Uterus by Abdominal Section, J. Gynec. Soc. Boston **1**: 223, 1869.

6. Taylor, I. E.: Gastro-Hysterectomy, or the Recent Modification of the Cesarean Section by Dr. Porro, Am. J. M. Sc. **80**: 115, 1880.

7. Veit, G.: Case Report, New York M. J. **32**: 407, 1880.

8. Harris, R. P.: The Results of the First Fifty Cases of "Cesarean Ovaro-Hysterectomy," Am. J. M. Sc. **80**: 129, 1880.

9. Godson, C.: Porro's Operation, Brit. M. J. **1**: 143, 1884.

Porro section, introduced but a few years before. It is also impossible to comprehend why there was open antagonism to the use of uterine sutures, but opponents such as James Edmunds[10] were vociferous as late as 1902. Until the middle of the nineteenth century, although cesarean section had been known and practiced on living women for two hundred and fifty years, suturing had been employed on only four occasions.

On the twenty-fifth anniversary of Porro's original paper, a monograph was published in Rome, "L'Operazione Cesarea,"[11] with detailed statistics on the 1,097 operations reported as of that date, showing a mortality of 24.8 per cent. In the year of the publication, 1901, the mortality was 18.1 per cent. As had been originally urged by Harris[12] in 1880, efforts were made to perform the operation earlier, and the mortality was decreasing.

TABLE 1.—*Indications for Cesarean Hysterectomy*

Fibroids		25
Uncomplicated fibroids	11	
Previous cesarean section and fibroids	6	
Prolonged labor and fibroids	3	
Fibroids obstructing labor	2	
Toxemia and fibroids	1	
Hypertension and fibroids	1	
Placenta previa and fibroids	1	
Uterine bleeding		15
Uncontrollable bleeding at cesarean section	6	
Abruptio placentae	5	
Placenta previa	3	
Placenta accreta	1	
Intrapartum infection		4
Preeclamptic toxemia		4
Arrested pulmonary tuberculosis		1
Carcinoma of breast		1
Essential hypertension and difficult labor		1
Sterilization		1
Gangrene of bowel and peritonitis		1
Intrauterine deaths (4); operation done at 32 weeks		1

TABLE 2.—*Relationship of Age and Parity*

	Parity					
Age	I	II	III	IV	V+	Total
24 28	2	4	1	1	..	8
29 33	5	4	3	2	.	14
34 38	7	8	4	1	4	24
39 41	2	..	4	.	2	8
Total	16	16	12	4	6	54

Porro recommended hysterectomy whenever cesarean section was indicated. With improvements in surgical technic, the introduction of uterine sutures and aseptic precautions, it seldom was necessary to remove the uterus. During the subsequent decades intrapartum infection became the most important reason for performing cesarean hysterectomy. In 1921 Williams[13] stated that "the prime indication is cesarean section late in labor, particularly when signs of intrapartum infection are present." Today, however, as shown by Briscoe,[14] infection is not the commonest cause for cesarean hysterectomy. Low cervical or extraperitoneal cesarean section is often the procedure of choice when abdominal delivery is advisable and intrapartum infection is present.

In the recent writings of Phaneuf,[15] Lash and Cummings,[16] Lazard,[17] Gustafson,[18] Wilson[19] and others the following indications are considered: (1) intrapartum infection when abdominal delivery is indicated; (2) uterine hemorrhage, uncontrollable after cesarean section, premature separation of the placenta and placenta previa; (3) uterine fibroids; (4) rupture of the uterus; (5) carcinoma of the cervix; (6) placenta accreta; (7) cervical or vaginal stenosis; (8) pulmonary tuberculosis; (9) chronic nephritis, and (10) as a method to effect sterilization.

In our series of 54 patients, uterine fibroids (25) are the prime indication (table 1). In 11 of these 25, the fibroids were uncomplicated but of such number, location or size that it was felt safer to perform an elective cesarean hysterectomy at term than to permit the patient to labor and subject her to a subsequent hysterectomy. Six women with fibroids had had a previous cesarean section; 3 had fibroids and prolonged labor; 2 had fibroids obstructing the birth canal, and in 3 others fibroids were associated with toxemia or placenta previa.

Cesarean hysterectomy was performed in 15 patients for uterine bleeding. Of these 6 had uncontrollable bleeding at the time of cesarean section, 5 had abruptio placentae, 3 had placenta previa and 1 had a placenta accreta. The operation was performed four times for preeclamptic toxemia and only four times for intrapartum infection. The remaining 6 women had cesarean hysterectomy for as many miscellaneous reasons, only one hysterectomy being for sterilization. In 1921 Williams advocated cesarean hysterectomy as the operation of choice when cesarean section was performed the third time. Fifteen in his series of 57 were performed solely to effect sterilization.

Although Phaneuf[20] expressed the opinion that there still is a place for the operation when pregnancy is associated with fibroids or placenta accreta, he stated that in recent years the number of hysterectomies following cesarean section is decreasing.

In 1922, J. W. Harris[21] reported an incidence of 28.7 per cent for cesarean hysterectomy with cesarean section at Johns Hopkins Hospital, while from 1932 to 1942 Monahan[22] reported only 11.3 per cent from the same hospital. At Michael Reese Hospital, as reported by Stein and Leventhal,[23] for the period 1922 to 1927, the incidence of cesarean hysterectomy was 0 per cent, while in the period 1928 to 1932 it was 1.65 per cent. With the current increased popularity and safety of the cesarean section and the broadening of the indications, one might expect the incidence of cesarean hysterectomy to show a relative decrease. Our study indicated that this is not the case. At present at Michael Reese Hospital the incidence of cesarean hysterectomy–cesarean section is 4.5 per cent.

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[10] Edmunds, J.: Cesarean Section, Brit. M. J. **2**: 1564, 1902.

[11] Truzzi, E: L'operazione cesarea, Porro, Rome, 1901.

[12] Harris, R. P.: The Porro Modification of the Cesarean Operation in Continental Europe, Am J. M. Sc **79**: 335, 1880

[13] Williams, J. W.: A Critical Analysis of Twenty-One Years' Experience with Cesarean Section, Bull. Johns Hopkins Hosp. **32**: 173, 1921.

[14] Briscoe, C. C.: Cesarean Section Morbidity and Septic Mortality in Relation to Type of Operation, Am. J. Obst. & Gynec. **48**: 16, 1944.

[15] Phaneuf, L. E: Porro Cesarean Section, Am J. Surg. **13**: 65, 1931.

[16] Lash, A. F, and Cummings, W. G.: Porro Cesarean Section, Am. J Obst. & Gynec. **30**: 199, 1935

[17] Lazard, E. M: An Analysis of Five Hundred and Seven Consecutive Cases of Cesarean Section, West J. Surg. **46**: 6, 1938

[18] Gustafson, G. W: Hysterectomy in Pregnancy, Labor and the Puerperium, Am. J Obst. & Gynec **43**: 221, 1942

[19] Wilson, K. M: *The Role of Porro Cesarean Section in Modern Obstetrics*, Am J. Obst & Gynec **50**: 761, 1945.

[20] Phaneuf, L E, in Discussion in Gustafson[18]

[21] Harris, J. W: A Study of the Results Obtained in Sixty-Four Cesarean Sections Terminated by Supravaginal Hysterectomy, Bull. Johns Hopkins Hosp **33**: 318, 1922.

[22] Monahan, C P; Connolly, H. F, and Easterman, N. J.: The Experience of the Johns Hopkins Hospital with Cesarean Section, Am J. Obst. & Gynec. **44**: 999, 1942.

[23] Stein, I. F., and Leventhal, M. L.: An Analysis of Three Hundred and Eighty-One Cesarean Section Cases in a Ten Year Period at Michael Reese Hospital, Am J Obst. & Gynec. **30**: 192, 1935.

The age of the patients varied from 24 to 41, with 32 patients more than 34 years old. Relationship of age and parity is given in table 2. The average age was 34.2 years. It will be noted that hysterectomy was performed sixteen times in primiparas. Over half of these patients were more than 34 years old. The indication was fibroids in 12 of the 16, revealing that as older women become pregnant, pregnancy is more apt to be complicated by conditions arising in the older age group.

The American literature for the period 1931 to 1945 includes reports of 731,690 deliveries in which the incidence of cesarean section and of cesarean section with hysterectomy is also given. For obvious reasons this survey is not complete, because reliable statistics are limited to the larger maternity hospitals and teaching institutions. However, by including reports from various sections of the United States, state survey reports and smaller hospital reports, one can determine a fairly accurate incidence of cesarean section during the years 1931 to 1945.

Table 3.—*Incidence of Cesarean Section During the Years 1931 to 1945*

Year	Author	Institution	Period	Deliveries	Cesarean Sections	A: Incidence, %	B: Mortality, %	A Plus B	Porro Sections	Incidence, %	Mortality, %
1946	....	Michael Reese	1933-1945	23,214	1,202	5.18	0.25	5.43	54	4.5	0
1945	Johnston, R. A.: Am. J. Obst. & Gynec. **49**: 576, 1945	Baylor Medical College (private patients)	1932-1945	5,975	362	6	2.2	8.2	7	1.9	0
1945	Irving, T. C.: Am. J. Obst. & Gynec. **50**: 660, 1945	Boston Lying-In	1934-1943	45,218	1,887	4.2	1.3	5.5	46	2.4	4.3
1945	Dieckmann, W. J.: Am. J. Obst. & Gynec. **58**: 28, 1945	Chicago Lying-In	1931-1944	39,709	1,790	4.51	0.61	5.12	96	5.36	1.04
1945	Cited by Dieckmann.............	Margaret Hague	1932-1943	68,786	1,837	2.67	1.52	4.19	27	1.47	7.40
1944	Barney, W. R.; Fish, J. S., and Riemenschneider, E. A.: Am. J. Obst. & Gynec. **48**: 733, 1944	Cleveland Maternity Hospital	1932-1942	23,396	1,444 (1,317)	6.1 ...	.... 1.8	7.9 ...	33	3	6.1
1944	Rosensohn, M.; Kushner, J. I., and Wahrsinger, P. B.: Am. J. Obst. & Gynec. **48**: 275, 1944	Bronx Hospital	1932-1942	20,763	494	2.4	3.2	5.6	9	1.8	22.2
1943	Mohler, R. W.: Am. J. Obst. & Gynec. **45**: 466, 1943	Philadelphia Lying-In	1932-1942	22,751	1,322	5.8	1.96	7.76	34	2.57	11.7
1943	Studdiford, W. H.: Am. J. Obst. & Gynec. **45**: 103, 1943	Bellevue	1937-1942	7,589	164	2.2	3.0	5.2	10	6.1	0
1942	De Normandie, R. L.: New England J. Med. **227**: 533, 1942	State of Massachusetts	1937-1941 inclusive	333,731	11,030	3.3	2.46	5.76	47	1.3	9.5
1942	Monahan and others[22].........	Johns Hopkins	1932-1941	13,494 (estimated from incidence)	750	5.2 white 5.9 Negro	1.7	7.2	85	11.3	2.2
1940	King, E. L.: Am. J. Obst. & Gynec. **40**: 860, 1940	City of New Orleans	1927-1936	92,936	1,108	1.19	5.8	6.99	39	3.5	10.3
1939	Matthews, H. B., and Acken, H. S.: Am. J. Obst. & Gynec. **38**: 957, 1939	Methodist Hospital, Brooklyn	1920-1938	27,234	1,066	3.9	3.18	7.08	10	0.94	0
1938	Lazard[17]	Cedars of Lebanon	1930-1937	6,891	671	8.28	1.9	10.18	39	6.8	2.56
				731,690	25,027	3.42	2.14	5.56	636	2.54	5.2

Table 3 is the result of this study. In the 731,690 deliveries the incidence of cesarean section is 3.42 per cent. It will be noted that generally where the cesarean incidence is up the mortality is down, and vice versa. This leads to the observation that the sum of the incidence percentage and the mortality percentage gives a fairly constant figure, which can be expressed as 6.0 plus or minus 2.0. The only real exception to this constant comes from Los Angeles, where the reported incidence of cesarean section is high. The over-all average maternal mortality for cesarean section in the United States is 2.14 per cent.

There are 25,027 cesarean sections reported, and hysterectomy was performed six hundred and thirty-six times, once in every 39 cesarean sections, an incidence of 2.54 per cent. This represents 1 cesarean hysterectomy in every 1,150 deliveries. The average mortality is 5.2 per cent.

In our series cesarean hysterectomy was performed in 54 of 1,202 cesarean sections, an incidence of 4.5 per cent. There were, during this period, 23,214 deliveries, the incidence of cesarean section being 5.18 per cent. Three patients died after cesarean section, an incidence of 0.25 per cent. However, there were no deaths in the last 675 cesarean sections, covering a period of six years. There were no deaths following cesarean hysterectomy.

Twenty-one of the 54 patients had a temperature of 101 F. or over, exclusive of the first twenty-four hours. In 1 patient a pelvic abscess subsequently developed which was drained vaginally. This morbidity rate is less than that following cesarean section. Removal of the uterus removes the potentially infected thrombotic area of placentation, sloughing of the decidua is eliminated, involution of the uterus is eliminated and a short incision with opportunity for spontaneous drainage is substituted for the longer buried uterine incision.

Five babies were stillborn, all associated with abruptio placentae. One liveborn infant died on the second day; the mother had preeclamptic toxemia.

Less difficulty should be encountered in cesarean hysterectomy than in the usual abdominal hysterectomy because of the greater mobility of the uterus. We distinguish between "elective" cesarean hysterectomy and "nonelective." In the former, removal of the uterus is anticipated prior to its incision, while in the latter hysterectomy becomes a necessary procedure during the course of the operation. We routinely perform the typical laparotrachelotomy with longitudinal incision of the lower uterine segment. For the elective cesarean hysterectomy the procedure is identical except that after the reflected peritoneum has been freed a transverse incision in the lower uterine segment is substituted for the longitudinal incision.

The baby is delivered through this transverse incision in the lower uterine segment. The umbilical cord is clamped and ligated, and the placenta is allowed to remain in situ. The broad ligament and tube, together with the round ligament and the suspensory ligament of the ovary on each side, are doubly clamped and cut. A second pair of clamps catch the broad ligaments down to the level of the uterine vessels, which are readily accessible because of their upward displacement by the pregnancy. The uterine vessels are clamped and cut. The transverse uterine incision is then carried posteriorly and the amputation of the uterus is completed. The walls of the lower uterine segment are approximated by a continuous interlocking stitch. The uterine arteries are ligated separately, and the uterine ligament stumps are ligated. The peritoneum of the bladder is sutured to the peritoneum of the posterior surface of th [illegible] and to the cervix to effect complete [illegible]

When hysterectomy is indicated after the laparotrachelotomy with its usual longitudinal incision, the technic is the same except that amputation of the uterus is begun at the junction of the lower third and the middle third of the longitudinal incision. The lowest portion of the longitudinal uterine incision must be sutured before the transverse lower uterine edges can be approximated.

SUMMARY

A review of 731,690 deliveries as reported in the American literature for the years 1931 to 1945 establishes the incidence of cesarean section as 3.42 per cent (25,027 cesarean sections) and the maternal mortality as 2.14 per cent. Of these 25,027 cesarean sections, hysterectomy was performed in 636 instances, an incidence of 2.54 per cent, and was associated with a maternal mortality of 5.2 per cent.

In the Department of Obstetrics of Michael Reese Hospital there were 1,202 cesarean sections (an incidence of 5.18 per cent). During the years 1933 to 1945 hysterectomy was performed fifty-four times (an incidence of 4.5 per cent). The maternal mortality associated with cesarean section was 0.25 per cent, and with cesarean hysterectomy, zero.

Cesarean hysterectomy is technically not difficult. In elective cesarean hysterectomy the morbidity and mortality should not exceed that of simple hysterectomy.

The most frequent indications include pregnancy associated with fibroids, antepartum hemorrhages, uncontrollable bleeding at the time of cesarean section and intrapartum infection. Of these, the least frequent indication in our series has been intrapartum infection.

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ABSTRACT OF DISCUSSION

Dr. Donald G. Tollefson, Los Angeles: Dr. Reis and Dr. DeCosta have given us an excellent summary of the history of cesarean hysterectomy. Their report indicates that the incidence of this operation has been increasing, while the literature states that it is on the decrease. Chemotherapy and extraperitoneal types of the procedure, as recommended by Waters, Cartwright and others, probably account in a large part for this decrease. Their series shows that only 1 hysterectomy was done for sterilization, while Williams gave this indication in over 25 per cent. The surest method of sterilization is hysterectomy, and the only controversies are whether the uterus has some endocrine factor and whether the psychologic factor of absence of menses is a contraindication. While one may not be justified in taking out a normal uterus, is a uterus with several scars to be considered normal? The frequency with which menorrhagia and metrorrhagia occur in the late thirties would seem to warrant the consideration of hysterectomy in this particular age group. Tubal sterilization is not technically such a simple procedure and the morbidity is often considerable, while the procedure of cesarean hysterectomy is easier than hysterectomy in the nonpregnant state. The low mortality as reported by Dr. Reis and Dr. DeCosta is commendable. I should, however, be most interested in reviewing the total maternal and fetal mortality of the entire series of over 730,000 deliveries before I am convinced that a high incidence of cesarean section is excessively dangerous or the principal cause of high maternal mortality. It is not only the operation, but also the condition for which it is done which is responsible for the mortality. It would seem proper to mention a series from Los Angeles to defend the high incidence of cesarean sections in this area referred to by the authors. In the California Lutheran Hospital during the past seventeen years, 22,068 patients were delivered with 1,692 cesarean sections, an incidence of 7.65 per cent and a mortality of 1.1 per cent. The total maternal mortality was only 0.158 per cent. In the past eleven years there were 74 cesarean hysterectomies with 1 death included in this series. At the Good Samaritan Hospital, in twenty years, Dr. Fagan has recently reviewed 14,695 deliveries, with 1,732 cesarean sections, an incidence of 11.78 per cent, with a mortality of 1.15 per cent, but the total mortality in this group was 0.19 per cent. We shall defend our position of high incidence in Southern California on a low fetal and maternal mortality.

Dr. Emil J. Krahulik, Los Angeles: Many patients registering for repeat cesarean section will desire sterilization. Some will present a history of menorrhagia, dysmenorrhea or other symptoms, aside from more definite anatomic pathologic conditions, such as fibroids and retroversion. These patients are candidates for future abdominal operations. When we encounter a patient who already has had tubal sterilization, she will embarrass us by wondering whether this additional trip to the hospital might not have been avoided. Cesarean hysterectomy may appear radical. Not until one realizes that one is permanently relieving the patient of some previous complaints will one be able to admit the existence of actual indications. Will extirpation of the uterus initiate a chain of symptoms resulting from artificial menopause? This point is now undergoing an evaluation. Those who have been doing cesarean hysterectomies are convinced that symptoms of even minor moment are encountered only rarely. Technically the operation is easy, and the time consumed is no greater than would be required to excise a portion of each tube and carefully peritonealize the areas. The frequency of the usual postoperative complications is smaller than usually encountered in cesarean section with or without sterilization. Dr. Reis draws attention to the high incidence of cesarean section in the Cedars of Lebanon Hospital in Los Angeles. The number of deliveries is 9,022, and the mortality is 9, or 1 per thousand. Included in the 9,000 are 807 cesarean sections, or an incidence of 9.6 per cent. There were no deaths in the cesarean group. Sixty-seven were cesarean hysterectomies. Eight were done as definite emergencies encountered during the operation, while 59 were planned-for hysterectomies. This report is from a private hospital, staffed almost entirely by board members, and neglected or mismanaged cases are rare. In the Los Angeles County General Hospital, the patients have not always availed themselves of complete antepartum care and advice. The hospital also receives the neglected and mismanaged cases from the entire county. During the past ten years, there were 32,790 deliveries, including 1,092 cesarean sections, an incidence of 3.32 per cent. One hundred twenty-five were cesarean hysterectomies, 20 were done as emergencies and 105 previously planned. Many of these were bad risks to begin with, and 3 died.

Dr. Ralph A. Reis, Chicago: For the benefit of the audience, who may not know that the Civil War is over, I should say this is not a regional fight between Chicago and Los Angeles. The provocative sentence is as follows: "This leads to the observation that the sum of the incidence percentage and the mortality percentage gives a fairly constant figure which can be expressed mathematically as 6 plus or minus 2. The only real exception to this constant comes from Los Angeles, where the reported incidence of cesarean section seems too high." With that in mind, when the Secretary of the Section asked me whether I had any choice as to discussants, I picked our friends from Los Angeles, who have just spoken, not that I wanted them to defend themselves, but because I did want them to have an opportunity to hit back before this got into print. I do feel, and we all feel at Michael Reese Hospital, that when a woman is under 35, her uterus should be saved if possible; that unless there is an inherent pathologic condition of the uterus, there is no need, for carrying out a cesarean hysterectomy just for the purpose of sterilization. We do not do, and never have done in the last twenty-five years, cornual resections of any type. We do a simple "crush and ligature" which takes about thirty seconds for each tube. We do not feel that the uterus which is scarred by a lower uterine segment incision is a bad uterus, because when the lower uterine segment disappears after pregnancy, the scar disappears with it. It was impossible to do as Dr. Tollefson would have liked, and as he asked us to do, that is, to try to analyze mortality figures from the papers out of which we arrived at these 730,000 deliveries. It is almost impossible to take from the printed page any type of evaluation of the pros and cons of one procedure versus another. All we can do in the aggregate series is to give them to you as we found them and as we added them up on our adding machine.

PSYCHONEUROSIS, ITS SIGNIFICANCE IN GENERAL PRACTICE

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Factors in everyday life which resulted from the problems of war and now social, economic and personal unrest have led to a definite increase in individual emotional and psychologic difficulties. Even before the war studies in some general hospitals demonstrated the fact that a large percentage of patients had no physical basis for their symptoms. Surveys carried out in the military service have substantiated these observations. A large percentage, actually nearly three quarters, of the men rejected because of psychiatric difficulties by Selective Service were rejected for psychoneurosis. This is evidence of a tremendous amount of emotional maladjustment in a selected group of the population.

Contemporary papers on the subject indicate that at least one half of all patients have their symptoms as a result of emotional difficulties or that there is a sufficient overlay of emotional symptoms in addition to and as a part of the physical disease to warrant psychiatric understanding and treatment. When one considers that only about 2 per cent of the registered physicians in this country are trained in psychiatric procedures, it becomes obvious that these patients cannot be taken care of by psychiatrists. Therefore it is essential that every physician, whether he is in general practice or in a specialty, obtain some understanding of psychiatric principles and utilize these principles in the treatment of all his patients. The patient must be considered as a person who is ill and who has certain physical and emotional reactions to that illness, not just as a disease entity with no consideration of his way of thinking or feeling. "Here is a group of patients in which it is not the disease but the man or woman who needs to be treated . . ." (Francis W. Peabody[1]).

Problems involving the emotional and psychologic life of the patient can obviously be extremely mild or extremely serious, just as physical manifestations may vary in severity. The physician in general practice meets and treats all kinds of patient problems and this is, or should be, just as true of emotional illnesses or psychoneuroses as it is of any other type of illness. Clear understanding of the meaning of such symptoms and early proper treatment may prevent the development of serious manifestations.

No matter what the disease process, the person must have some sort of emotional reaction to his disorder if he is able to think or feel at all. Some approach illness in an apparently matter-of-fact manner, while others are extremely anxious, tense and disturbed over the possible seriousness of their condition. The person who must prove physical capacity to himself may find his emotional economy dangerously threatened by physical disease. On the other hand, the person who has reached the limits of his physical and emotional tolerance may welcome a physical disease as a means of relief from stress. Every patient will respond more promptly to treatment of any disease if the physician understands and adequately handles the emotional as well as the physical aspect of the illness.

A large percentage of patients who are sick have no physical cause for their illness, and yet the complaints and not infrequently the manifestations are of an organic nature. The physician who is satisfactorily practicing his calling must be aware of these possibilities and accept the challenge of carrying out a total treatment program. Unless the emotional problem is sufficiently complicated to require the service of a specialist, the physician who first sees the patient is the one who should treat the milder neuroses, which are characterized by anxiety, hysterical or conversion symptoms. Symptoms may simulate those of a relative with whom the patient identifies himself or toward whom he feels guilt. Sometimes the symptom is symbolic, such as the asthenia of the woman who wants to be cared for like a child, or the vomiting of a patient who rejects his sexual drives. Through psychogenic symptoms the patient often seeks to escape from an intolerable situation or to effect a compromise solution of an unconscious conflict.

During the past few years ever increasing attention has been paid to psychosomatic disorders. In a way the term seems unfortunate since it implies psychic and somatic difficulties rather than one disease process made up of thoroughly integrated psychologic, emotional and physical factors. Any bodily system may be involved with symptoms characteristic of dysfunction of the part, such as gastric ulcer, thyroid disease or hypertension. The specific localization and type of symptom in psychosomatic diseases is undoubtedly determined in part by constitutional factors such as a predisposition to allergic, vasomotor, cutaneous or other symptomatic disturbances, in part by accidental factors but largely by the experimental background and the type of stress affecting the person. Some interesting confirmatory manifestations occur in the course of psychotherapy. For example, a patient being treated by a dermatologist for excessive sweating of the hands and for psoriasis was referred for treatment of his emotional difficulties. During the course of treatment, when problems of strong emotional value were discussed his psoriasis would become much more pronounced. As the reaction to these emotional problems disappeared, the psoriasis improved and the excessive sweating dis-

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Read before the Section on General Practice of Medicine at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

1. Peabody, F. W.: Doctor and Patient: Papers on the Relationship of the Physician to Men and Institutions, New York, The Macmillan Company, 1930.

appeared. Treatment of the emotional factors resulted in progressive improvement, although local treatment had been of little value. A patient with an unquestioned diagnosis of polycythemia vera showed variations in symptomatology during treatment which were difficult to explain on the basis of physical factors but were easily understood on an emotional basis. Many of his symptoms, which have been described as manifestations of polycythemia, had existed long before a diagnosis of this disease had been made and unquestionably were related to emotional factors. These improved when the emotional conflicts were resolved.

Common is the exaggeration of symptoms of a physical illness or a prolongation of the manifestations of physical illness on the basis of emotional needs of the person. The patient who has influenza followed by asthenia may by improper supervision or recommendations for rest from his physician have these symptoms continued over a much longer than necessary period of time. The patient is already conditioned to fatigue from physical factors. The infection or disease process produces a locus minoris resistentiae, and when unneeded rest or a vacation is prescribed the patient has a socially acceptable reason for a continued manifestation of symptoms. The result is an easier but decidedly unhealthy way for the patient to meet his life's problems.

Adequate rest is essential in certain diseases, but, as Menninger[2] has pointed out, unnecessary rest is harmful. I am convinced that more patients with cardiac disease are killed by the anxiety and emotional reactions stimulated by the physician who wants to insure adequate rest than by the disease process itself. One striking example of this sort comes to mind. A relatively young man who had an unquestioned coronary thrombosis, with electrocardiographic evidence of significant involvement of the cardiac musculature, was told by his physician that he must have many weeks of complete rest in bed. The danger of activity was overemphasized by this warning. After a few weeks he began to be depressed and was referred to a psychiatrist, who, recognizing the danger of the emotional reaction, began to get the patient up gradually. The emotional problems which had really precipitated his cardiac difficulty were resolved and in due course, in less than two years, as a matter of fact, the patient was again carrying on full activity. This was some six or eight years ago, and recently he has gone deer hunting.

The list of psychosomatic disease processes which have significant emotional factors is long and steadily growing. There is real danger in such patients that ill conceived and unwisely administered physical, medical or surgical treatment will lead to an intensification of the patient's symptoms.

Practical means of making the diagnosis and planning treatment must be available to the general practitioner and to specialists in fields other than psychiatry. It is hoped that some of the following suggestions may be of value. The physician should show interest in and obtain information about the patient other than that related to the immediate complaint. Of particular value is the description of the patient's adjustment to his immediate associates, especially the family. An adequate history, properly taken, is an important step in the treatment process. The physical studies indicated by the patient's symptoms must be thoroughly performed. They should be sufficiently comprehensive to enable the examining physician to determine the physical status of the patient but should be conducted in such a manner that the anxiety of the patient is not increased. Frequently extensive examination procedures are interpreted as evidence of serious physical disease. The steps in making a positive diagnosis of an emotional disorder or tension state should begin at the first contact with the patient and should accompany other procedures. The diagnosis of emotional factors in illness under no circumstances should be made by exclusion. Too much emphasis cannot be placed on the establishment of a satisfactory personal relationship between the physician and patient. This should be neither too friendly nor too reserved but a happy compromise, which will gain for the physician the proper degree of respect from the patient.

The patient needs to know a great deal about his own personal views and prejudices. It is difficult to understand the problems of others unless one has some understanding of one's self. The physician's emotional bias must not be allowed to influence his attitude toward the patient. Constant attempts to understand the patient's point of view are necessary, and no matter what material may come out of the interview, the examiner should neither criticize nor for that matter approve of any activity which the patient may describe which has been the source of conflict. Under no circumstances should the physician assume an attitude of superiority or should the patient get the idea that the physician does not have time to listen to the patient's story. On the other hand, it is necessary to keep the patient on the subject and to prevent him from speaking at length about matters which have no significance in regard to the patient's difficulty. Significant statements may be made without warning and should be watched for continually. Interestingly enough, patients often will preface a particularly important comment by the statement, "This isn't important and I shouldn't waste your time about it." In the treatment procedure it is important to realize that the patient may have to discuss early conflictual situations which may have become transferred to contemporary persons or to contemporary environmental situations. This may appear to be a time-consuming process but actually is less so for the patient and certainly less expensive and less traumatic than a whole series of irrelevant and unimportant physical diagnostic procedures.

When the diagnosis of an emotional disorder has been established and the physical factors are found to be unimportant or not present, or have been satisfactorily treated, the danger of having a "nothing wrong attitude" must be kept in mind. To tell a patient that he has a "nervous stomach" or "nervous exhaustion" is extremely harmful. It gives the patient a handle to which he may attach his symptoms and tends to make him persist in retaining such symptoms.

The reeducation of the patient in the principles of mental and physical health, at the same time giving him some understanding of the means by which his symptoms may occur, is of importance. Interpretation of the symptoms to the patient is of value, but care should be exercised in this regard. Seldom should more than tentative interpretations and correlations be made. An approach such as "Do you think this might be bothering you?" may lay the groundwork for adequate understanding on the part of the patient of his difficulty. Not only the patient but his family should have adequate insight. The patient must understand that he is not being accused of putting on or of imagining his difficulty. He must realize that the symptoms are just as real and as significant, if not more so, as they would be if due to some physical process. If the patient's symptoms even in part are consciously motivated, it must be realized that there is a reason for it; in this field, as in all others, there is no effect without a cause. Almost more important than having the patient understand these factors is the necessity of understanding and acceptance on the part of the patient's family. Criticism, ridicule and jests tend to increase symptoms rather than to relieve them. Such procedures should never be a part of the approach of either the physician or the family.

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[2] Menninger, K. A.: The Abuse of Rest in Psychiatry, Bull. of the Menninger Clinic 9: 162 (Sept.) 1945.

As mentioned earlier, rest is much abused. Great harm can be done by the prescription of unneeded rest. Too much emphasis on this factor tends to convince the patient that he does have a physical basis for his symptoms, and since most of these patients would much rather blame their symptoms on a physical process such emphasis gives them just the opportunity that they constantly desire. It is more painful to face the issue but likewise far more healthful. Excellent practical recommendations for the understanding and treating of these patients is to be found in a technical bulletin issued by the United States War Department[3] and in a recent article by Rennie[4] in the *Bulletin of the New York Academy of Medicine* for January 1946.

Recognition of the importance of emotional factors in illness, a willingness to spend more time with such patients, an understanding of some of the motivating factors in such conditions and the ability to help in the solution of such problems is an essential characteristic of every good physician.

As a concluding remark, I should like to quote from that great physician, Sir William Osler. "The practice of medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions and powders but with the exercise of an influence of the strong upon the weak, the righteous upon the wicked, of the wise upon the foolish."

ABSTRACT OF DISCUSSION

Dr. Karl M. Bowman, San Francisco: I agree with everything Dr. Waggoner has said. I would like to bring up three additional points. First: Psychoneuroses are usually seen first by physicians from other fields of medicine than psychiatry. It is most important, therefore, that every physician have some understanding of these conditions and be prepared to deal with them. He should not dismiss such a patient by telling him that he is just imagining things and that there is nothing the matter with him. The physician should be prepared to treat the patient by reassuring him and starting him on the road to recovery. While it is not to be expected that physicians in general will become expert psychiatrists, they should have enough understanding of the subject to make a *preliminary* diagnosis and to see that the patient is referred to one from whom he can secure appropriate treatment. Second: It is important to remember that one is treating a person who is sick, and that the personality of this patient may be as important a factor in determining recovery as the sickness itself. To some persons sickness represents either a way to escape responsibilities or unpleasant tasks or a means of dominating or punishing others. It may also be a way of getting prestige or money, and every one is familiar with the difficulty in treating patients whose illness represents a financial gain. The method of examining a patient suspected of being psychoneurotic is of the greatest importance. The manner in which a physical examination is performed may either reassure and help toward cure or may terrify the patient and convince him that he has a serious disorder, thus making treatment more difficult. Third: It should be emphasized that no two persons are exactly alike and that the methods of approach, of study and of treatment that work with one patient will not work with another. This personality factor must be dealt with in all cases of sickness, whether mental or physical, and this cannot be done adequately by stereotyped methods.

Gen. Eugen I. G. Reinartz, United States Army: I should like to stress the importance of a paper such as Dr. Waggoner's to the general practitioner. There are some who do not take proper cognizance of the extremely important psychologic aspect of the patient who comes to them. The physician must think of a patient as a whole, not as one who presents certain symptoms. It has been my good fortune to have been Commandant of the School of Aviation Medicine where more than five thousand outstanding physicians have come for instruction and graduation. The courses in neuropsychiatry were the most popular of the entire curriculum. I am glad to say that this has added to the 2 per cent which Dr. Waggoner mentioned as the number of physicians psychiatrically motivated. This will be a happy leaven in the medical population of the United States as a whole.

Dr. John Z. Brown, Salt Lake City: For a number of years I have been concerned about my lack of training in this field, and I want to compliment Dr. Waggoner for calling attention to this great problem. I hope that this section will have more papers like this. When I was a student Dr. Sippy always said "Be sure to make a distinction if you can as to whether this problem is functional or anatomic." I have had as patients within the last eighteen months 6 young men with these symptoms who have come home from the government service. I think Colonel Chamberlain, who has charge of the psychiatric division at the Bushnell Military Hospital at Brigham City, Utah, is vitally interested in this problem. Dr. Waggoner appreciates the fact that so many of these questions which are dismissed as trivial really are not trivial. The number of young men who have been in the service and whom the Army is trying to rehabilitate is legion, says Colonel Chamberlain. The point I want to emphasize is that this problem is going to be met by general practitioners more frequently than it has in the past.

Dr. Raymond W. Waggoner, Ann Arbor, Mich.: The question raised by Dr. Bowman, that of the time involved in handling patients with neuropsychiatric difficulties, should be emphasized. I am much impressed with the need for taking a little more time in order to give the patient that extra understanding that may relieve him of his tension and allow him to take his place again in society without the manifestation of these symptoms. It is gratifying to know that in the early phase of a difficulty of this sort a short period of discussion by an understanding physician may relieve the patient of most of such symptoms. I cannot emphasize too much the fact that physical manifestations may frequently be the result of psychologic or emotional factors. Dr. Brown's reference to the boy who came to him and said, "Am I a nut?" raises a very important problem. Some doctors belittle a patient who has a gastrointestinal disturbance on a functional basis. These illnesses are just as real and oftentimes far more significant to the patient than a physical illness. Anyone has the possibility of developing an emotional disorder if the stress to which one is subjected in everyday life is sufficiently heavy.

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[3] Neuropsychiatry for General Medical Officer, United States War Department, Technical Bulletin (TB Med 94), Washington, D. C., Government Printing Office, Sept. 21, 1944.

[4] Rennie, T. A. C.: What Can the Practitioner Do in Treating the Neuroses? Bull. New York Acad. Med. **22**: 23-37 (Jan.) 1946.

Clinical Notes, Suggestions and New Instruments

DERMATITIS OCCURRING DURING THERAPY WITH TRIPELENNAMINE HYDROCHLORIDE ("PYRIBENZAMINE HYDROCHLORIDE")

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It has been discovered that most of the so-called "miracle drugs" introduced during the past few decades have had the potentiality of causing cutaneous reactions. The dermatoses resulting from the therapeutic application of the trivalent arsenobenzols, penicillin, the sulfonamide compounds and dinitrophenol, have limited the usefulness of these agents. However, to date there have been no reports of dermatoses due to the antihistamine drugs, such as diphenhydramine hydrochloride ("Benadryl hydrochloride" N. N. R.) and tripelennamine hydrochloride ("pyribenzamine hydrochloride" N. N. R.).[1] Therefore the 2 following cases are reported.

REPORT OF CASES

CASE 1.—K. S., a white man aged 28, had suffered with atopic eczema since infancy. On examination on July 7, 1946 the patient presented an erythematous, pigmented, lichenified dermatitis involving the face, the neck and the flexures of the arms and legs. Treatment with diphenhydramine hydrochloride was attempted. An oral dose of 50 mg. of the drug three times a day was prescribed but was discontinued after the first day because of the patient's weakness. On September 4 tripelennamine hydrochloride was recommended in the same dosage. Within twelve hours after the ingestion of the first tablet, the patient noted the development of a smooth, erythematous, macular, oval eruption on his trunk and extremities. The dermatitis followed the lines of cleavage of the body. The distribution suggested that of pityriasis rosea. The patient was not seen until two weeks later. During this time he continued to take the drug and the condition continued to spread. On examination on September 20, the lesions were considered to represent an atypical example of pityriasis rosea. However, the medicament was discontinued and the eruption slowly subsided over a period of three weeks. On November 15 the drug was again taken. The eruption recurred eight hours after the patient consumed the first tablet. Tripelennamine therapy was immediately discontinued, and the eruption disappeared in ten days.

CASE 2.—P. H., a white man aged 42, had been afflicted with a severe form of eczema for many years. On examination he presented a dry, pigmented, lichenified, erythematous, pruritic eruption involving his ears, neck, arms and legs. Tripelennamine hydrochloride was prescribed on Nov. 29, 1946. Within ten hours after taking the first 50 mg. tablet, the patient noted a rapidly spreading, generalized, erythematopapular eruption not unlike the original eczematoid dermatitis. It was considered that this probably represented an extension of the eczema. However, the patient then offered the information that another physician had given him this drug two months before. The ingestion of one tablet had caused an immediate generalized eruption of the same type. The extension subsided in about two weeks, leaving the lesions for which the patient originally sought treatment unchanged.

COMMENT

Clinically, the 2 eruptions were dissimilar. The first mimicked pityriasis rosea, while the appearance of the second suggested an extension of the patient's eczema. However, many drugs, including the arsenobenzols, gold salts and quinacrine hydrochloride, can cause similar dermatoses. In both instances, tripelennamine hydrochloride was incriminated by the following criteria: development of the lesions while the patient was taking the compound, reasonably quick clearing with discontinuance of the drug and immediate recurrence on its readministration.

In both instances the presenting dermatitis was atopic eczema. However, a series of 2 cases is insufficient to support speculation as to the relationship of dermatitis due to this drug with atopic eczema. The fact that its use may cause an eczematoid eruption in susceptible persons is of interest in view of the theory which links eczematoid eruptions with the release of histamine.

SUMMARY

Eruptions developed in 2 patients with atopic eczema while they were taking tripelennamine hydrochloride ("pyribenzamine hydrochloride" N. N. R.). One eruption was of the eczematoid type, the other resembled pityriasis rosea. Both cleared with discontinuance of the drug and recurred on its readministration.

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[1] Feinberg, S. M.: Histamine and Antihistaminic Agents: Their Experimental and Therapeutic Status, J. A. M. A. 132: 702 (Nov. 23) 1946.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

EMERSON RESUSCITATOR, MILITARY MODEL, ACCEPTABLE

Manufacturer: J. H. Emerson Company, 22 Cottage Park Avenue, Cambridge, Mass.

The Emerson Resuscitator, Military Model, is designed to furnish mechanical artificial respiration to victims of asphyxia. It is operated by compressed air. A foot pump compresses the air. The resuscitator can also be operated by compressed oxygen.

The apparatus is housed in a sturdy fiberboard carrying case measuring 24 by 16 by 6 inches (60.9 by 40.6 by 15.2 cm.) which, with its contents, weighs 36 pounds (16.3 Kg.).

The air compressor is a compact unit made of heavy enameled sheet metal measuring 18½ by 5½ by 5 inches (47.0 by 14.0 by 12.7 cm.) and weighing 10 pounds (4.53 Kg.). The air pump, which has a bore of 3 inches (7.6 cm.), a stroke of 5½ inches (14 cm.) and a volume of approximately 500 cc. for each stroke, is attached to the flat hollow base, which functions as the storage tank for compressed air. When not in use the foot pedal folds compactly over the pump. At the end of the base opposite the pivot of the pedal two valve outlets with a gage for attaching the mechanism of the resuscitator are provided.

The mechanism of the resuscitator is encased in an enameled sheet metal cylinder 4 inches (10.2 cm.) in diameter and 2¾ inches tall (7.0 cm.) and weighs about 2 pounds (0.9 Kg.).

Two types of equipment are available. One model is a resuscitator only; the other has an additional valve which converts it into an inhalator. A transparent plastic face mask with an inflatable rubber cuff is attached directly to the mechanism of the resuscitator. A fabric-reinforced rubber tube 4½ feet (114.3 cm.) long connects the apparatus to the source of compressed gas.

The working parts are similar to those of the hospital model of the Emerson Resuscitator, which is accepted by the Council and is described in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 30, 1942, page 44. The positive and negative pressure is created by the compressed gas acting on the valve mechanism of the resuscitator. According to the manufacturer the positive cycle has a pressure of + 14 mm. and the negative cycle a pressure of — 9 mm. of mercury in the face piece. The investigation of the Council substantiated these values to an accuracy of 2 to 3 mm. of mercury. Fluids and mucus may be removed from the respiratory passages with a large rubber catheter inserted into the trachea or pharynx. Suction is obtained by a venturi valve, which is connected with one of the outlets of the air chamber of the compressor pump through an aspirator bottle.

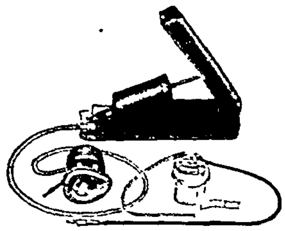
In this type of apparatus the respiratory rate is dependent on two factors: (1) the volume of gas which is necessary to create an intrapulmonary pressure sufficient to trip the valve and thereby initiate the negative phase and (2) the rate at which the gas flows into the respiratory system. The former is determined by the capacity of the lungs and air passages and is subject to individual anatomic variation. The latter is fixed at the factory by adjustments in the mechanism and cannot be changed by the operator. The respiratory rates obtained with this device are therefore determined by the capacity of the thorax of the individual on whom it is used.

When a rubber bag of 1,600 cc. was used to test the resuscitators a rate of 5 cycles per minute for apparatus under test was obtained and 8 cycles per minute in the other, while the resuscitator-inhalator operated at the rate of 10 cycles per minute. By reducing the capacity of the bag to 500 cc. the rates were increased to 10, 16 and 24 per minute respectively. The high rate of the resuscitator-inhalator was accompanied with low pressures within the bag and was due to an irregular fluttering of the valve mechanism.

When the resuscitator is operated by the foot pump, from 15 to 25 strokes per minute are required. The resuscitator-inhalator requires 40 to 45 strokes per minute. Both resuscitators can be operated, that is, two patients treated, simultaneously. This requires 35 to 40 strokes of the pump per minute, while operation of the resuscitator-inhalator and a resuscitator requires 60 strokes per minute.

With the pressure in the air chamber of the pump at an optimum for continuous operation of the resuscitator, approximately 70 foot pounds of work is needed to complete one stroke of the pump in slightly less than three seconds. At this rate 42,000 foot pounds is required to operate the resuscitator for thirty minutes.

Seven men in average physical condition operated the pump, with one resuscitator attached, for periods ranging from twenty to forty-five minutes. None were unduly fatigued, and each felt that he could have continued the work for a considerably longer period. One man was able to maintain adequate pressure to operate two resuscitators for thirty minutes without excessive fatigue. The pump was operated from a kneeling position, with both hands on the free end of the foot pedal, which allows the maximum use of the body weight and requires a minimum of muscular effort.



Emerson Resuscitator, Military Model.

Effective resuscitation using the foot pump requires two operators: one to maintain air pressure in the system and another to keep the face piece in close contact with the face to prevent escape of air, which interferes materially with the proper functioning of the resuscitator. The weight of the resuscitator mechanism (2 pounds or 907 Gm.) renders strapping to the face impracticable.

The resuscitator under investigation operated in the manner described when compressed oxygen is used. This combination can be used in operating room emergencies when the patient is in a supine position and there are no contraindications to the use of a positive pressure device.

If the apparatus is in readiness, resuscitation can be instituted within a few seconds by a person trained to use it. Clinical evidence of the efficacy and safety of this apparatus has been submitted by the firm.

The Council accepts resuscitators when critical evidence is received. The J. H. Emerson Company has submitted satisfactory information to substantiate the efficacy of this device when used in operating rooms and in medical institutions. Evidence has not been received indicating that the Emerson Resuscitator, Military Model, has been successfully employed by military personnel, firemen, policemen or rescue teams. The acceptance for the resuscitator in question is limited to its use in operating rooms and in medical institutions.

The Council on Physical Medicine voted to adopt the Emerson Resuscitator, Military Model, for inclusion in its list of accepted devices for use by physicians and adequately trained personnel who are familiar with the proper procedures to be followed in resuscitation as well as with the limitations and hazards of positive pressure, provided the advertising and descriptive matter contain the aforementioned limitations for its uses.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PENICILLIN (See New and Nonofficial Remedies, 1946, p. 212).

The following dosage forms have been accepted:

BRISTOL LABORATORIES, INC., NEW YORK

Crystalline Penicillin Sodium: 20 cc. vials containing 100,000 units, 200,000 units or 500,000 units and in combination packages containing a vial of penicillin sodium and a 20 cc. vial of isotonic salt solution.

MERCK & CO., INC., RAHWAY, N. J.

Crystalline Sodium Penicillin-G: 100,000 unit, 200,000 unit and 500,000 unit vials.

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Crystalline Sodium Penicillin-G: 20 cc. vials containing 100,000 units or 200,000 units.

E. R. SQUIBB & SONS, NEW YORK

Crystalline Sodium Penicillin-G with Buffer: 100,000 unit and 200,000 unit vials. Buffered with sodium citrate.

WYETH INCORPORATED, PHILADELPHIA

Penicillin Sodium: 200,000 unit and 500,000 unit vials.

CONTRACEPTIVE CAPSULES AND SUPPOSITORIES (See New and Nonofficial Remedies, 1946, p. 359).

The following article now stands accepted:

EATON LABORATORIES, NORWICH, N. J.

Lorophyn Vaginal Suppositories: Suppositories consist of a low melting mass prepared from the formula:

Phenylmercuric acetate	0.05%
Glyceryl mono-laurate	10.00%
Tween 61 (Sorbitan monostearate-hydroxy polyoxyethylene ether)	89.95%

Actions and Uses.—See article Contraceptive Capsules and Suppositories.

Dosage.—One suppository containing 2.85 Gm.

ESTROGENIC SUBSTANCES (See New and Nonofficial Remedies, 1946, p. 443).

The following dosage forms have been accepted:

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Tablets Estromone: 1,000 international units, 2,000 international units and 4,000 international units.

Solution Estromone (in Oil): 1 cc. ampuls and 10 cc. and 25 cc. vials. Each cubic centimeter contains 2,000 international units, 5,000 international units, 10,000 international units or 20,000 international units of estrogenic substances in sesame oil. The 10 cc. and 25 cc. vials contain 0.5 per cent chlorobutanol as preservative.

U. S. trademark 345,724.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1946, p. 618).

The following dosage forms have been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Solution Thiamine Hydrochloride 10 mg. per cc.: 1 cc. ampuls.

Solution Thiamine Hydrochloride 50 mg. per cc.: 1 cc. ampuls.

BACTERIAL VACCINE MADE FROM PLAGUE BACILLI (See New and Nonofficial Remedies, 1946, p. 577).

The following dosage form has been accepted:

CUTTER LABORATORIES, BERKELEY, CALIF.

Plague Vaccine: 20 cc. vials containing 2,000 million killed bacilli.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 28, 1947

POLIOMYELITIS VIRUS IN NERVOUS TISSUE

Bodian and Cumberland[1] report a study of the changes of virus titer in infected nervous tissue in all stages of the disease. The Lansing strain of poliomyelitis virus was used to permit an adequate titration of virus samples in mice. The virus levels in the spinal cord throughout the course of infection were studied in rhesus monkeys inoculated intracerebrally with Lansing virus, although another strain, avirulent in mice, was used for comparison of the time of persistence of virus in the recovery period. Spinal cord enlargements, including segments from the fifth cervical to the first thoracic and the fourth lumbar to the first sacral inclusive, were removed and split into right and left halves. Each half was then split into dorsal and ventral halves. Thus the cord suspensions prepared from the ventral quadrants contained all the neurons responsible for the muscle function of each limb. Virus levels were studied in the ventral quadrants of the cervical and lumbar enlargements of the spinal cord separately, so that correlation with the degree of paralysis could be made if possible. The authors made use of an unusual feature of the disease in monkeys, which is the initial paralysis of the arms in 75 per cent of cases followed by leg paralysis in the course of about twenty-four hours. This lag in leg paralysis is paralleled by a later onset of virus proliferation in the lumbar cord as compared with the cervical cord.

Intracerebral inoculation in monkeys is followed by a latent period of an average duration of seven days. During this period lesions or proliferated virus cannot be detected in the central nervous system. Signs of an active disease process begin with an early preparalytic period lasting about one day and characterized by early lesions in the brain which extend down the brain stem to the level of the upper spinal cord. Fever may or may not develop during this period. Virus cannot be detected in arm or leg segments of the cord as yet. A prodromal, late preparalytic period with an average duration of about one day follows and is characterized by increase of intensity of cerebral lesions and by consequent clinical signs of fever, generalized muscle spasticity and tremor. Lesions and high concentrations of virus are now found in the arm segments of the spinal cord, but virus and lesions may or may not become apparent in the lumbar cord at this stage. This sequence of events, according to the authors, is characteristic of Lansing virus infection in monkeys.

The authors expected to find a correlation between severity of paralysis and heights of virus titer. They found, however, that peak concentrations of virus could be reached within one day of the onset of the pathologic process and before clinically evident paralysis occurred. At this time, although some cells are really destroyed by virus action, most affected cells are apparently in various stages of chromatolysis. Probably peak concentrations of virus are achieved in such cells before their function is lost. By the time paralysis first appears, many motoneurons are severely injured or destroyed, neuronophagia is common and maximal concentrations of virus may still be obtained. The appearance of much neuronophagia at a time when high concentrations of virus occur suggested that the infectivity of the tissue is directly proportional to the amount of neuronophagia. This proportionality is incidental and is not directly related to the dynamics of virus multiplication and is true only in the earliest stages of the pathologic process. Soon thereafter the virus titer may drop precipitately, but neuronophagia may still be present in considerable amount and paralysis may even increase as injured cells continue to die.

These studies then reveal that peak concentrations of virus are achieved within one day after the virus is first demonstrated, and maximal concentrations are maintained for an average period of two days. These two days are the day preceding paralysis of the limb corresponding to spinal cord segment and the first day of paralysis. A sharp dampening effect on virus multiplication occurs on about the second day of paralysis. On the third day most cord segments have virus concentrations below the mouse infectivity threshold. Virus, however, can subsequently be detected for at least two weeks by subinoculation in rhesus monkeys. Since peak concentrations of virus may occur during the early stages of pathologic change, before sufficient motoneurons are destroyed or so injured that clinically evident paralysis occurs, and since virus levels decrease after the first day of paralysis, correlations of virus titer and severity of paralysis cannot be adequately made. The stage of the disease during which a sample of virus was obtained appeared to be without influence on the incubation period in animals inoculated with that sample.

These studies throw considerable light on the dynamics of poliomyelitis infection and likewise contain implications with regard to the possibilities of chemoprophylaxis and chemotherapy.

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[1] Bodian, David, and Cumberland, Mary C.: The Rise and Decline of Poliomyelitis Virus Levels in Infected Nervous Tissue, Am. J. Hyg. 45:226 (March) 1947.

THE SUPPLY OF DOCTORS

Recently a national periodical—*Collier's*—published a misleading article by Albert Maisel entitled "So You Can't Get a Doctor!" This long and somewhat confused statement purports to demonstrate that there is an acute shortage of doctors in this country and that deans of medical schools are callous to this alleged need, as shown by termination of the accelerated program in most schools and the reduction in freshmen enrolments to prewar levels.

Much of the material in this article is sheer nonsense. The author begins with a partial quotation from a publication of the American Medical Association, taken out of its context, predicting a postwar shortage of doctors. Actually this estimate was made when the end of the war seemed far distant and the military authorities were refusing to allow able bodied men to enter premedical studies. The figures quoted were based on military estimates of the physician need for a large peacetime army and navy, universal military training and a staff for the Veterans Administration three times the number now actually employed. Only a fraction of the anticipated number of physicians is now employed in these services.

While contending that maldistribution of doctors is not the major factor in the alleged shortage, Maisel selects as outstanding examples of shortages two states with per capita incomes well below the national average, and—of all places—Kelley's Island, 4 miles out in Lake Erie! The evidence for shortages even in large cities is based on replies to telegrams asking whether there exists in large cities a "surplus of physicians available for transfer elsewhere . . ." No wonder negative replies were received from fifteen cities. Even where a surplus might exist, physicians are not "available for transfer" to a place to which they do not choose to go any more than are engineers or day laborers.

Whether or not there is a real shortage of doctors requires a far more careful study than the mere sending of a few telegrams. Such studies are under way in several states, and in the country at large. The population of physicians in this country has increased somewhat more rapidly than the population at large in the past twenty years. Whether or not there is a real total shortage, some maldistribution prevails and redistribution is extremely difficult in a democracy. Men are free to work in a place where there are facilities for good work, such as hospitals and diagnostic equipment, stimulating professional and educational contacts and reasonably good family living conditions, and where a reasonably good income is possible.

There is close correlation between the per capita income of states or counties and the numbers of physicians who locate in any area. Such location is insignificantly affected by establishing more medical schools, increasing enrolments or accelerating the curriculum. More promising are the efforts now being made: the provision of hospital and diagnostic facilities under the Hospital Survey and Construction Act, the extension of prepaid medical care insurance, the strengthening of the status of the general practitioner, the information service on areas needing physicians, the intimate liaison of organized medicine with farm organizations, and similar considerations.

The reason for the cessation of acceleration and the return to prewar enrolment numbers is simple: medical educators were not doing as good a job of training physicians during the war as is now desired. More than 7,000 extra doctors were produced during the war. This was necessary. In many schools, facilities and strength of faculty now do not warrant maintenance of large enrolments or an accelerated program, without a serious sacrifice of high quality. Numbers can never replace quality, especially in medicine. On these questions there is virtually unanimous agreement among medical educators, deans, faculty members, the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association.

BIOGENESIS OF THE STEROIDS

In the animal the steroids are important. The bile acids, the estrogens, the androgens, the adrenal cortical hormones, the cardiac glycosides, cholesterol and the 17 ketosteroids are all lipids. These substances are intimately interrelated, differing primarily in the type and position of their nuclear substituents. After the isolation of cholesterol by Poulletier in 1769 the origin of this substance and its possible position as the precursor of these alicyclic compounds invoked much investigation.

The endogenous nature of cholesterol was demonstrated in 1925.[1] These results were confirmed;[2] further it was shown that plant sterols, by virtue of their nonabsorbability, do not contribute toward synthesis of cholesterol. Many controversial claims have been made relative to the site of cholesterol formation, with the spleen, adrenals, liver and gonads occupying predominant positions; nevertheless the site of formation of cholesterol is still unknown.

Many studies have been made on the possible precursors of this steroid, and several suggested precursors such as oleic acid, squalene and carbohydrates have been considered. Recently it has been conclusively shown[3] that cholesterol is synthesized in the animal from small molecules such as water and acetic acid.

The predominant question in the biogenesis of the steroids is whether cholesterol serves as the parent compound or whether these substances are synthesized de novo. It has been suggested[4] that cholesterol, after oxidative degradation, serves as the precursor to the steroid sex hormones. In 1943 the in vivo conversion of cholesterol to cholic acid was demonstrated.[5] The following year the transformation of desoxycorticosterone to pregnandiol was shown.[6] Further interrelationships among the steroids become evident when the cortical activity of progesterone and the progestational response to the alkyl testosterones were considered. The work[7] of the cholesterol content of the adrenal during hemorrhagic shock and on administration of the adrenocorticotropic factor of the pituitary presents additional indirect evidence of the biologic conversion of cholesterol to other steroids. The administration of labeled cholesterol to a pregnant woman and its subsequent conversion to pregnandiol[8] prove conclusively that the former occupies a key position in the biogenesis of some of the steroids. Much additional research is required in allocating the exact position of cholesterol in the biologic synthesis of the various steroids in the mammalian organism.

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[1] Channon, Harold John: Biochem. J. **19**: 424, 1925. Randles, F. S., and Knudson, Arthur: J. Biol. Chem. **66**: 459 (Dec.) 1925.

[2] Schoenheimer, Rudolf, and Breusch, Fritz: J. Biol. Chem. **103**: 439 (Dec.) 1933. Breusch, F. L., ibid. **124**: 151 (June) 1938.

[3] Bloch, Konrad, and Rittenberg, D.: J. Biol. Chem. **145**: 625 (Oct.) 1942.

Current Comment

CONSERVATIVE APPROACH TO VAGOTOMY

Acting on the concept that the hypersecretion of gastric juice in gastroduodenal ulcer is largely neurogenic, Dragstedt treated a series of patients who were troubled with more or less intractable gastroduodenal ulceration by utilizing an operation designed to remove permanently and as completely as possible the vagus innervation of the stomach. Grimson, Moore and others have reported favorable results from this operation. Lahey[1] now issues a warning against too enthusiastic reception of an operation which has not stood the test of sufficient observation. Gastroenterostomy for gastric or duodenal ulceration was accepted at one time as the operation of choice but fell into disrepute because of the high incidence of postoperative marginal jejunal ulcer and gastrojejunocolic fistula. Moreover, the operation, when not followed by these formidable complications, did not protect the patient against recurrence, hemorrhage, perforation or malignant degeneration of the gastric ulcer. Admitting that vagotomy will decrease or abolish gastric acidity and decrease hypersecretion and hypermotility, Lahey objects to its routine employment because of the frequency with which gastroenterostomy is required as part of the procedure. There is no adequate proof that gastric acidity may not return and that therefore there may not be a continuation of the recurrence of gastrojejunal ulcers and gastrojejunocolic fistulas as a result of these gastroenterostomies. While immediate relief of pain and ability to eat anything have been reported following vagotomy in many cases ulcers have recurred in some; there have been cases of cardiac arrest and fatalities probably associated with a hypersensitive vagus and a vagovagal reflex; there have been patients with abdominal distention, and there have been technical complications following the employment of this operative procedure. Vagotomy in Lahey's opinion would be ideal for a patient who had had a subtotal gastrectomy and then had a recurrent jejunal ulcer. Even though atony in the remaining stump is produced, there is still good drainage and there is no contracted pylorus to produce obstruction. In the Lahey Clinic infradiaphragmatic vagotomy is now employed for most of the patients on whom subtotal gastrectomy is done for duodenal ulcer. Because subtotal gastrectomy has had a low mortality, it is still preferred to any other intervention for the treatment of gastroduodenal ulceration. Since 1937 the mortality of subtotal gastrectomy for duodenal ulcer in the Lahey Clinic has amounted to 2.1 per cent, for gastric ulcer 0 and for jejunal ulcer 1.9 per cent. A conservative approach to vagotomy is advocated principally on the ground that sufficient time has not elapsed to evaluate both advantages and disadvantages of the procedure. Likewise the comment appeared in THE JOURNAL that the period of observation has been too short to permit a final evaluation of the method and that the question of ultimate regeneration of the divided vagi remains undecided.[2] Such complications as dilatation of the stomach and greatly impaired motility make necessary delay in final conclusions regarding the exact value of the procedure.

BRUCELLOSIS IN THE UNITED STATES

Approximately 4,000 cases of human brucellosis are reported annually to the state departments of health, but projection of the results of detailed local studies indicates that there are at least 30,000 to 40,000 actual cases. Alice Evans,[1] one of the pioneers in the study of brucellosis in this country, emphasized the discrepancy between the number of cases reported annually and the probable number of existing cases. A method of laboratory or clinical diagnosis is needed that will reveal the milder forms of the disease. Also desirable are methods for the control of brucellosis in animals and an effective therapeutic agent. The problem of diagnosis is particularly well illustrated by her own experience. Dr. Evans became infected in 1922 while working on cultures of Brucella melitensis. At first the disease was mild. For five years poor health repeatedly diagnosed as "neurasthenia" continued. Only accidentally during surgical intervention for another disease were brucellar lesions found from which B. melitensis was cultivated. The development of better methods of control, diagnosis and treatment of this widespread disease is one of the most pressing unsolved problems facing the medical profession.

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[4] Butenandt, A.: Naturwissenschaften **24**: 593, 1936.

[5] Bloch, Konrad; Berg, B. N., and Rittenberg, D.: J. Biol. Chem. **149**: 511 (Aug.) 1943.

[6] Horwitt, B. N.; Dorfman, R. I.; Shipley, R. A., and Fish, W. R.: J. Biol. Chem. **155**: 213 (Sept.) 1944.

[7] Sayers, George; Sayers, Marion A.; Liang, T. Y., and Long, C. N. H.: Endocrinology **37**: 96 (Aug.) 1945; **38**: 1 (Jan.) 1946.

[8] Bloch, Konrad: J. Biol. Chem. **157**: 661 (Feb.) 1945.

[1] Lahey, F. H.: A Position on the Employment of Vagotomy in the Surgical Treatment of Peptic Ulcer, Lahey Clin. Bull. **5**: 66 (Jan.) 1947.

[2] Vagotomy for Peptic Ulcer, editorial, J. A. M. A. **133**: 181 (Jan. 18) 1947.

[1] Evans, Alice C.: Brucellosis in the United States, Am. J. Pub. Health and the Nation's Health **37**: 139 (Feb.) 1947.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 9-13, 1947

(Continued from page 717)

HOUSE OF DELEGATES

Second Meeting—Tuesday Morning, June 10

The House of Delegates was called to order at 9:20 a. m. by the Speaker, Dr. R. W. Fouts.

Roll Call

On motion of Dr. Arthur J. Bedell, Section in Ophthalmology, seconded by Dr. Thomas S. Cullen, Maryland, and carried, the House directed that the signed registration slips constitute the roll call.

Presentation of Minutes

It was moved by Dr. H. B. Everett, Tennessee, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, that the House dispense with the reading of the minutes.

Report of Reference Committee on Credentials

Dr. G. Henry Mundt, chairman, announced that 173 delegates had been registered.

Report of Committee to Study Revision of the Constitution and By-Laws

The Speaker announced that the time had come for the House to consider the report of the Committee to Study Revision of the Constitution and By-Laws, and stated that Dr. F. F. Borzell, Chairman of that committee would read the proposed new By-Laws paragraph by paragraph and the members of the House would be given an opportunity to amend or to change each paragraph at the close of its reading.

Dr. Borzell read the proposed By-Law referring to membership and called for amendments. Dr. Allen H. Bunce, Georgia, called attention to the fact that part of this was contrary to the present Constitution by which the Association must be governed at least until next year.

After further discussion, it was moved by Dr. James C. Sargent, Wisconsin, seconded by Dr. H. B. Everett, Tennessee, and carried after discussion by several that consideration of the proposed revised By-Laws lie over a year until the proposed revised Constitution can be considered.

Presentation of Invited Foreign Guests

Dr. Morris Fishbein, Editor of THE JOURNAL, introduced Dr. Hugh Clegg, Editor of the *British Medical Journal;* Dr. Charles Hill, Secretary of the British Medical Association; Dr. J. A. Pridham, Chairman of the Committee on International Relations of the British Medical Association, and Dr. Guy Dain, Chairman of the Council of the British Medical Association. Dr. Dain addressed the House as follows:

Gentlemen, it gives me very great pleasure to be able to come to you and bring to you the message of good will from my Association. We are, shall we say, brother associations. The difference in our ages is not so enormous but what we are an elder brother for you. We had our centenary fifteen years ago. I would first say that we wish you very many happy returns and a very happy birthday this year in Atlantic City.

We thank you very much for the invitation which was issued to our Association to send representatives to be present at this great gathering. In coming, I want to take a moment to congratulate the American Medical Association on its achievements in its first hundred years. Obviously, I can't go over all its achievements, but I do want to single out three as being to my mind outstanding for a reason I will give you.

If you compare medical education in your country with what it was a hundred years ago and look at what your Association has done to raise the standard of medical education and qualification for the whole of the states, I think you can be extremely proud of that achievement.

Again, the work which you have done on the "patent" medicine question has been of outstanding value to the public in setting up new and more proper standards in the sale of drugs.

Then, in the third place, there is your own JOURNAL. I don't know whether Dr. Fishbein will be very pleased if I put it third in the order in which I have referred to things, but the standard of THE JOURNAL has had an enormous effect on the standards of medicine in the United States.

What I want to say to you is that it appears to me that the lesson we at home as well as you here want to learn from it is what may be accomplished by high purpose and courage. You have achieved these things without any of what we call at home "statutory powers"; you have had no government department behind you to see that the things you set out to do were accomplished. You have done it by educating your medical public and your general public to a higher standard in the matters which concern their well-being. For that you should have the very highest praise. For that to be done by a voluntary body without any statutory powers is an enormous achievement.

A person who reaches his hundredth birthday is concerned entirely with looking backward. You, as an organization, must look forward. I won't attempt to prophesy the great work you will accomplish in the next hundred years. I do want to say this one thing, that we on the other side of the Atlantic are very delighted that you have decided to take a hand in the establishment of the World Medical Association.

Coming to a birthday party, it occurred to us that it was quite an ordinary thing to bring a birthday present, and we were under considerable difficulty to decide what sort of present can possibly be given to an organization a hundred years old that it would not already have bought or have given to it. While I have no doubt that you have perhaps one or more, several, of the gadgets which I propose to offer to the Association from the British Medical Association, you won't have one which can convey better will than the one I offer you today, and that is a gavel and block for the chairman's use.

In order that it may tie the two countries perhaps a little closer together, I may tell you that it is made from the wood of the mulberry tree which stood in Charles Dickens's garden at Tavistock House when he was living there between 1851 and 1860 and writing books such as "Little Dorrit" and "Great Expectations." When we took over the property on which the British Medical Association House is built, that mulberry tree was standing there, and unfortunately it had to be taken down.

We offer you a bit of the wood with an inscription from the Association as a token of our good will and our good wishes for the next hundred years.

Dr. Fishbein requested Dr. R. L. Sensenich, Chairman of the Board of Trustees, to receive the gift, but in Dr. Sensenich's absence, Dr. George F. Lull received it with the following remarks:

Dr. Dain and Gentlemen from the British Medical Association:

It gives me great pleasure to appear for the Chairman of the Board of Trustees to accept this gift. The inscription reads as follows:

"To the American Medical Association on the occasion of its centenary, as a token of good will from the British Medical Association, this gavel and block made from the mulberry tree which grew in the garden of Charles Dickens's home in London, where the British Medical Association House now stands. June 1947."

I can assure you, on behalf of the House of Delegates of the Association, that it will be treasured and, coming from the British Medical Association and its home in London, it will be doubly appreciated. Thank you.

Dr. Fishbein then presented Dr. Sigurdur Sigurdsson, Chief Medical Officer of Tuberculosis Control and representative of the government of Iceland and the Icelandic Medical Association, who spoke as follows:

Mr. Chairman, Members of the House of Delegates:

I have a special honor in being able to be present at your meeting. I come a far way from one of the smallest and oldest democracies of the world, from Iceland, which has only as many inhabitants in thousands as the United States has inhabitants in millions. But in spite of that we are rather a small nation we try to keep our independence and special culture, which is one of the oldest in Europe.

We have our own university and the biggest faculty of that is the faculty of medicine. We have managed to keep the health standard in Iceland as high as that of the best nations; for instance infant mortality in Iceland has for many years been one of the lowest in the world and some years it has been lower than in any other country.

I myself am leading the antituberculosis campaign in our country, and this disease was a great problem there. In 1930 we lost 21.6 per 10,000 of the population through that disease. Through organization of the antituberculosis work and especially through mass x-ray examinations of the people, which now comprise about 60 per cent of the whole nation, we have in fifteen years succeeded in reducing the tuberculosis mortality from 21.6 to 6.8 per 10,000 population, that is 68.5 per cent. As far as I know, the capital of Iceland is the only capital in the world where almost every individual has been given x-ray service, and the Icelandic nation the only nation where 40.8 per cent of the whole population has been x-ray examined in only one year.

Iceland and America have from the first been strangely related, as first discovery of this country was by a young Icelander, born and bred there, whom you might have heard of, Leif Ericson.

In the last war there has again been considerable cooperation between my small nation and your great nation. Also there have been very pleasant relations between American doctors and American medical science and my country. Therefore, it is a great pleasure to me, in the name of the Icelandic government and of the Icelandic Medical Association, to express my thanks to the American medical profession and to wish the American Medical Association good luck and great progress in its noble service to humanity.

I thank you.

Dr. Fishbein then introduced Dr. F. Kingsley Norris, representing the British Medical Association in Australia, who addressed the House, as follows:

Mr. Speaker, Ladies and Gentlemen:

I come probably farther than most people here, about 15,000 miles, but it is a great privilege to come to you here and, on behalf of the British Medical Association in Australia, to wish you well and to thank you for all the great things that you have done. But to us, apart from those great things, you have done many other things. Your Rockefeller Foundation and your Carnegie Endowment have made it possible for many of us to come abroad and to be with you and see the great things that you have done. I will just give you one personal incident of what you people have done for me.

It was my privilege to be in charge of the medical units in New Guinea, where there were a number of American units. At one time our supplies were very short. We had no means of supply except dropping, and we were running desperately low and short of anesthetics Near me was an American unit, and along to me came the commander of that American unit. He said "I believe you are running short of anesthetics. I don't know anything about this lease-lend business, but anything we have is yours." I won't give you his name because that was not an individual speaking. That, I believe, was the whole American nation.

That was the spirit in which we served, and that was the spirit in which we lived. For those things and for that sentiment we are deeply indebted to you.

If you will allow me, I will just close with a quotation from one of your own medical men, Oliver Wendell Holmes. I may not quote it correctly. You may know it better than I do, but he was referring to a hundred years, and I think he said "Little of all we value here reaches the morn of its hundredth year without both looking and feeling queer. There is little I know that retains its youth except, as far as I know, a tree and a truth." That is broadly a quotation from one of your own medical men, Oliver Wendell Holmes.

Now you have reached the morn of your hundredth year without both feeling and looking queer, and you have retained your youth because you have built on those two things: soundness and truth.

For what you have done and for the privilege of allowing me to come here today, to meet you and to be with you, on behalf of the Australian Branch of the British Medical Association, we wish you well and thank you sincerely for the very greatest gift, that you have given always to the world.

Dr. Fishbein then presented Dr. Einar Geert-Jørgensen, senior physician of the Municipal Hospital of Copenhagen, chairman of the Danish Neurological Society and representative of the Danish Medical Association at the One Hundredth Anniversary of the American Medical Association, who addressed the House, as follows:

Mr. President, Ladies and Gentlemen:

As a delegate from the Danish Medical Association, I have the great honor to thank the American Medical Association for the invitation to the solemn Centennial Celebration of this most distinguished society. You must understand that it is impossible for me, as it would be for every Dane, to attend this session without thinking of our American colleagues who served in the war and who did their important and dangerous work. But especially I must think of the many of these brave and unselfish colleagues who lost life and health and I can, and must, say that we Danes never will forget what we owe our American colleagues and what we owe the United States of America who gave us back our lost and beloved freedom.

The German occupation was a dreadful time for us, and we will always remember and never forget the 5th of May 1945, the sunny day when the Allied troops came to Denmark, the day of freedom, peace and relief for our little nation, which loves freedom and peace as much as the great American nation does.

In the name of the Danish Medical Association but also in the name of all Danes, I request you to receive our best and most respectful thanks.

Then it is my pleasant duty to congratulate the American Medical Association and to bring our kindest regards and best wishes for the future of your famous society.

It is important to me to express our admiration for the great work that until today has been done by the American Medical Association for the progress of science and medical experience and thereby for the health of the American nation and the whole world.

At last it gives me great pleasure to deliver you a gift from the Danish Medical Association. It is an old book, Acta Medica

Bartholini, the first medical paper in Denmark, edited by our famous scientist and physician Thomas Bartholini, who lived in the late middle ages. At that time and in the next two hundred or three hundred years, progress in the sciences came from Europe, but in the last two to three decades, progress in science and especially progress in medical science has come from the United States of America.

This book is the first edition and I hope that you will appreciate it as much as we do.

With these few and I am afraid poor words which not sufficiently have explained our feelings for you and for the work you have done in the past years, I wish you—members of the powerful American Medical Association—a future with peace and friendship with other nations and a future with tenacious and incessant fighting against our common enemies, disease and ignorance.

Dr. Fishbein then introduced the representative from the government of Syria, Dr. Chafic Trefi, who spoke as follows:

Mr. Chairman, Ladies and Gentlemen:

The people of the republic of Syria, who have always had the warmest regard for the democratic people of the United States, are happy to cooperate internationally, not only to attain security, but also to improve health, because we believe sincerely that without a high standard of health throughout the world it is impossible to have harmonious international relations.

It is in this spirit and with this privilege that I come among you, bringing the sincere salute of our sanitary authorities, and celebrate with you the Centennial of the American Medical Association, which contributes enormously to the progress of medical science in all its domain.

The republic of Syria, because of her geographic position in the eastern Mediterranean, forming a bridge between the East and the West, has always shown a great interest in medical affairs. It was for this reason that, when our government became free and independent, it created a Ministry of Public Health.

It has also undertaken an extensive new health program, aiming to increase the number of doctors, hospitals and dispensaries. Actually there is no area in Syria without public health service or sanitation facilities, aiming to health security for all, regardless of residence, creed, religion or race.

A field survey of the country was carried out in order to evaluate the particular needs of individuals, because we believe that the only sound foundation for the best health service from every aspect is that of prevention. The Department of Health in Syria has the responsibility of administering a program providing maternal and child health service, medical, hospital, nursing and dental care for the indigent and medically indigent of the country.

At Damascus, our capital, we have five state hospitals with 2,000 beds, not counting the private clinics and university hospitals which are independent of the Ministry of Public Health. At Aleppo, where I work, we have four state hospitals with 1,500 beds, and in every Syrian town there is at least one state hospital and two or three dispensaries. The Syrian government in its new plan considers having a dispensary or a nursery in every Syrian village. In addition to these hospitals, there are also obstetric hospitals, sanitariums, sanitary inspectors and mobile units, with doctors and nurses to undertake both preventive and curative medicine, who will be continually traversing the country.

There are also modern laboratories to prepare vaccines against smallpox, typhoid and tetanus, and laboratories, both fixed and mobile, for the examination of drinking water. In all our state hospitals and dispensaries all treatment is free. The whole health service, including doctors and hospitals, is paid for by the state. The hospitals are provided with all the more modern adjuncts as regards x-ray, instruments and drugs such as penicillin.

The government has not limited itself to the health problem in its own country but has sent medical missions into other countries, and I myself have the honor to be a member of the mission that has been sent to the United States not only with the object of making ourselves acquainted with the progress of general medicine in this great and generous country but also to orient ourselves in various specialties such as surgery, microbiology, pediatrics, psychiatry and x-ray.

It is in this way that you, Ladies and Gentlemen, may believe that we will always be sincerely happy to work with you in a spirit of cooperation for the good of humanity, and in the name of the Syrian government I am pleased to greet you on this eventful occasion and to wish you continual activity and success in the service of your country and the world.

Dr. Fishbein acknowledged, on behalf of the American Medical Association, the priceless gift presented to the Association by Dr. Jørgensen, which will be available for exhibition in the headquarters office whenever the delegates may come to see it. He added that additional delegates and invited guests from other countries would be presented at the 2 o'clock meeting.

He introduced Dr. Augosto F. Conde, representative of the Cuban Association of Physicians, and Dr. Felix Hurtado, Dr. José Angel Bustamente, Dr. Gustavo Aldereguía and Dr. Guillermo G. Lopez, also of Cuba, Dr. Hernante Corhata of Venezuela, Dr. Francisco J. Aguilar, representative of the Medical Federation of Guatemala, and Dr. T. C. Routley, representing the Canadian Medical Association and the World Medical Association.

Dr. Routley addressed the House, as follows:

Mr. Speaker, Mr. President, Distinguished Guests and Members of the House of Delegates:

As many of you are aware, it has been my privilege each year for the past twenty-four years to bring you a message of good will from the Canadian Medical Association. On this, your centenary, I am very happy indeed once more to be the ambassador from the medical profession of the Dominion of Canada, not only to convey our good wishes and congratulations but also to express the hope that your second hundred years may be as highly successful and satisfactory as your first hundred years have been.

It is also my delightful privilege to bring you greetings from the World Medical Association, the baby member of the family of medical associations but one which is designed to play a very significant part in the promotion of health and better understanding among people of good will throughout the world.

In September 1946, on the invitation of our medical colleagues in France and Great Britain, an International Medical Conference was held in London for the purpose of considering the organization of a worldwide medical body. Delegates and observers from thirty-two national medical associations, including your own Association, met together for several days, on the conclusion of which it was unanimously agreed to organize a World Medical Association with the following objects:

1. To promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available.
2. To maintain the honor and protect the interests of the medical profession.
3. To study and report on the professional problems which confront the medical profession in the different countries.
4. To organize an exchange of information on matters of interest to the medical profession.
5. To establish relations with, and to present the views of the medical profession to the World Health Organizaiton, UNESCO and other appropriate bodies.
6. To assist all peoples of the world to attain the highest possible level of health.

An Organization Committee of thirteen members was appointed, including Dr. L. H. Bauer and Dr. E. L. Henderson from your own Association. The committee has met three times, and arrangements are nearing completion for the World Medical Association to hold its first meeting in Paris, France, during the week of Sept. 15, 1947. Already eighteen medical associations, including all of the larger ones, have signified their desire to become members of this new body. Your committee believes that, in the not too distant future, every national medical association of any importance throughout the world will enjoy membership in the World Medical Association.

It is not the purpose or intention of the World Medical Association to intrude into those affairs which constitutionally belong to individual associations and countries. The World Medical Association is not a super body, desiring to dictate to any one. On the contrary, the World Medical Association conceives it to be its duty as well as its privilege to do all in its power to acquaint the doctors of the world with matters of interest and importance to them and to be the medium through which doctors may assist all mankind to attain the highest possible level of health.

Very shortly after the September conference in London, the American Medical Association indicated its willingness to join the World Medical Association and give support to its aims and objects. I am sure my colleagues of the organizing committee, and the medical associations scattered throughout the world, would wish me to say that the World Medical Association was heartened indeed by this action on your part. This great Association with more than 130,000 members, committed to the lofty purpose of saving human lives, can be a tower of strength to the rest of the world in promoting those ideals and objectives which are so essential to human health and happiness.

One does not need to be a seer or a prophet to recognize the chaotic state in which the world now finds itself, and the danger signals which rear their heads as a threat to future world peace. Surely, we of the healing arts, whose lives are dedicated to the saving of human lives rather than to their destruction, have a tremendous part to play in promoting international good will and understanding. We are not concerned with political squabbles, territorial aggrandizement or economic bargaining. We have nothing to sell to one another but we have much to give to each other. We go into one another's countries, not looking for profit but bearing gifts. Surely our slogan, whether we be black men, white men or yellow men, is "What Can We Do to Help You?"

As the *British Medical Journal* so well says in its issue of May 3, "It is clear that world medicine, having no ax to grind, and being above politics and ideology, can exert a salutary influence in world affairs. Closer contact of the members of the profession throughout the world must surely advance international friendship and good will." If I might be so bold as to suggest an additional objective to this influential Association for its second hundred year period, it would be that you support enthusiastically the world movement in medicine with the same courage and devotion, strength and vision as you have done during the past hundred years in establishing in this great country the high place which you now enjoy and so rightly deserve.

Humanity faces a grave decision. We must either go forward as one world or run the risk of going into utter darkness blacker than the dark ages ever saw. We in medicine—worldwide medicine—have a vitally important part to play in promoting world health and world peace. In the immortal words of Dr. John McCrae, who said "To you from failing hands we throw the torch; be yours to hold it high"—may I say that we of the healing arts must hold that torch high—so high that it will be a light to the footsteps of mankind everywhere; and, once having seen the light and measured its beauty and appreciated its guidance, mankind will refuse to see that light go out. Surely, mankind will choose to live in peace rather than to die in war.

Dr. George F. Lull, Secretary, stated that the Association had received many telegrams and resolutions, which he did not read, among them being a very beautiful printed resolution from the Swiss Academy of Medical Sciences, signed by the President and the Secretary-General; a telegram from the Guild of Prescription Opticians of America, congratulating the Association on its hundredth anniversary; congratulations and best wishes from the Louisiana State Nurses Association; congratulations and best wishes from the Korean Medical Association, National Department of Public Health and Welfare; best wishes from Dr. Hector Valle Pineda, president of the Havana Medical Association, and from the Pan American Medical Association; congratulations and extending his appreciation from Professor Arthur Stoll, Basel, Switzerland; greetings and congratulations from the *Medical Journal of Australia;* congratulations from the American Surgical Trade Association, an organization whose membership is dedicated to service the medical profession, and from Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association; a letter from the representative of the National Health Administration of China, who will appear before the House at a later date, as he has a presentation to make at that time; a set of resolutions from the Philippine Medical Association, which Dr. Fishbein has already published in THE JOURNAL; this beautiful set of resolutions, which were to have been presented in person by Father Schwitalla, the very good friend of many of us, for the Catholic Hospital Association (As you know, Father Schwitalla was taken ill and could not come to the meeting but he sent a representative, and these resolutions were presented), and a very interesting resolution from the home office, from the Chapel of the Typographical Union, which says, in part, "This Chapel in regular meeting assembled on the 28th day of May goes on record as extending to the American Medical Association our heartiest felicitations on its One Hundredth Anniversary."

The Speaker requested the Secretary to make appropriate acknowledgments of all of these resolutions.

Supplementary Report of Judicial Council

Dr. Louis A. Buie, member of the Judicial Council, reported as follows: I am speaking on behalf of the Judicial Council. Having observed the difficulties that have arisen this morning, which arose in December, in an attempt on the part of the House of Delegates to do what every one considers to be proper in the adoption of the Constitution and By-Laws in revised form, and realizing that it is possible that some of these difficulties might have been obviated by a response to the request of the chairman of the committee which was appointed to revise the Constitution and By-Laws, of which I am also a member, that request being that the revised copy of the Constitution and By-Laws which was sent to each member of the House of Delegates a month ago be studied carefully and that suggestions be sent to the committee in order that these adjustments might be made prior to this meeting, further, that any of those who wished to discuss any vital points, such as a conflict between the By-Laws and the Constitution, as was brought out by Dr. Bunce, should come before this committee at its meeting last Saturday morning at 10 o'clock, when all of us were present and when only one individual came to present any problem, that being Dr. Henderson of the Board of Trustees—realizing all of those facts and because of the fact that the Judicial Council has in prospect and is now working on the problem of a revision of the Principles of Medical Ethics, or a rearrangement if you wish, I don't know that you can change principles any more than you can change the Ten Commandments, but with changing times and conditions we realize that certain readjustments can be made.

I make these few remarks, Mr. Speaker, because I wish to try to avoid a similar circumstance when we come to the time of presenting to this body our suggestions and your suggestions concerning an alteration in the Principles of Medical Ethics which have guarded this Association for one hundred years.

I should like to call your attention to the fact that when this responsibility was laid on the Judicial Council at the meeting of the American Medical Association in San Francisco last July, the Chairman of the Council arose and requested that suggestions be sent to this Council concerning these revisions. As the Chairman of the Council read in his supplementary report yesterday (it might have been overlooked; consequently I repeat it now), only three letters have been received during the period of a year which has elapsed. So, if there are any suggestions which you have concerning this important revision of the Principles of Medical Ethics, we will certainly be very grateful to you if you will send them in to us, the members of the Judicial Council who are charged with the responsibility of making a revision which must be approached cautiously and must be done in order that it may have lasting value.

On behalf of the Committee to Study a Revision of Constitution and By-Laws, I should like to say that we are perfectly willing to continue our efforts in regard to carrying forward this task of the revision as you would like to have it.

Report of the Reference Committee on Amendments to the Constitution and By-Laws

Dr. Britton E. Pickett Sr., Chairman, presented the following report:

1. Because of the desirability of conferring Honorary Fellowship on certain distinguished foreign guests, your committee recommends that chapter XII, section 7, of the present By-Laws of the American Medical Association be amended to read as follows: "Physicians of foreign countries who have risen to prominence in the profession of medicine and who are in attendance at the session may be elected to Honorary Fellowship by the House of Delegates on the nomination of the Council on Scientific Assembly. The several sections may make recommendations to the Council on Scientific Assembly regarding individuals for such nomination."

2. Your committee has considered the supplementary report of the Judicial Council pertaining to the revision of the Principles of Medical Ethics and approves the report in its entirety.

Respectfully submitted,

Britton E. Pickett Sr, Chairman.
L. G. Christian.
Allen H Bunce.
Homer Lee Pearson Jr.
Alfred S. Giordano.

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Thomas S. Cullen, Maryland, and carried that the first section of the report of the reference committee be adopted.

Dr. Bedell then moved that chapter XII, section 7, of the By-Laws be amended to conform with the report of the reference committee. The motion was seconded by Dr. James C. Sargent, Wisconsin, and carried, and the Speaker declared the By-Laws so amended.

The second section of the report of the reference committee, approving the supplementary report of the Judicial Council dealing with revision of the Principles of Medical Ethics, was adopted on motion of Dr. Pickett, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried after discussion.

On motion of Dr. Pickett, seconded by Dr. Thomas S. Cullen, Maryland, and carried, the report of the reference committee was adopted as a whole.

NEW BUSINESS

Resolutions on Sections Celebrating Their Centennials

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolutions, which were referred to the Reference Committee on Sections and Section Work:

Whereas, Centennial celebrations are excellent for our spirits and morale, and aid in stimulating further accomplishments in this country of ours; and

Whereas, The medical profession has every reason to be proud of and to publicize our scientific progress, and

Whereas, The sections of the American Medical Association have been established at varying times with reports and records of the contributions of specialists and general practitioners, be it

Resolved, That the sections of the American Medical Association likewise observe the centennials and anniversaries of their establishment with appropriate ceremonies, noting the records of achievements in the particular specialty, to center attention on scientific progress as a part of the history of the American Medical Association; and be it further

Resolved, That funds be appropriated as may be necessary

Resolutions on Hospital Relationships—Specialty Board Relationships

Dr. John J. Masterson, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

Whereas, The house of delegates of the Medical Society of the State of New York on May 7, 1947 adopted the following resolutions: and

"Whereas, It is the policy and aim of the American Medical Association to foster affiliation of all physicians with a hospital in order that they may continue their education and increase their efficiency; and

"Whereas, Interference in doctor hospital relationship is influenced by the indirect action of the various specialty boards; and

"Whereas, On account of the numerous complaints from returning veterans being unable to qualify for a board on account of a lack of available acceptable residencies; and

"Whereas, This condition is prevalent throughout the country; therefore be it

"*Resolved*, That delegates of the Medical Society of the State of New York be directed to memorialize the House of Delegates of the American Medical Association at its forthcoming June meeting in Atlantic City that the Board of Trustees be requested to appoint a committee for the purpose of investigating the hospital specialty board relationships and to take whatever means necessary to correct the situation," therefore be it

Resolved, That the House of Delegates of the American Medical Association approves the foregoing and requests the Board of Trustees to be guided accordingly.

Resolutions on Safety in Flying

Dr. Floyd S. Winslow, New York, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, It has been brought to the attention of the American Medical Association that a condition detrimental to the public interest has developed with reference to safety in flying, as evidenced by the adoption of the following resolution by the Aero Medical Association on June 6, 1947:

> Whereas, The Civil Aeronautics Administration during the past three years has lowered the physical standards for private and student pilots, and
>
> Whereas, The Civil Aeronautics Administration has permitted physical examinations of private and student pilots to be made by physicians without training in aviation medicine, and
>
> Whereas, The Civil Aeronautics Administration has still further lowered the safeguards of physical qualifications by permitting the examinations of these two grades of pilots to be made by persons whose education and training do not qualify them as doctors of medicine and in some instances by persons who are untrained even in the basic medical sciences; and
>
> Whereas, These actions of the Civil Aeronautics Administration have been taken contrary to authoritative medical advice and are, in the opinion of the Aero Medical Association, fraught with danger to the public and to aeronautics and have resulted in deluding the public with a false sense of security, therefore be it
>
> *Resolved*, By the Aero Medical Association of the United States, at its 18th annual meeting in Atlantic City, N J, June 3 to 6, 1947, that it condemns these dangerous policies of the Civil Aeronautics Administration, and be it further
>
> *Resolved*, That in the opinion of the association, physical examinations of all grades of pilots should be conducted only by those who are doctors of medicine and who have some training in aviation medicine, and be it further
>
> *Resolved*, That these resolutions be published and copies transmitted to the Secretary of Commerce and to the appropriate Committees of Congress,

Whereas, The American Medical Association is in accord with the opinion and action of the Aero Medical Association, therefore be it

Resolved, By the House of Delegates of the American Medical Association at its annual session in Atlantic City, N J, that it endorses these resolutions adopted by the Aero Medical Association on June 6, 1947, and be it further

Resolved, That the Board of Trustees be authorized to take such action as deemed advisable by the Board to further maximum safety in flying

Resolution on Increasing Pay of Medical Officers in the Several Services

Dr. James C. Sargent, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The procurement of an adequate number of qualified medical officers for the armed forces has come to be a most critical problem, and

Whereas, It is the expressed belief of those in authority that this situation is due largely to the present discrepancy between military and civilian medical practice in the matters of income and opportunities for professional advancement; therefore be it

Resolved, That the House of Delegates go on record commending and encouraging the present efforts of the War and Navy departments and the Public Health Service in securing legislation raising the professional standards and increasing the pay of the medical officers within the several services

It is not the purpose or intention of the World Medical Association to intrude into those affairs which constitutionally belong to individual associations and countries The World Medical Association is not a super body, desiring to dictate to any one. On the contrary, the World Medical Association conceives it to be its duty as well as its privilege to do all in its power to acquaint the doctors of the world with matters of interest and importance to them and to be the medium throug' which doctors may assist all mankind to attain the highest p sible level of health.

Very shortly after the September conference in Lond
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Veterans Administration, in a single agency
which with health, and
does not conform to this objective; therefore be it
the House of Delegates of the American Medical
its unalterable disapproval of S. 140; and be it
That the sponsors of this measure and all other members
and of the House of Representatives be appraised of this
be it further
That the constituent state associations be urged to take
action

Resolutions on Inclusion of General Practitioners on Staffs of Hospitals

Dr Thomas A. McGoldrick, New York, presented the following resolutions, which were referred to the Reference Committee on General Medical Practice:

These resolutions are presented at the direction of the Medical Society of the County of Kings located in Brooklyn, which is composed of 3,400 members of the American Medical Association

The delegates of Kings County are directed to introduce these resolutions

Resolved, That the American Medical Association urge the inclusion of general practitioners on the staff of approved hospitals, and

Resolved, That recognition of hospitals shall not be jeopardized by the American medical colleges or colleges of special branches of medicine because of the fact that they include general practitioners on their staff; and

Resolved, That all physicians, before being rated as specialists, should spend an adequate number of years in general practice, and

Resolved, That training in hospital wards and dispensaries be accepted as a qualification for a specialist in lieu of a full time residency

Resolution on Care of Veterans

Dr. Herbert H. Bauckus, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business

Whereas, The veterans suffering from injury or disease incurred during service in the armed forces deserve not only great sympathy from the community but medical care second to none; and

Whereas, In several states, through the operation of workmen's compensation laws, the highest type of medical and surgical care is provided for injured workers, and

Whereas, The majority of patients in veterans' hospitals are those with non service connected disabilities, and the Veterans Administration contemplates the erection of enormously increased facilities, primarily to take care of veterans' non service connected disabilities; and

Whereas, It would be false economy to deprive the veterans with service connected disabilities of the finest medical care; therefore, be it

Resolved, That the House of Delegates of the American Medical Association urge the President of the United States and the administrator of veterans' affairs to continue and augment the existing "home town" medical care program

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n Requesting Discontinuance of Notarization *claration* of Narcotics on Hand to Accom-*pany* Renewal of Stamps

Q Graves, Louisiana, presented the following
ich was referred to the Reference Committee on
d Public Relations:

is commonly known that application papers under the
rcotic Act must be notarized when a physician first
cial tax stamps; and

ler this same act notarization is not required for

required that the declaration of narcotics on hand
accompany the application for renewal of stamps and
e notarized; and

second notarization appears useless and unnecessary,

the House of Delegates of the American Medical
h the proper channels appeal to the Collector of
in Washington for the discontinuance of this require
notarization

Placing Statue of Dr. William Crawford . New York University Hall of Fame for Great Americans

Dr. Lloyd Noland, Alabama, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, Dr. *William Crawford Gorgas,* native son of Alabama, Surgeon General of the United States Army, 1914-1918, passed away July 4, 1920, having served his country in war and in peace with rare skill and ability, thereby reflecting fame and distinction on the medical profession of his native state of Alabama and on that of the nation; and

Whereas, In May 1937 a bust of Dr Gorgas was placed on the capitol grounds at Montgomery with the authority and approval of this association, on which was a tablet describing Dr. Gorgas as "A Servant of Mankind and A Benefactor to Humanity" and further expressing the sentiment of this association in respect to his work, that "his vision and his initiative translated the known scientific facts concerning yellow fever into practical accomplishment, thereby making possible the control of this scourge of the tropics and the building of the Panama Canal"; and

Whereas, The *judgment of the medical profession of America* was suitably expressed by that eminent member of the profession, Dr William H Welch, while President of the American Medical *Association in 1912, when presenting Dr Gorgas at Johns Hopkins for* an honorary degree as follows

"In behalf of the Academic Council, I have the honor to present for the *honorary degree of Doctor of Laws Dr William Crawford* Gorgas, Colonel in the Medical Corps of the United States Army, member of the Isthmian Canal Commission, and Chief Sanitary Officer *of the Isthmian Canal Zone, formerly President of the American* Medical Association, physician and sanitarian of the highest eminence, who, by his conquest over pestilential diseases, has rendered signal *service to his profession, to his country, and to the world*

"With high administrative capacity and with full command of the resources of sanitary science, Colonel Gorgas has given to the world the *most complete and impressive demonstration in medical history* of the accuracy and the life saving power of our new knowledge concerning the causation and mode of spread of certain dreaded epidemic and endemic diseases

"He it was who, by application of the discoveries of Major Reed and his colleagues of the Army Yellow Fever Commission, was mainly *instrumental in freeing Cuba of yellow fever and he it is who,* in spite of obstacles and embarrassments, has made the construction of the Isthmian Canal possible without serious loss of life or incapacity *from disease—a triumph of preventive medicine not surpassed* in importance and significance by the achievements of the engineer.

"In the conquest of science over disease, in the saving of untold *thousands of human lives and of human treasure, in the protection* of our shores from a formerly ever threatening scourge, in the reclamation to civilization of tropical lands, in results such as these are to be *found the monuments of our laureate,* his victories of peace, to which this university would now bear testimony by such honor as it can bestow", now therefore be it

Resolved, By the Medical Association of the State of Alabama in annual convention assembled at Birmingham on April 14-16, 1947 that it is the judgment of this association that William Crawford Gorgas is *worthy of election to the New York University* Hall of Fame for Great Americans, and that steps should be taken to that end, and be it further

Resolved, That this resolution be presented by the delegates from this association to the House of Delegates of the American Medical Association at its next annual meeting, with the view that a suitable resolution may be adopted by that Association, endorsing and concurring in the action of this association, and be it further

Resolved, That a committee be appointed by the President of this Association, to take such other steps as may seem expedient to carry out the purpose of this resolution.

Resolution on Hospital Standardization

Dr. Edward H. McLean, Oregon, presented the following resolution, which was referred to the Reference Committee on Medical Education:

Whereas, The Council on Medical Education and Hospitals, through the establishment of standards for hospitals and their periodic inspection, has contributed materially to the development of high type hospital service and to proficient professional care in hospitals; and

Whereas, The American College of Surgeons has also established hospital standards and carries on periodic inspection; and

Whereas, The American College of Surgeons, representing as it does the surgical specialties, has placed primary emphasis on this phase of medical service in hospitals; and

Whereas, The interests of the public and the medical profession as a whole are best served by the establishment and enforcement of standards which give due weight to all the various phases of medical practice; therefore be it

Resolved, That the Council on Medical Education and Hospitals be authorized and directed to review the various existing forms of hospital standardization and in cooperation with the constituent state medical associations promulgate and enforce new and up to date standards that reflect the needs of all phases of medical service and professional care in hospitals.

Resolutions on Training of Medical Students to Administer Programs of Health and Medical Services in Schools and in Industry

Dr. Clifford C. Sherburne, Ohio, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

Whereas, The establishment of a central, coordinating unit to administer programs of health and medical services and health educational activities in universities, colleges, secondary school systems and industry is being attempted in many communities in an effort to bring about efficient and economical operation of such programs; therefore be it

Resolved, That so far as practical, the administration of such programs should be under the leadership and control of a doctor of medicine, possessing administrative ability and with experience and training in the technics of preventive medicine and health education; and be it further

Resolved, That all schools of medicine be urged to provide training which will equip graduates for administrative work of this character in order that leadership and coordination may be furnished by medically trained administrators.

Resolutions on Hospital Competition with Private Practice

Dr. B. R. Kirklin, Section on Radiology, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, Incorporated voluntary hospitals in several communities have urged physicians, either by letter or word of mouth, to refer ambulatory patients to the hospital for diagnostic and therapeutic medical services to be rendered by specialists in the hospital; and

Whereas, For the purpose of increasing their profits from these medical procedures some hospital administrators have even stated that they would withdraw staff privileges from physicians and surgeons who refused to refer their patients to the hospital for these outpatient medical services; and

Whereas, Such competition of hospital corporations with private practicing physicians who maintain private offices and the use of such tactics to obtain outpatients for the hospital to its own profit is in violation of the Principles of Medical Ethics and the policies of organized medicine and contrary to the best interests of the patients involved; therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby expresses its emphatic disapproval of such practices which place hospital corporations in the practice of medicine in direct competition with private practicing physicians; and be it further

Resolved, That the Council on Medical Education and Hospitals of the American Medical Association be instructed to convey the sense of these resolutions to all hospitals registered by said Council; and be it further

Resolved, That a copy of these resolutions be transmitted to the American College of Surgeons with the request that its Committee on Hospital Standardization bring said resolutions to the attention of the administrators of hospitals which they inspect.

Resolution on Dissemination of Information Pertaining to Matters of Public Health

Dr. Arthur J. Bedell, Section on Ophthalmology, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business, with the suggestion that that committee call on the Judicial Council if it sees fit:

Whereas, It is not contrary to the Principles of Medical Ethics as determined by the American Medical Association for members of the Association to disseminate information pertaining to matters of public health, such as cancer, diabetes, venereal disease and other conditions, by lectures, demonstrations, radio talks, pamphlets, conferences or other means to nonmedical groups; and

Whereas, Ophthalmic subjects such as vascular disease, glaucoma, retinal disorders, optic nerve disease and so on, considered as potential causes of blindness, are matters of grave importance to the public; and

Whereas, The prevention of blindness is one of the chief obligations of ophthalmologists; therefore be it

Resolved, That the Section on Ophthalmology of the American Medical Association declares that it is entirely within the definition of medical ethics for its members to engage in lectures, demonstrations, the preparation of pamphlets and other measures suitable for the dissemination of information designed to prevent blindness, and directed to any nonmedical group.

Resolution on Clarification of Rules Relating to Medical Service Fees Received from the Federal Government

Dr. Thomas D. Cunningham, Colorado, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, Many members of the American Medical Association are now being remunerated financially by various branches of the federal government as the result of pension rights or retirement pay from the Army or Navy and for services rendered as Veterans Administration consultants, teachers in Veterans Administration institutions, experts in federal compensation cases or as participants in "Hometown Care Plans"; and

Whereas, Much confusion now prevails regarding the numerous rules, regulations and directives of the various branches, bureaus, agencies and commissions of the federal government; and

Whereas, The receipt of income from one branch of the federal government would seem in certain instances to preclude the acceptance of fees from other branches of government; now therfore be it

Resolved, That the House of Delegates of the American Medical Association instruct the Editor of The Journal of the American Medical Association and the Bureau of Legal Medicine and Legislation to collect, annotate, analyze, interpret and publish a digest of all the rules and regulations of the federal government pertaining to medical practice and medical service fees.

Resolution on Change of Policy of American Specialty Boards

Dr. Thomas D. Cunningham, Colorado, presented by title a Resolution on Change of Policy of American Specialty Boards, which was referred to the Reference Committee on General Medical Practice. The resolution reads:

Whereas, Certain of the American specialty boards not only refuse to grant credit for experience and training acquired in the field of general practice but have also recently announced discontinuance of their former practice of according credit for preceptorships with a certified diplomate and have ruled instead that every applicant for certification must serve a lengthy residency following his internship; and

Whereas, This recent change in policy constitutes an unfair imposition on many returned medical veterans and other young physicians who find it impossible to obtain such residencies; and

Whereas, Doctors entering the various specialties without any experience or training in the field of general practice find it difficult, if not impossible, to develop a broad overall understanding of the field of medicine as a whole, and

Whereas, General practice offers unique opportunities for the development of individual initiative, self reliance, personality development and professional growth; and

Whereas, It is the opinion of the American Medical Association that general practice and preceptorships are two of the best methods of teaching the art of medicine; and

Whereas, Qualified and experienced preceptors already certified by these boards are available in all parts of the United States; and

Whereas, The art of medicine is frequently neglected in hospital residencies owing to overemphasis on the science of medicine; now therefore be it

Resolved, That the House of Delegates of the American Medical Association requests the Advisory Board for Medical Specialties and the several American specialty boards to review and reconsider their policies in relation to general practice, residencies and preceptorships in accordance with the foregoing statements.

Resolutions on Effective Program of Public Relations

Dr. Robertson Ward, California, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The House of Delegates has authorized and endorsed an effective program of public relations for the American medical profession; and

Whereas, The American Medical Association is the only organization which is qualified to speak with authority for American medicine; now therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby requests and urges the Board of Trustees of the Association to provide sufficient funds in each annual budget of the Association for the conduct of the Association's public relations program; and be it further

Resolution on Group Practice

Dr. J. Stanley Kenney, New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, Group practice is of increasing interest in the profession because of various prepayment plans which seek to encourage the practice of medicine in groups; and

Whereas, There are no largely accepted principles or rules governing the practice of medicine in groups; and

Whereas, It is desirable that the American Medical Association supervise this development rather than forfeit it to organizations not affiliated with organized medicine; therefore be it

Resolved, That the delegates to the Medical Society of the State of New York instruct its delegates to the American Medical Association to propose a resolution to that body that will bring about provision by the American Medical Association for the establishment of a bureau or council on group practice. The functions of such bureau will be: (*a*) to serve as a clearing house of information on group practice throughout the United States; (*b*) to formulate professional, ethical and other principles governing the development of such group practice, and (*c*) ultimately, at its discretion, to provide for qualifications and recognition of groups engaged in group practice in the various parts of this country.

Resolutions on S. 140

Dr. Thomas K. Lewis, New Jersey, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, Senate bill 140, sponsored by Senators Fulbright and Taft, which would create a Department of Health, Education and Welfare, has been favorably reported by the Senate Committee on Expenditures in the Executive Departments, and

Whereas, The American Medical Association has consistently advocated placing all health activities of the federal government, except those of the Army, Navy and Veterans Administration, in a single agency or department concerned solely with health; and

Whereas, S. 140 does not conform to this objective; therefore be it

Resolved, That the House of Delegates of the American Medical Association expresses its unalterable disapproval of S. 140; and be it further

Resolved, That the sponsors of this measure and all other members of the Senate and of the House of Representatives be appraised of this action; and be it further

Resolved, That the constituent state associations be urged to take similar action.

Resolutions on Inclusion of General Practitioners on Staffs of Hospitals

Dr. Thomas A. McGoldrick, New York, presented the following resolutions, which were referred to the Reference Committee on General Medical Practice:

These resolutions are presented at the direction of the Medical Society of the County of Kings located in Brooklyn, which is composed of 3,400 members of the American Medical Association.

The delegates of Kings County are directed to introduce these resolutions:

Resolved, That the American Medical Association urge the inclusion of general practitioners on the staff of approved hospitals; and

Resolved, That recognition of hospitals shall not be jeopardized by the American medical colleges or colleges of special branches of medicine because of the fact that they include general practitioners on their staff; and

Resolved, That all physicians, before being rated as specialists, should spend an adequate number of years in general practice; and

Resolved, That training in hospital wards and dispensaries be accepted as a qualification for a specialist in lieu of a full time residency.

Resolution on Care of Veterans

Dr. Herbert H. Bauckus, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The veterans suffering from injury or disease incurred during service in the armed forces deserve not only great sympathy from the community but medical care second to none; and

Whereas, In several states, through the operation of workmen's compensation laws, the highest type of medical and surgical care is provided for injured workers; and

Whereas, The majority of patients in veterans' hospitals are those with non-service connected disabilities, and the Veterans Administration contemplates the erection of enormously increased facilities, primarily to take care of veterans' non-service connected disabilities; and

Whereas, It would be false economy to deprive the veterans with service connected disabilities of the finest medical care; therefore, be it

Resolved, That the House of Delegates of the American Medical Association urge the President of the United States and the administrator of veterans' affairs to continue and augment the existing "home town" medical care program.

Resolution Requesting Discontinuance of Notarization of Declaration of Narcotics on Hand to Accompany Renewal of Stamps

Dr. James Q. Graves, Louisiana, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, It is commonly known that application papers under the Harrison Antinarcotic Act must be notarized when a physician first registers for special tax stamps; and

Whereas, Under this same act notarization is not required for renewal; and

Whereas, It is required that the declaration of narcotics on hand (inventory) must accompany the application for renewal of stamps and such form must be notarized; and

Whereas, This second notarization appears useless and unnecessary; be it

Resolved, That the House of Delegates of the American Medical Association through the proper channels appeal to the Collector of Internal Revenue in Washington for the discontinuance of this requirement in regard to notarization.

Resolutions on Placing Statue of Dr. William Crawford Gorgas in New York University Hall of Fame for Great Americans

Dr. Lloyd Noland, Alabama, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, Dr. William Crawford Gorgas, native son of Alabama, Surgeon General of the United States Army, 1914-1918, passed away July 4, 1920, having served his country in war and in peace with rare skill and ability, thereby reflecting fame and distinction on the medical profession of his native state of Alabama and on that of the nation; and

Whereas, In May 1937 a bust of Dr. Gorgas was placed on the capitol grounds at Montgomery with the authority and approval of this association, on which was a tablet describing Dr. Gorgas as "A Servant of Mankind and A Benefactor to Humanity" and further expressing the sentiment of this association in respect to his work, that "his vision and his initiative translated the known scientific facts concerning yellow fever into practical accomplishment, thereby making possible the control of this scourge of the tropics and the building of the Panama Canal"; and

Whereas, The judgment of the medical profession of America was suitably expressed by that eminent member of the profession, Dr. William H. Welch, while President of the American Medical Associaton in 1912, when presenting Dr. Gorgas at Johns Hopkins for an honorary degree as follows:

"In behalf of the Academic Council, I have the honor to present for the honorary degree of Doctor of Laws Dr. William Crawford Gorgas, Colonel in the Medical Corps of the United States Army, member of the Isthmian Canal Commission, and Chief Sanitary Officer of the Isthmian Canal Zone, formerly President of the American Medical Association, physician and sanitarian of the highest eminence, who, by his conquest over pestilential diseases, has rendered signal service to his profession, to his country, and to the world.

"With high administrative capacity and with full command of the resources of sanitary science, Colonel Gorgas has given to the world the most complete and impressive demonstration in medical history of the accuracy and the life-saving power of our new knowledge concerning the causation and mode of spread of certain dreaded epidemic and endemic diseases.

"He it was who, by application of the discoveries of Major Reed and his colleagues of the Army Yellow Fever Commission, was mainly instrumental in freeing Cuba of yellow fever and he it is who, in spite of obstacles and embarrassments, has made the construction of the Isthmian Canal possible without serious loss of life or incapacity from disease—a triumph of. preventive medicine not surpassed in importance and significance by the achievements of the engineer.

"In the conquest of science over disease, in the saving of untold thousands of human lives and of human treasure, in the protection of our shores from a formerly ever threatening scourge, in the reclamation to civilization of tropical lands, in results such as these are to be found the monuments of our laureate, his victories of peace, to which this university would now bear testimony by such honor as it can bestow"; now therefore be it

Resolved, By the Medical Association of the State of Alabama in annual convention assembled at Birmingham on April 14-16, 1947 that it is the judgment of this association that William Crawford Gorgas is worthy of election to the New York University Hall of Fame for Great Americans, and that steps should be taken to that end; and be it further

Resolved, That this resolution be presented by the delegates from this association to the House of Delegates of the American Medical Association at its next annual meeting, with the view that a suitable resolution may be adopted by that Association, endorsing and concurring in the action of this association; and be it further

Resolved, That a committee be appointed by the President of this Association, to take such other steps as may seem expedient to carry out the purpose of this resolution.

Resolution on Hospital Standardization

Dr. Edward H. McLean, Oregon, presented the following resolution, which was referred to the Reference Committee on Medical Education:

Whereas, The Council on Medical Education and Hospitals, through the establishment of standards for hospitals and their periodic inspection, has contributed materially to the development of high type hospital service and to proficient professional care in hospitals, and

Whereas, The American College of Surgeons has also established hospital standards and carries on periodic inspection; and

Whereas, The American College of Surgeons, representing as it does the surgical specialties, has placed primary emphasis on this phase of medical service in hospitals; and

Whereas, The interests of the public and the medical profession as a whole are best served by the establishment and enforcement of standards which give due weight to all the various phases of medical practice; therefore be it

Resolved, That the Council on Medical Education and Hospitals be authorized and directed to review the various existing forms of hospital standardization and in cooperation with the constituent state medical associations promulgate and enforce new and up to date standards that reflect the needs of all phases of medical service and professional care in hospitals

Resolutions on Training of Medical Students to Administer Programs of Health and Medical Services in Schools and in Industry

Dr. Clifford C. Sherburne, Ohio, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

Whereas, The establishment of a central, coordinating unit to administer programs of health and medical services and health educational activities in universities, colleges, secondary school systems and industry is being attempted in many communities in an effort to bring about efficient and economical operation of such programs; therefore be it

Resolved, That so far as practical, the administration of such programs should be under the leadership and control of a doctor of medicine, possessing administrative ability and with experience and training in the technics of preventive medicine and health education; and be it further

Resolved, That all schools of medicine be urged to provide training which will equip graduates for administrative work of this character in order that leadership and coordination may be furnished by medically trained administrators

Resolutions on Hospital Competition with Private Practice

Dr. B R. Kirklin, Section on Radiology, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, Incorporated voluntary hospitals in several communities have urged physicians, either by letter or word of mouth, to refer ambulatory patients to the hospital for diagnostic and therapeutic medical services to be rendered by specialists in the hospital, and

Whereas, For the purpose of increasing their profits from these medical procedures some hospital administrators have even stated that they would withdraw staff privileges from physicians and surgeons who refused to refer their patients to the hospital for these outpatient medical services; and

Whereas, Such competition of hospital corporations with private practicing physicians who maintain private offices and the use of such tactics to obtain outpatients for the hospital to its own profit is in violation of the Principles of Medical Ethics and the policies of organized medicine and contrary to the best interests of the patients involved, therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby expresses its emphatic disapproval of such practices which place hospital corporations in the practice of medicine in direct competition with private practicing physicians, and be it further

Resolved, That the Council on Medical Education and Hospitals of the American Medical Association be instructed to convey the sense of these resolutions to all hospitals registered by said Council, and be it further

Resolved, That a copy of these resolutions be transmitted to the American College of Surgeons with the request that its Committee on Hospital Standardization bring said resolutions to the attention of the administrators of hospitals which they inspect

Resolution on Dissemination of Information Pertaining to Matters of Public Health

Dr. Arthur J. Bedell, Section on Ophthalmology, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business, with the suggestion that that committee call on the Judicial Council if it sees fit:

Whereas, It is not contrary to the Principles of Medical Ethics as determined by the American Medical Association for members of the Association to disseminate information pertaining to matters of public health, such as cancer, diabetes, venereal disease and other conditions, by lectures, demonstrations, radio talks, pamphlets, conferences or other means to nonmedical groups; and

Whereas, Ophthalmic subjects such as vascular disease, glaucoma, retinal disorders, optic nerve disease and so on, considered as potential causes of blindness, are matters of grave importance to the public; and

Whereas, The prevention of blindness is one of the chief obligations of ophthalmologists, therefore be it

Resolved, That the Section on Ophthalmology of the American Medical Association declares that it is entirely within the definition of medical ethics for its members to engage in lectures, demonstrations, the preparation of pamphlets and other measures suitable for the dissemination of information designed to prevent blindness, and directed to any nonmedical group

Resolution on Clarification of Rules Relating to Medical Service Fees Received from the Federal Government

Dr. Thomas D Cunningham, Colorado, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, Many members of the American Medical Association are now being remunerated financially by various branches of the federal government as the result of pension rights or retirement pay from the Army or Navy and for services rendered as Veterans Administration consultants, teachers in Veterans Administration institutions, experts in federal compensation cases or as participants in "Hometown Care Plans"; and

Whereas, Much confusion now prevails regarding the numerous rules, regulations and directives of the various branches, bureaus, agencies and commissions of the federal government, and

Whereas, The receipt of income from one branch of the federal government would seem in certain instances to preclude the acceptance of fees from other branches of government, now therfore be it

Resolved, That the House of Delegates of the American Medical Association instruct the Editor of The Journal of the American Medical Association and the Bureau of Legal Medicine and Legislation to collect, annotate, analyze, interpret and publish a digest of all the rules and regulations of the federal government pertaining to medical practice and medical service fees

Resolution on Change of Policy of American Specialty Boards

Dr. Thomas D. Cunningham, Colorado, presented by title a Resolution on Change of Policy of American Specialty Boards, which was referred to the Reference Committee on General Medical Practice. The resolution reads:

Whereas, Certain of the American specialty boards not only refuse to grant credit for experience and training acquired in the field of general practice but have also recently announced discontinuance of their former practice of according credit for preceptorships with a certified diplomate and have ruled instead that every applicant for certification must serve a lengthy residency following his internship, and

Whereas, This recent change in policy constitutes an unfair imposition on many returned medical veterans and other young physicians who find it impossible to obtain such residencies, and

Whereas, Doctors entering the various specialties without any experience or training in the field of general practice find it difficult, if not impossible, to develop a broad overall understanding of the field of medicine as a whole, and

Whereas, General practice offers unique opportunities for the development of individual initiative, self reliance, personality development and professional growth, and

Whereas, It is the opinion of the American Medical Association that general practice and preceptorships are two of the best methods of teaching the art of medicine, and

Whereas, Qualified and experienced preceptors already certified by these boards are available in all parts of the United States, and

Whereas, The art of medicine is frequently neglected in hospital residencies owing to overemphasis on the science of medicine, now therefore be it

Resolved, That the House of Delegates of the American Medical Association requests the Advisory Board for Medical Specialties and the several American specialty boards to review and reconsider their policies in relation to general practice, residencies and preceptorships in accordance with the foregoing statements

Resolutions on Effective Program of Public Relations

Dr. Robertson Ward, California, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The House of Delegates has authorized and endorsed an effective program of public relations for the American medical profession, and

Whereas, The American Medical Association is the only organization which is qualified to speak with authority for American medicine, now therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby requests and urges the Board of Trustees of the Association to provide sufficient funds in each annual budget of the Association for the conduct of the Association's public relations program, and be it further

Resolved, That if the Board of Trustees is convinced that the Association cannot afford to carry out a public relations program as heretofore approved by the House of Delegates, membership dues payable by each member of the Association be established as soon as possible, such dues to be not more than $10 per annum

Resolution on News Releases of American Medical Association

Dr. Harry Aranow, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The American Medical Association issues a news release each Friday on the content of articles appearing in the forthcoming Journal of the American Medical Association, and

Whereas, These releases reach the public through the newspapers before the physicians have received the copies of their Journal containing the complete article; and

Whereas, Patients partially informed through these releases frequently ask their physicians about such items, and

Whereas, These questions have been a source of embarrassment to the medical profession and have tended to affect adversely the confidence placed by the patient in the doctor's knowledge of current scientific advances, therefore be it

Resolved, That such advance press items either be discontinued altogether or be released after actual receipt by the medical profession of The Journal of the American Medical Association

Resolution on Deductible Items for Federal Income Tax Purposes

Dr. L G Christian, Michigan, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The expenses of attending conventions, including medical conventions, are now deductible in federal income tax compilations, and

Whereas, The expenses of attending medical postgraduate meetings and conferences are not allowed as deductible items for federal income tax purposes, therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to contact the proper governmental agencies to put this into effect

Resolution on Nursing Shortage

Dr. Walter W. Mott, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education.

Whereas, There is a nationwide nurse scarcity of alarming proportions, with recently compiled statistics indicating a national shortage of 40,000 nurses, 16 per cent of the hospitals in the United States with closed beds, and 33,000 beds in our hospitals unavailable because of this nurse shortage, and

Whereas, In the month of April 1947 in New York State, hospitals reported 1,831 closed beds and waiting lists of 8,463 patients, primarily because of nurse shortage, and

Whereas, The national enrolment of 31,000 students in approved schools of nursing in 1946 was some 13,000 fewer than the schools sought, and approximately 40 per cent fewer than the 1945 enrolment, and

Whereas, This trend and the actual shortage are of serious concern to the nation's health, and

Whereas, The use of the bedside worker trained to perform many routine tasks in the care of bed patients in hospitals has been proved by wartime experience in both military and civilian hospitals to be an acceptable expedient to supplement the services of available graduate professional nurses to the advantage of the patients' care, and

Whereas, The New York State Board of Nurse Examiners, while licensing practical nurses with requisite training and qualifications, prohibits the training of practical nurses in any hospital maintaining a school for the training of graduate professional nurses, and

Whereas, The best facilities for the training of those concerned with the care of the sick are generally to be found in those hospitals with approved schools of nursing, and

Whereas, Short orientation courses for so called attendants, or nurse s aides, do not appear to offer a satisfactory solution to the problem of better and more adequate bedside care, and

Whereas, The Medical Society of the State of New York has gone on record as endorsing an extension of the training program for practical nurses, in addition to its continued efforts to increase the available supply of registered professional nurses, and

Whereas, The Medical Society of the State of New York, in cooperation with the State Board of Nurse Examiners and the New York State Hospital Association, seeks liberalization of the interpretation of existing laws so as to permit the training of practical nurses in all hospitals now conducting training schools for registered professional nurses, and

Whereas, The Medical Society of the State of New York urges the establishment of training programs for practical nurses in approved hospitals not at present conducting a nurse training program of any sort; therefore be it

Resolved, That the Board of Trustees of the American Medical Association is hereby requested to take action urging similar steps on a nationwide basis, in collaboration with other bodies concerned with the training of nurses

Resolutions on Medical Care of Dependents of Service Men

Dr. Raymond L. Zech, Washington, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The objectives of the Emergency Maternal and Infant Care program have been accomplished through the cooperation of civilian doctors, and

Whereas, The Medical Departments of the armed forces now are adequately staffed to care for the dependents of service men, therefore be it

Resolved, That in the interests of economy during peacetime the medical care of dependents of service men might properly be made a function of the Medical Departments of the armed services; and be it further

Resolved, That the American Medical Association direct the attention of the proper committees in Congress to this matter, with the object of transferring these functions to the medical deparments of the armed forces

Resolutions on Allotment of Residencies

Dr. Ivan Fawcett, West Virginia, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

Whereas, There is great need for more general practitioners of medicine especially in the smaller communities of this country; and,

Whereas, General practice in such areas tends to develop self reliance and a well rounded knowledge of the entire field of medicine, thereby giving candidates for specialization a broad professional educational basis, therefore be it

Resolved, By the House of Delegates of the West Virginia State Medical Association, that we approve the principle of alloting one half the specialty residencies to applicants who have had five years' experience in general practice in smaller communities, say under 10,000 population, and allowing due time credit, say two years, for such general practice, and be it further

Resolved, That our delegates to the American Medical Association be instructed to present these resolutions to the House of Delegates of the American Medical Association at the Atlantic City session with the request that they be approved and forwarded to the various specialty boards for consideration

Supplementary Report of Board of Trustees

WORLD MEDICAL ASSOCIATION

Dr. R. L. Sensenich, Chairman, presented the following supplementary report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The House of Delegates has been informed of the preliminary meetings preparatory to the formation of a World Medical Association and this matter is included in the report of the Board of Trustees Dr E L Henderson and Dr. Louis H Bauer of the Board of Trustees represented the American Medical Association at a preliminary organization meeting in London Dr. Henderson and Dr. Bauer, together with Dr. Ernest E Irons as an observer, have been designated to represent the Association in a meeting to be held later in the year. This would seem to be an opportunity and responsibility of the American Medical Association to assist in the development of a world medical front in meeting problems as they develop in the activities of the World Health Organization and in the divisions of the United Nations.

PAN AMERICAN MEDICAL FEDERATION

A Pan American Medical Federation is in process of development and Dr. Harrison H Shoulders, Dr. Charles Gordon Heyd and Dr Austin E. Smith represented the American Medical Association at a preliminary meeting at Havana last autumn Pan American nations are looking to the United States and Canada for leadership in medical progress, and this would seem to be a helpful measure in the promotion of higher standards of medical care in the Western Hemisphere

COMMITTEE ON LIAISON WITH VETERANS ADMINISTRATION

The Board of Trustees has appointed a committee to serve as a means of liaison with the Veterans Administration in consideration of frequently developing problems of veterans' medical care Dr. Herbert H. Bauckus, Buffalo, Dr. Edgar P. McNamee, Cleveland, Dr. H. H. Shoulders, Nashville, Tenn, Dr R L Sensenich, South Bend, Ind, and Dr. George F.

Lull, Chicago, were named to represent the Association. This committee was appointed by the Board of Trustees because of the apparent emergencies so frequently developing.

RESOLUTION ON INSURANCE AGAINST LOSS OF WAGES DURING SICKNESS

A resolution introduced by Dr. Alex F. Burgess, Rhode Island, at San Francisco concerning loss of wages during sickness and the report of the reference committee were referred to the Council on Medical Service. That Council, however, is at a loss to interpret the meaning of the report of the reference committee, and the Board of Trustees referred this question to the Judicial Council for interpretation. The Judicial Council has now clarified the meaning of the reference committee's report, and the matter has been referred to the Council on Medical Service for study and report to the Board of Trustees.

WOMAN'S AUXILIARY

The office of the Woman's Auxiliary of the American Medical Association is now located in the headquarters of the American Medical Association. This should make possible a far more effective coordination of the activities of the Auxiliary and the Association.

INCREASE IN COSTS OF OPERATION

The costs of operation of the Association have increased very greatly in the last several years. The activities of the Association have been greatly expanded. Operating costs in employment of personnel to carry on these activities are the major items in those increases. However, material costs, especially paper, have increased very greatly. Proposed legislation to increase United States postal rates if enacted would add approximately $89,000 to the annual costs of the Association. The income from the Association is derived from advertising and JOURNAL subscriptions. As the $8 annual subscription price of THE JOURNAL is only a minor fraction of the cost of the production of THE JOURNAL, it is evident that the activities of the Association are dependent on the advertising. The Board of Trustees found it necessary to make some reduction in the operating budgets in order to avoid going into reserve set up for the safety of already established activities of the Association. This information is to assist the House in the consideration of proposals of new activities that may be presented to the House.

Respectfully submitted,

R. L. SENSENICH, Chairman.
ERNEST E. IRONS, Secretary.
DWIGHT H. MURRAY.
WILLIAM F. BRAASCH.
LOUIS H. BAUER.
ELMER L. HENDERSON.
JOHN H. FITZGIBBON.
JAMES R. MILLER.
CHARLES W. ROBERTS.

Report of Reference Committee on Legislation and Public Relations

Dr. Thomas P. Murdock, Chairman, presented the following report, which on motions of Dr. Murdock, duly seconded and carried, was adopted section by section and as a whole:

1. Resolutions on Medical Care of Veterans: Your reference committee has reviewed the resolutions presented by the Missouri State Medical Association on Public Law No. 293, which permits the employment of unqualified professional personnel in the Veterans Administration.

Your committee is in agreement with these resolutions in principle and submits the following substitute resolutions:

Resolved, That the House of Delegates of the American Medical Association go on record in its disapproval of the employment of unqualified personnel in the Veterans Administration; and be it further

Resolved, That it recommends the repeal of this provision in Public Law No. 293.

2. Report of Council on Medical Service dealing with legislative matters: That portion of the report of the Council on Medical Service dealing with legislative matters was reviewed by the Reference Committee on Legislation and Public Relations.

Your committee endorses heartily the activities of the Council on Medical Service and calls to your attention the enormous amount of work done by this council.

Your committee also feels that great praise is due Dr. Joseph S. Lawrence and the Washington staff for their constant vigilance in our behalf.

3. Resolutions on Hospitals Entering into the Practice of Medicine: Your reference committee has given careful consideration to the resolutions presented to the House of Delegates by the West Virginia State Medical Association and presents the following resolutions in replacement:

Resolved, That the House of Delegates of the American Medical Association is in complete agreement with the recommendations of the West Virginia State Medical Association in its opposition to the encroachment by hospitals and other organizations on the private practice of *medicine; and be it further*

Resolved, That all fees for medical services be set by and collected by or for doctors of medicine rendering this service, and that all policies and practices involving medical services be approved by the medical board or medical staff before being put into effect; and be it further

Resolved, That the Council on Medical Education and Hospitals recommend *strongly that all hospitals conform to these resolutions;* and be it further

Resolved, That the House of Delegates of the American Medical Association go on record as strongly disapproving this practice of encroachment, and that notice of this action be sent to the American, Protestant and Catholic hospital associations and to Blue Cross organizations.

Respectfully submitted,

THOMAS P. MURDOCK, Chairman.
THOMAS A. MCGOLDRICK.
WILLIAM M. SKIPP.
LLOYD NOLAND.
FORREST J. PINKERTON.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. H. B. Everett, Tennessee, and carried, the House recessed at 12 m. to reconvene at 2:15 p. m.

Tuesday Afternoon

The House reconvened at 3:15 p. m., with the Speaker, Dr. R. W. Fouts, presiding.

During the luncheon for the delegates, the members of the House had the pleasure of hearing an address by Hon. John N. Brown, Assistant Secretary of the Navy for Air, and one by Hon. Robert P. Patterson, Secretary of War.

Introduction of Invited Foreign Guests

Dr. Morris Fishbein, Editor of THE JOURNAL, introduced several foreign guests.

Dr. George Constam, representative of the government of Switzerland and the Swiss Medical Federation, who later addressed the House, was first introduced.

Dr. Fishbein then presented Dr. Manuel Guevera Oropesa, a representative of the Mexican National Medical Association, and Dr. Francisco de P. Miranda, Mexico City, one of the leading internists of the world, the latter of whom spoke as follows:

Gentlemen, I bring to you the greetings of the Secretary of Public Health and Welfare of Mexico and I am also representing the National Academy of Medicine.

Dr. Fishbein then presented Dr. Gonzalo Esguerra Gomez, Bogota, Colombia, who presented a statement printed in Spanish.

Dr. Szeming Sze, official delegate from the Chinese Medical Association and the Republic of China, was then presented and spoke as follows:

Mr. Speaker, on behalf of the Chinese Medical Association I have the honor to bring to you not only fraternal greetings but also our most cordial congratulations. According to Chinese custom on special birthdays, like a hundredth birthday, we present a scroll with an appropriate theme and I have been requested to bring to you today an appropriate scroll. It is written in Chinese. I think Dr. Fishbein may have difficulty in translating it. I will just take one minute to translate it for him. A Chinese painting, a painting of a pine tree, which in China is emblematic of longevity, and the inscription reads "To the American Medical Association on the occasion of its hundredth anniversary, the Chinese Medical Association respectfully presents this, June 1947, at Atlantic City." There is a verse from our classics, and the thought of that might be translated "Long life to the profession which gives long life to mankind and humanity."

Dr. Fishbein then presented Dr. José Valls, a representative of the Argentine Medical Association, widely known throughout the world as a great contributor to orthopedic surgery, who addressed the House as follows:

Gentlemen, I am very pleased to bring to you the greetings of the Argentine Medical Association, of which it is my privilege now to be the president, and also of the University of Buenos Aires, to which I belong.

Dr. Harald Bjelke, a delegate of Norway and the Norwegian Medical Association, was then presented and read the following address:

While traveling in the United States on a Rockefeller Foundation grant I was informed that the Norwegian government had been invited to participate in the Centennial Celebration of the American Medical Association, and that in a cabinet meeting of March 27 I had been appointed to represent the government and bring you its heartiest greetings. I have also been informed by the executive board of the Norwegian Medical Association that Dr. Thorstein Guthe, who was to have been their representative, unfortunately is unable to be here, and the board has asked me to greet you on behalf of the Norwegian medical profession and to thank you for all assistance accorded Norwegian physicians who have come to study in the United States, and also to thank you for all that American medical science has done for the benefit of peoples' health also in Norway.

After having spent some months here and seen with my own eyes the high level of medical science and research in this great and rich country with its forty-eight states, I am very happy indeed to be here and to convey to you their congratulations. On behalf of the Norwegian government and the Norwegian Medical Association I express the wish that the progress which medical research and work have made in this country in the past hundred years may continue and, with the opportunities which you have here, may become still greater—for the benefit of all humanity everywhere—not only in medicine but also morally, so that the peoples of the world some day, in the not too distant future, can live together in peace and happiness, both as individuals and as states, peoples, and races.

Dr. Gyula Bencze, after being presented to the House by Dr. Fishbein, read the following address:

Mr. Speaker, Members of the House of Delegates, Ladies and Gentlemen:

As delegate from the faculty of medicine of the Pazmany Peter University and the Medical Association of Budapest, I have the duty and pleasure to thank you for your kind invitation and to bring you their best wishes. Your centenary affords the first opportunity to reestablish the scientific contacts broken by the war.

International collaboration has been very fruitful in the past. We are happy to be able once more to join in the common effort and be in a position to benefit from the great achievements of American science, which has earned the admiration and thankfulness of the whole world with its progress even during the years of general destruction of the past war.

Next year the Budapest Medical Association will celebrate a memorial for the great Hungarian Philip Semmelweis, "the savior of mothers." It is therefore my privilege and pleasure to extend to you the invitation of the Medical Association of Budapest, and may I express the hope that your delegates will participate in the Budapest meetings. Thank you.

Dr. Fishbein announced that the next speaker came as a representative of two important organizations, the Royal Egyptian Medical Association and at the same time the Saudi Arabian government, Dr. A. Z. Abushady. Dr. Abushady spoke as follows:

Mr. Chairman, Fellow Colleagues:

It is both my pleasure and my honor to convey to you the greetings of the Saudi Arabian government and of the Royal Egyptian Association. Perhaps a number of you are aware that one of the oldest model colleges of medicine was created in Cairo over a century ago and thanks to the collaboration of French scholars and later of British scholars and medical men we managed not only to develop in the University of Cairo the famous medical college, but also the College of Medicine at Alexandria, where I was honored by holding the professorship of bacteriology for some time. I am sure in extending these greetings to you in behalf of the Saudi Arabian government, which is developing many model institutions for the advancement of public health, and of the Royal Egyptian Medical Association, it would be appreciated by my government and association if I should extend also to you a hearty welcome to visit these lands and to see these parts of the globe where appreciation of Western democracy and Western sciences and particularly medical science is advancing in a practical way, as shown by the hundreds of students that are now studying medicine in Britain and in America and are unofficial ambassadors of friendship between both countries.

Dr. Fishbein recalled Dr. George Constam of Switzerland, who desired to present a special medal developed for this occasion. Dr. Constam addressed the House as follows:

Mr. Chairman, ladies and gentlemen, the Federation of Swiss Physicians charges me to express to you the most cordial greetings and sincerest congratulations. The Constitution of the United States of America serves as a model for the one on which the actual political structure of Switzerland is based, and this proves that the two countries in spite of the great difference in size and population have many fundamental ideas in common. Therefore, a great number of problems which the American Medical Association had to solve or will have to face were, are and will be of importance to the Swiss Medical Association.

For many years we have followed closely and with the greatest interest the development of medicine, its basic sciences and technic in this country, and we have admired the important and often decisive role the American Medical Association has played in leading your country to the undisputed first rank in universal medicine.

The Federation of Swiss Physicians is very happy to have today an opportunity to express to you its admiration for what your Association has accomplished during the last hundred years for the benefit not only of your and of our country but of the whole world.

As a modest sign of our gratitude, I have the honor to present you this little medal and to express to you the hopes that you will continue your so very successful activities for the benefit of mankind.

Dr. Morris Fishbein, Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, stated that the Board of Trustees of the Association had in mind preparation of a permanent special place for these trophies and tokens in the headquarters office, in the reception room, with suitable labels, so that they will be available at all times to the entire membership of the Association. He then presented the representative of the National Medical Association of Panama, Dr. J. S. Vallarino, who spoke as follows:

Mr. Chairman and delegates, my colleagues and friends, I want to extend our greetings and the heartiest best wishes for the continued success of the American Medical Association. It was through the great efforts of one of the great men of the past that the sanitation of the Panama Canal Zone was carried forward and enabled the construction of the Canal, and I want to pay great tribute here to our very beloved William Crawford Gorgas. Thank you.

The Speaker announced that there would be opportunity for the introduction of new resolutions, if any, and for the reception of committee reports, if any, either before or after the Executive Session.

Communication on Pan American Organization

The physicians from Cuba were again presented and, with the permission of the House, Dr. Felix Hurtado, delegate from the Pan American Congress, was granted ten to fifteen minutes to present to the House a problem in which he was interested, which he did as follows:

The Colegio Medico Nacional de Cuba (Cuban Medical Association) called the first Pan American Medical-Social Congress, which met in Havana in December 1946.

In this congress have been represented all the medical organizations of the continent, including the American Medical Association, which sent three men under the leadership of Dr. Shoulders, who can inform you about their impressions of this event.

We can consider the reunion of Havana as the first step in the consolidation of a big Pan American organization of physicians.

We believe that this is a desirable opportunity to consider the importance of a fraternal union among all medical doctors in favor of their own interest and also in favor of a great development of medical progress.

It is true that medical development is not similar in all the countries of the continent because the social and economic development of all countries on the American continent have not reached the same level.

We know very well that these particular circumstances do not permit the establishment of a general system and similar methods for the whole continent.

For these reasons the first and principal point clarified by the first Pan American Medical-Social Congress and the Pan American Medical Confederation is the statement that each country will conserve its particular internal structure in accordance with its medical organization, with entire freedom to handle its own domestic affairs.

Therefore on these political principles and philosophic basis these organizations would be conducted according to their own ideas and be entirely independent of the general rules for the establishment of the Pan American Medical Confederation.

The Pan American Medical Confederation would be an international bureau for the establishment of a real link among all the medical groups of the continent. This is a simple interpretation of that historic document called the "Chart of Havana," accepted by all the countries represented in the first Pan American Medical-Social Congress. In order to facilitate the administration and the study of the medical affairs of the continent, the Pan American Medical Confederation has divided the continent into five regions:

Northern Zone: Canada and the United States. Seat: American Medical Association, Chicago.

Central American Zone: Mexico, Honduras, Guatemala, Nicaragua, El Salvador, Costa Rica and Panama. Seat: Medical Federation of Guatemala (Guatemala).

Caribbean Zone: Cuba, Haiti, Santo Domingo, Puerto Rico, Colombia and Venezuela. Seat: Venezuelan Medical Federation (Caracas).

South Atlantic Zone: Brazil, Argentina, Paraguay, Uruguay. Seat: Medical College and Syndicate of Uruguay (Montevideo).

South Pacific Zone: Chile, Peru, Ecuador and Bolivia. Seat: Medical Association of Chile (Santiago).

The present state of this organization and the entrance of the countries is, as follows:

Central American Zone: All the countries: Mexico, Honduras, Guatemala, Nicaragua, El Salvador, Costa Rica and Panama.

Caribbean Zone: Cuba, Santo Domingo, Puerto Rico, Colombia and Venezuela. Only lacking is the entrance of Haiti.

South Atlantic Zone: Uruguay and Argentina. The Argentine Medical Association has made its entrance conditional on the scientific purposes of the confederation because this is the only way its by-laws allow it to be associated with other institutions.

As to the remaining countries of the zone (Brazil and Paraguay) we maintain contact with the delegate of the National Academy of Medicine of Rio de Janeiro, the near entrance of which we are expecting. We are also in contact with our Paraguayan colleagues, and we are expecting their entrance into the organization.

South Pacific Zone: Chile, Peru and Ecuador. Only Bolivia has not entered, but we are already in contact with the Bolivian medical institutions and personnel and expect them to enter.

The Pan American Medical Confederation is constituted by the medical organizations that in each country represent and group a majority of the professional physicians, such as the American Medical Association, the Medical Association of Chile, the Peruvian Medical Association, the Venezuelan Medical Federation, and some, as the National Medical College of Cuba that, by virtue of the national laws, group all the physicians, since it is a necessary prerequisite to the practice of medicine in Cuba to be inscribed in the National Medical College.

All those institutions are wholly autonomous in the execution of their functions, having only to be grouped in each zone and appointing a delegate from each country, constituting with the other three secretaries appointed by the country seat of the zone what is called the Zonal Secretariat.

To our members' best understanding each Zonal Secretariat (constituted of the three secretaries of the country seat and a delegate for each of the countries that forms it) meets from time to time with the remaining Zonal Secretariats and Havana's Secretariat in a body called the General Council, which will draw up the basis and programs of a general meeting, the Pan American Medical-Social Congress, which meets every other year in a different country of our continent.

The Secretariat of Havana, then, is a coordinating group of the relationships of the zones among themselves, those of the General Council of the Confederation and the Pan American Medical-Social Congress.

As a result of an extensive and deep study of the medical situation in the continent, the Executive Board of the Pan American Medical Confederation has considered two sides for interpretation of the medical standards in the continent. On one side is included all the matters in relation to scientific development.

In this sense information is very important about medical education: (*a*) medical school standards; (*b*) special information about standards for students, particularly in the premedical aspects; (*c*) hospital services: department of social assistance (social work), bad teaching, center of research: foundation, laboratories, institutes (one example of each of these three types: Rockefeller Foundation, National Laboratory of Chile, Institute of Finlay, Havana); (*d*) academies: academy of medical science, medical societies; local branches of international corporations; (*e*) medical congress: staff meetings, annual meetings of national congress, international meetings or congress; (*f*) international center, like "Instituto de Proteccion a la Infancia," Montevideo, or Pan American Sanitary Bureau.

The other side is called the social aspect, which includes different topics: (*a*) medical institutions: societies or associations, free, independent, private, regular or official and compulsory; (*b*) trade unions (medical organizations organized under rules similar to those of labor unions); (*c*) syndicates. Philosophical orientation of the medical groups: (*a*) individualist doctrines; (*b*) collectivist doctrines. 3. Particular aspect of social security: (*a*) insurance companies; (*b*) mutual societies; (*c*) compulsory social security; (*d*) the new concept of social security particularly adapted to each country; (*e*) social security in the United States.

The general policy of the Pan American Medical Confederation would be to develop a basic plan of education and to extend all different kinds of advices in order to facilitate the most rapid development particularly in those countries in which the standard is yet very low.

We consider that there will not be any trouble for the American Medical Association particularly as this institution does not interfere with any domestic action in any medical group in the continent.

The Pan American Medical Confederation will offer a very important support to the national local organization and in many times could offer its friendly intervention to promote always the most favorable solution among the medical groups.

Finally, in the name of the Pan American Medical Confederation we request the Executive Board of the American

Medical Association to make a motion before the corresponding body in order of your taking action for the incorporation to the Pan American Medical Confederation as representative of the medical association of the United States.

In the official declaration of the incorporation of the American Medical Association with the Pan American Medical Confederation any particular reservation could be made, utilizing the diplomatic system of the International Convention.

The incorporation of the American Medical Association would make the Pan American Medical Confederation very happy and the Confederation hopes that you will appoint some outstanding representative physician of the United States for the position of head of the Region (United States and Canada), always having in mind that in the meeting of the Secretaryship of the Pan American Medical Confederation this member from the United States will be chosen as a leader of the scientific advisers.

This matter was referred to the Reference Committee on Medical Education.

It was moved by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, that the House go into Executive Session, and the motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried after discussion.

Dr. Herbert P. Ramsey, District of Columbia, moved that, as in recent years, the Executive Sessions should include officers of state medical associations, members of the American Medical Association, executive secretaries of state medical societies and editors of state medical journals, and the motion was seconded by several and, after discussion, was lost.

The House convened in Executive Session at 4:15 p. m. and resumed regular session at 5:15 p. m.

Resolution on Establishment of Committee on Public Relations

In Executive Session Dr. Allen H. Bunce, Georgia, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That a Committee on Public Relations be established in the headquarters office, composed of the Secretry and General Manager, the resident Trustee and the Editor of The Journal, which shall have charge of the public relations of the American Medical Association under the general direction of the Board of Trustees.

Report from Hawaii

There was also presented in Executive Session a report from Hawaii, which was referred to the Reference Committee on Legislation and Public Relations.

Resolution on Limitation of Tenure of Office of Delegates

Dr. Theodore H. Harwood, Vermont, presented the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws, which was requested to consult with the Judicial Council:

Whereas, Constantly changing social and economic conditions require that those who establish the policies of the American Medical Association be familiar with needs of the active generation and be capable of rapid adjustments and decisions; and

Whereas, It has been amply demonstrated in the recent war that young physicians are fully capable of undertaking great responsibility; and

Whereas, The American Medical Association and many of its constituent state associations have already recognized both this principle and the value of constant injection of new ideas in their higher offices by limiting tenure in the Board of Trustees and in the Councils; now therefore be it

Resolved, By the House of Delegates of the American Medical Association that the principle of limitation of tenure of office be extended to members of this House of Delegates and that the Committee to Study Revision of the Constitution and By-Laws be and is hereby instructed to prepare suitable amendments to implement this policy.

Supplementary Report of Council on Medical Service

Dr. James R. McVay, Vice Chairman, presented the following supplementary report of the Council on Medical Service, which was referred to the Reference Committee on Miscellaneous Business:

PLANNING FOR THE CHRONICALLY ILL

Early this spring the Board of Trustees referred a statement on "Planning for the Chronically Ill" to the Council on Medical Service with the suggestion that the Council select an Advisory Committee to assist Dr. James R. Miller in studying this statement.

The Council submitted four names to the Board of Trustees to act as an Advisory Committee in assisting Dr. Miller. This committee was approved by the Board of Trustees.

The statement "Planning for the Chronically Ill" was prepared as a joint statement of and to be released by the American Hospital Association, American Public Health Association, American Public Welfare Association and American Medical Association. Primarily, it is a recognition of the problems of chronic illness and an attempt to provide a useful guide and stimulus to those interested in planning for the chronically ill.

The Council on Medical Service commends Dr. Miller and others responsible for drawing up the statement and suggests to the House of Delegates that it be approved as a preliminary statement concerning the problems of the chronically ill, and that Dr. James R. Miller and the Advisory Committee be authorized to proceed further in investigating and evaluating these problems.

Respectfully submitted,

E. J. McCormick, Chairman.
R. L. Zech.
James R. McVay.
A. W. Adson.
Walter B. Martin.
Thomas A. McGoldrick.
Roger I. Lee.
H. H. Shoulders.
Louis H. Bauer.
George F. Lull.
Thomas A. Hendricks, Secretary.

Dr. Roy B. Henline, Section on Urology, moved that the House recess until 2 o'clock Wednesday afternoon, June 11. The motion was seconded by several and carried, and the meeting recessed at 5:45 p. m. to reconvene at 2 p. m., Wednesday, June 11.

Third Meeting—Wednesday, June 11

The House reconvened at 2:15 p. m., Wednesday, June 11, 1947, with the Speaker, Dr. R. W. Fouts, presiding.

Introduction of Invited Foreign Guests

Dr. Morris Fishbein, Editor of The Journal, presented Dr. Tauno Putkonen, representing the government of Finland, who addressed the House (a copy of this address is not at present available).

Dr. Fishbein showed the special document from the Finnish Medical Association and then presented Dr. Rolf Bergman, representing the Swedish government, and Dr. Sven Forssman, a noted authority on industrial health, representing the Swedish Medical Association.

Hon. T. Lindsay, representing the United Kingdom, was introduced and spoke as follows:

I think I should just mention that I am exhibit A, I am not a doctor, I am a specimen of the bureaucrats to which the British Medical Association is subjected, and we are such good friends that you may ask Dr. Dain and Dr. Charles Hill whether they have any objections to me.

Dr. Morris Fishbein, then presented Dr. José J. Centurion, professor of internal medicine in the University of Havana, Cuba, representing the university, who spoke as follows:

Havana is following with great interest the great meetings you are having here. In the name of the faculty, they send best regards to you all and hope that Cuba, with the university, will be following the United States in all these events.

Dr. E. Torab Mehra, representative of the government of Iran, was then presented and addressed the House as follows:

If you will forgive me, I should like to say that this is a great personal honor and privilege to represent my government and the physicians of Iran before you distinguished gentlemen here. I know that your time is very valuable. I should just like to say a few words concerning the physicians of Iran.

I have been fortunate enough to come to this country and become educated in this country, so I well know what the American Medical Association has done to raise the standard of medical care in this country. I should like to mention to you that from now on the duty of the American Medical Association is more than in this country; it has passed the boundaries and is more or less international. The people of my country look to America at the present time as the leader, and we follow your steps in every respect.

We hope that in the future we shall raise the standard of health in our country, and that will be possible only with your help and assistance. I would just like to suggest several things that you distinguished gentlemen could do for the people of the Near East and Iranians in particular. One would be to open up the doors of your schools to more Iranian students. I have come here and I know how difficult it is to get admitted to American medical schools. Dr. Weiskotten can tell you how much difficulty I had when I went to Syracuse University to stay. Whatever I say to you is right out of my heart, and I mention this fact to you because it is extremely important.

Secondly, because of our foreign exchange, you gentlemen have to put up some kind of scholarship for the working students who come to this country and want to study here so they should not have to spend the time, when they should be studying anatomy, washing dishes and doing other work to use up their time.

I believe that is all that has been in my heart for the past twelve years in this country and I hoped that some time I could stand up before you and tell you, though it may be very inadequate.

Roll Call

A motion was made by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Thomas S. Cullen, Maryland, and carried, that the registration be considered the roll call.

Report of Reference Committee on Credentials

Dr. G. Henry Mundt, chairman, announced that 173 delegates had registered.

Report of Reference Committee on Medical Education

Dr. George W. Kosmak, Chairman, presented the following report, which on motions of Dr. Kosmak, duly seconded and carried, was adopted section by section and as a whole, with the exception of the report of the reference committee on the Resolution on the Nursing Shortage, which was laid on the table on motion of Dr. James R. Reuling, New York, seconded by several and carried:

1. Report of Council on Medical Education and Hospitals: Your reference committee has studied the report of the Council on Medical Education and Hospitals as published in the Handbook and recommends also that every member of the House study this report carefully. Your committee commends the Council for the complete and conscientious report on the problems relating to the reconversion of medical education from a wartime to a peacetime basis and wishes especially to commend the excellent work in providing opportunities for residency training desired by returning medical officers. It is gratifying also to note that plans are under way by the Council for a comprehensive resurvey of all medical schools and all aspects of medical education, including the financing of medical education, the teaching of medical economics and the social aspects of medicine, of public health, of preventive medicine and of other components of the medical school curriculum.

2. Supplementary Report of Council on Medical Education and Hospitals: The supplementary report of the Council, dealing with hospital staff appointments and with the problem of the general practice of medicine and recommending that sections on general practice be established in hospitals, was referred to the Reference Committee on General Medical Practice except for one portion of the supplementary report dealing with a change in the "Essentials of a Registered Hospital."

Your reference committee recommends that the wording of section 3, paragraph 6, dealing with the staff organization of a hospital be changed to read as follows: "6. Staff sections, such as medicine, obstetrics, surgery, general practice, etc., should be organized as may seem wise."

3. Supplementary Report of the Council on Medical Education and Hospitals: The supplementary report of the Council revising the "Essentials of Approved Residencies and Fellowships" is recommended for approval.

4. Resolution on Need of a Greater Income for Medical Schools: Your reference committee finds that the Council is planning to include a study of the financing of medical education in its survey of medical schools.

Your committee recommends that the resolution be referred to the Council on Medical Education and Hospitals for study in connection with the resurvey of medical schools.

5. Resolutions on Indoctrinating Medical Students with Philosophy and Ethics of Profession: Your committee finds that the Bureau of Medical Economic Research, in collaboration with the Council on Medical Education and Hospitals, is surveying the instruction of medical students in this field and will prepare a syllabus with pertinent information and reading references in the general field of medical economics and the social aspects of medicine for use in the instruction of medical students and interns.

Your committee recommends that these resolutions be referred to the Council on Medical Education and Hospitals as a guide to efforts in this direction.

6. Resolutions on Hospital-Specialty Board Relationships: Your reference committee wishes to call attention to the supplementary report which the Council has made to this house regarding hospital staff appointments as related to specialty certification. In that report the Council stressed the principle that hospital staff appointments should be made on the basis of ability and merit and not on specialty board certification or membership in special societies.

Your reference committee recommends that these resolutions be referred to the Council on Medical Education and Hospitals.

7. Resolutions on Teaching of Medical Economics in Medical Schools: Your committee finds that the Bureau of Medical Economic Research in collaboration with the Council on Medical Education and Hospitals is surveying the instruction of medical students in this field and will prepare a syllabus with pertinent information and reading references in the general field of medical economics and the social aspects of medicine for use in the instruction of medical students and interns.

Your committee recommends that these resolutions be referred to the Council on Medical Education and Hospitals as a guide to efforts in this direction.

8. Communication on Pan American Organization: Your reference committee recommends that this communication, referring to the desirability of establishing a Pan American organization of physicians, be referred to the Board of Trustees for appropriate action.

9. Resolutions on Training of Medical Students to Administer Programs of Health and Medical Services in Schools and in Industry: Your committee recommends adoption of these resolutions with the elimination of the last paragraph.

10. Resolution on Nursing Shortage: Your reference committee recommends adoption of this resolution, urging the establishment of training programs for practical nurses.

Respectfully submitted,

GEORGE W. KOSMAK, Chairman.
JOSEPH D. MCCARTHY.
THOMAS S. CULLEN.
WILLIAM D. STOVALL.
A. W. ADSON.

Report of Reference Committee on Legislation and Public Relations

Dr. Thomas P. Murdock, Chairman, presented the following report, which, on motions of Dr. Murdock, duly seconded and carried after discussion, was adopted section by section and as a whole with the exception of the report of the committee dealing with the Resolution on S. 140, with the Resolution on Effective Program of Public Relations and with the Resolution on Establishment of Committee on Public Relations, which were rereferred to the reference committee:

1. Resolutions on Hospital Competition with Private Practice: Your reference committee has carefully considered these resolutions and recommends that no action be taken because these resolutions in general were covered by a more comprehensive resolution submitted by the West Virginia delegate and approved by this House of Delegates.

2. Resolution Requesting Discontinuance of Notorization of Declaration of Narcotics in Hand to Accompanying Renewal of Stamps: Your reference committee recommends approval of this resolution.

3. Resolution on Medical Care of Dependents of Service Men: Your reference committee recommends disapproval of these resolutions.

4. Resolutions on S. 140: Your reference committee recommends the addition to these resolutions as follows: "and be it further *Resolved*, That the House of Delegates go on record expressing its disapproval of any bill combining health, education and welfare."

5. Resolution on Group Practice: Your reference committee has given careful consideration to this resolution and calls to your attention that the Judicial Council included the question of group practice in its report and that a study is now under way by the Bureau of Medical Economic Research.

Therefore, your committee presents the following substitute resolutions:

Resolved, That the House of Delegates go on record approving a study of the question of group practice; and be it further

Resolved, That this matter be referred to the Board of Trustees with the suggestion that it be referred to the Bureau of Medical Economic Research, the Judicial Council, the Council on Medical Service and the Bureau of Legal Medicine and Legislation.

6. Report of Judicial Council: Your reference committee has carefully reviewed the report of the Judicial Council as it appeared in the Handbook, which covered the activities of the Council since the midwinter meeting in December.

Two formal meetings were held and the usual routine work was reported. This work included consideration of questionable eligibility of applicants for Fellowship, recommendation of candidates for Associate Fellowship and many decisions on the ethics of practice.

The Council reported many requests for information or approval by ophthalmologists.

The Council report includes the report of Dr. A. C. Ivy as a representative of the government of the United States in which the war crimes of a medical nature were reviewed.

The report explains the duties of the Council as distinguished from the duties of the House of Delegates and state associations. Included in the report also are studies of group practice and voluntary insurance plans.

It can be said that the Council has had a busy year and has done its work well.

7. Resolutions on Effective Program of Public Relations and Resolution on Establishment of Committee on Public Relations: Your reference committee recommends adoption of the following resolutions as a substitute for those introduced:

Whereas, The House of Delegates has authorized and endorsed an effective program of public relations for the American medical profession; and

Whereas, The American Medical Association is the only organization which is qualified to speak with authority for American medicine; be it therefore

Resolved, That a Committee on Public Relations be established in the headquarters office composed of the Secretary and General Manager, the resident Trustee and the Editor of The Journal, which shall have charge of the public relations of the American Medical Association under the general direction of the Board of Trustees; and be it further

Resolved, That if the Board of Trustees is convinced that the Association cannot afford to carry out a public relations program, Fellowship dues be increased to $10 per annum.

8. Report from Hawaii: Your reference committee has reviewed the report from and has heard the delegate of the Hawaii Territorial Medical Association. This report had to do with the presentation of a bill in the Territorial Legislature in an attempt to socialize medicine. This resulted in the unification of medical forces. A press, radio and letter campaign was conducted which was successful and the bill died in committee. The delegate brought out that the National Physicians Committee was of great help in the defeat of the bill. The delegate was of the opinion that the bill was inspired and promulgated by Communists.

As a result of this report and the testimony of the delegate, your reference committee presents the following resolutions: be it

Resolved, That the House of Delegates of the American Medical Association congratulate the Hawaii Territorial Medical Association; and be it further

Resolved, That the House of Delegates recognize that a similar situation exists on this continent; and be it further

Resolved, That the House of Delegates of the American Medical Association continue its eternal vigilance and its fight against the forces which are trying to destroy the medical way of life by attacking the "soft underbelly" of the American people—American medicine.

Respectfully submitted,

Thomas P. Murdock, Chairman
Thomas A. McGoldrick.
William M. Skipp.
Lloyd Noland.
Forrest J. Pinkerton.

Report of Reference Committee on Hygiene and Public Health

Dr. Walter E. Vest, Chairman, presented a report, which as amended reads:

1. Report of Committee on Rural Medical Service: Your Reference Committee on Hygiene and Public Health met June 9, immediately following adjournment of the House, and considered the report of the Committee on Rural Medical Service. Your committee feels that the highest commendation is due that committee for the work it has accomplished thus far. Obviously adequate rural medical care is, in many areas, an unsolved problem. Your committee recommends that committees on rural medical service should be set up in those state medical associations not now having them and suggests that the headquarters office should urge on all the state associations the necessity for adequate support of these committees. The development of adequate medical care in much of rural America will of necessity be a long and difficult task and will require time, patience and persistence.

Your committee believes that the development of rural health councils is distinctly in order and that such councils should be actively participated in by the practicing physicians and essentially guided by them. Likewise your committee approves news releases pertaining to health to such rural health councils and farm publications as may from time to time seem pertinent and recommends also that leaflets on preventive medicine and rural medical service issued by the American Medical Association should be distributed to these organizations. Your committee further urges on the Board of Trustees adequate financial support of the Committee on Rural Medical Service.

2. Resolution on National Health Policy: Your committee considered also the resolution which is apparently the plan now operating in Monmouth County, New Jersey.

Your committee approves the resolution in general and recommends that principles 1 and 2 be adopted as presented. However, it is the opinion of your committee that principle 3 as submitted might be at times embarrassing. Hence it is its recommendation that this principle be rewritten as follows:

"3. Each component society invites and welcomes the active participation in its scientific programs by the qualified medical personnel of the appropriate health and welfare agencies and, under suitable circumstances, of the nonmedical personnel as well." Approval of the remaining principles as set forth in the resolution is recommended except that your committee recommends the clarification of 7 by insertion of the word "economically" before the word "suitable" so that this principle will read:

"7. The health and welfare agencies will protect the private practitioner and family doctor by discouraging treatment in preventive clinics by returning to the family doctors any cases not economically suitable for examination or care at the health or welfare agency."

Respectfully submitted,

Walter E. Vest, Chairman.
James P. Wall.
Walter P. Anderton.
Leonce J. Kosminsky.
James A. Crabtree.

The first section of the report of the reference committee was adopted on motion of Dr. Vest, seconded by Dr. C. F. Strosnider, North Carolina, and carried after a motion by Dr. F. S. Crockett, Indiana, seconded by several, to include the words "farm publications" in connection with news releases was carried.

Dr. Vest moved adoption of the second section of the report of the reference committee, referring to the Resolution on National Health Policy, and the motion was seconded by several. After discussion and suggested amendments, this matter was rereferred to the reference committee on motion of Dr. E. S. Hamilton, Illinois, seconded by Dr. J. Stanley Kenney, New York, and carried.

On motion of Dr. Vest, seconded by several and carried, the report of the reference committee was adopted as a whole with the exception of the second section, which had been rereferred to the committee.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. B. E. Pickett Sr., Chairman, presented the following report, which was adopted on motion of Dr. Pickett, seconded by Dr. Robert E. Schlueter, Missouri, and carried:

Resolution on Limitation of Tenure of Office of Delegates: Your reference committee gave due consideration to and discussed with the members of the Judicial Council this resolution and agrees that the resolution may have merit, but it believes that the resolution interferes with the prerogatives of the individual constituent associations and sections of the Scientific Assembly. Therefore your committee recommends disapproval of the resolution.

This report was concurred in by members of the Judicial Council present.

Respectfully submitted,

BRITTON E. PICKETT SR., Chairman.
L. G. CHRISTIAN.
ALLEN H. BUNCE.
HOMER LEE PEARSON JR.
ALFRED S. GIORDANO.

Report of Reference Committee on Reports of Officers

Dr. James R. Reuling, Chairman, presented a report, which as amended reads as follows:

Your reference committee, before taking up the individual reports of the officers, wishes to call the attention of this House of Delegates to the fact that at the opening session of this, our Centennial Celebration, we were privileged to listen to three of the finest addresses that any House has ever heard. Because these addresses contain so many valuable recommendations—suggestions and recommendations that may well set the pattern for the next one hundred years—your committee has had duties far beyond those which usually fall to the Reference Committee on Reports of Officers.

ADDRESS OF THE SPEAKER

The Speaker's address, brief and to the point, reflects his wisdom as Speaker and his judicial mind as a presiding officer. After reviewing the history of the establishment of the position of Speaker of the House and paying tribute to his predecessors, he wisely called attention to a provision in the proposed new By-Laws, regarding the composition of the House during executive sessions. As this House has taken no action on the revision of the Constitution and By-Laws during this session, your reference committee makes the recommendation that only members of the House of Delegates as defined in article 5, section 2, and the general officers as defined in article 6, section 1, of the present Constitution and By-Laws shall be present at an executive session. The House, by a two-thirds majority may, however, invite to be present any individual who in its judgment might assist in the deliberations.

Your reference committee would commend the Speaker for the excellent manner in which he has conducted this important office.

ADDRESS OF THE PRESIDENT

The committee listened with deep interest to President Shoulders and has reread his address with much profit. He points with great clarity to the fact that while changes have taken place in the practice of medicine, the philosophy, the fundamental principles of medicine, do not change.

1. Increasing Availability of Services of General Practitioners: Dr. Shoulders says "It is apparent that the immediate and most urgent needs are concerned with increasing the availability of the services of general practitioners." Your committee believes that the specialty boards have unwittingly contributed to the unwholesome flow of medical students and interns away from general practice and into the specialties and agrees "that the graduate training given in most hospitals approved for the training of interns and residents is designed to satisfy the requirements of specialty boards rather than to meet the needs of general practitioners." Your committee believes that the medical schools also contribute to this state of affairs in that student training is constantly being directed toward the specialties and believes also that the medical schools and the medical boards of all hospitals should pay more attention to the art of the practice of medicine.

Faculties of medical schools and staffs of hospitals should themselves be indoctrinated with the fact that the general practitioner or family doctor is the backbone of the medical profession. They should reiterate to the medical students what Dr. Shoulders has so ably stated concerning the position of the general practitioner in his community and the many rewards for being a family physician.

Dr. Shoulders makes the following recommendations: "That this House of Delegates take action to request the Board of Trustees to appoint and finance a special committee of whatever size is deemed necessary for the purpose of studying all the factors which affect the production and distribution of the type and quality of medical care which the people need and/or desire. In particular, such a committee could (1) define the term 'general practitioner,' or 'general physician,' on a functional basis; (2) determine whether or not there is need for a large increase in the number of medical graduates and, if so, its extent; (3) study the present program of medical education and training, both undergraduate and postgraduate, to determine whether or not the content and administration of the program is properly adjusted to the present day needs of the people; (4) study the possibility and feasibility of utilizing smaller community hospitals in a program for the training of general practitioners and the possibility of approving such institutions for training when a program is properly organized and administered; (5) study the means by which communities in need of additional services may be aided; (6) study such other questions as the committee itself may deem to be necessary at arriving at sound conclusions concerning the entire field of medicine, and (7) propose a long range program designed to overcome present insufficiencies and to meet future needs."

Your reference committee is aware that each of these recommendations is and has been under study by the Council on Medical Education and Hospitals. Such material as has been assembled should be utilized. However, your committee is convinced of the necessity of such a special committee and recommends that a special committee be appointed, the committee to contain a number of general practitioners and to study intensively these seven points and make periodic reports to the House of Delegates.

2. Your committee would direct the attention of every doctor in the United States to the masterful way in which President Shoulders has dramatized the economic changes which have taken place—his similes as to why the cost of medical care seems to have increased should be memorized when he says "When appendicitis was treated largely by the administration of opium pills and the application of poultices to the abdomen, the cost of administering such treatment was low but the resulting mortality was high." . . . "When diabetes was treated by diet and the administration of codiene, the cost of such treatment was low but the mortality was high." He should have added that these individuals and those suffering from many other conditions saved from an early death by the advances of medical science increase the national economy and thereby do not relatively increase the cost of medical care.

ADDRESS OF THE PRESIDENT-ELECT

1. Supplemental Session of House of Delegates to Include Scientific Meeting: The address of President-Elect Bortz contained illuminating discussion and forward looking recommendations. The Association is indeed fortunate in having had Dr. Bortz as Vice President when Dr. Olin West found it imperative to resign.

The first problem which Dr. Bortz presented contained two parts: (1) having a scientific meeting for general practitioners in conjunction with the supplemental session of the House of Delegates and (2) that the supplemental session be rotated to various sections of the country.

Your committee is in hearty accord with these proposals. It forsees in this plan (1) enormous public relations value; (2) raising the general practitioner to the eminence which he deserves in his local community, and (3) educating the headquarters office to local needs, conditions and problems.

Your committee recommends that the supplemental session of the House of Delegates be held in various sections of the country and that there be scientific meetings at these sessions devoted to the general practice of medicine.

2. Affiliation of Medical Students: Your committee agrees with Dr. Bortz in the necessity of securing the closer affiliation of the third and fourth year medical students with the American Medical Association. The committee recommends that the officers of the Association and the appropriate councils carry out his proposals of Affiliate Membership and the reestablishment of a student section in The Journal. Your committee further recommends that the Secretary, in collaboration with the councils and bureaus, prepare an illustrated booklet which will contain a description of the various activities carried on by the American Medical Association and that this booklet be distributed to the members of the Association and to all third and fourth year medical students.

3. Qualified Spokesmen: Your committee recognizes the problem of obtaining a greater number of well qualified speakers. It recommends that the Council on Medical Service assist in the establishment of a speakers' training program in every county medical society. Your committee believes that the Council on Medical Service should bring all of its pamphlets up to date. Recognizing the limitations of physicians in preparing properly coordinated talks, it also recommends that a number of basic speeches be prepared for distribution through the speakers' bureau.

4. The Woman's Auxiliary: Your reference committee concurs in the opinion that the value of the Woman's Auxiliary has been for the most part overlooked in many counties and states. On the other hand, many counties and states know full well the potent public relations value of their auxiliaries. Your committee would have every county and state medical society urge its auxiliary to make use of available material at the headquarters office.

5. The Nursing Crisis: Your committee recognizes this serious situation. It feels that in recent years too much stress has been laid on the technical and scientific preparation of the prospective student nurse rather than on her sympathetic understanding of the problem of patient handling, comfort and ordinary technics of treatment. It recommends that the President appoint a committee of five to be known as the Committee on Nursing Problems. This committee shall investigate the present objectives of the nursing profession, the standards of education, the time involved for training, the various curriculums, the supply of nurses and quality of services rendered, remuneration, participation in the determination of administrative policies and the question of security benefits and to study the training of practical nurses.

6. Medical Preparedness: Your committee feels that this is of the utmost and urgent importance and should be followed up as of today instead of filing away for future disposition.

7. A New Home for the American Medical Association: Dr. Bortz in his address said "The House of Delegates must take under advisement a building program." Your committee after consultation with various individuals believes this matter to be urgent and recommends that the Board of Trustees be empowered to study these needs and take appropriate action.

Respectfully submitted,

James R. Reuling, Chairman.
James Q. Graves.
William H. Halley.
E. N. Roberts.
Deering G. Smith.

It was moved by Dr. Reuling and seconded by several that the first section of the report of the reference committee, dealing with the address of the Speaker concerning attendance at an executive session of the House, be adopted. After proposed amendments, the Chairman accepted the revision of the last sentence so that it reads as it is now contained in the report.

On motion of Dr. Reuling, seconded by Dr. C. F. Strosnider, North Carolina, and carried, the report of the reference committee referring to the address of the President was adopted.

Dr. Reuling moved adoption of the first section of the report of the reference committee dealing with the address of the President-Elect referring to supplemental sessions of the House of Delegates, and the motion was seconded by Dr. Charles R. Rountree, Oklahoma. After discussion, this section of the report of the reference committee was rereferred to it on motion of Dr. C. B. Conklin, District of Columbia, seconded by Dr. Thomas S. Cullen, Maryland, and carried.

It was moved by Dr. Reuling, seconded by Dr. C. F. Strosnider, North Carolina, and carried, that the second section of the report of the reference committee, referring to the address of the President-Elect, be adopted.

The third section of the report of the reference committee, dealing with the address of the President-Elect, was adopted on motion of Dr. Reuling, duly seconded and carried after discussion.

Sections 4 and 5 of the report of the reference committee, referring to the Woman's Auxiliary and the nursing crisis contained in the address of the President-Elect, were adopted as amended on motion of Dr. Reuling, seconded by several and carried after discussion.

The seventh section of the report of the reference committee, relating to a new home for the American Medical Association, referred to in the address of the President-Elect, was adopted on motion of Dr. Reuling, seconded by Dr. Walter E. Vest, West Virginia, and carried.

On motion of Dr. Reuling, seconded by Dr. L. J. Kosminsky, Arkansas, and carried, the report of the reference committee as amended, with the exception of the portion that was rereferred to the reference committee, was adopted as a whole.

Report of Reference Committee on Medical Education

Dr. George W. Kosmak, Chairman, presented the following report:

1. Resolution on the Nursing Shortage. Your reference committee desires to bring up for consideration at this time the Resolution on the Nursing Shortage, which had been laid on the table.

2. Your Reference Committee on Medical Education desires to report its recommendations on two additional resolutions, which, although they were included in the material handed in, were not read in our earlier report to the House of Delegates.

(a) Resolution on Allotment of Residencies: Your reference committee feels that whatever the merits of these resolutions may be, it would not be possible for any organization to enforce the proposal to compel hospitals to reserve one half of their residencies for physicians who have had five years' experience in general practice. Your committee therefore, recommends that these resolutions be not approved.

(b) Resolution on Hospital Standardization: Your reference committee finds that the Council on Medical Education and Hospitals is collaborating with all interested agencies in reviewing hospital standards, so that this resolution is in accord with activities now under way. Your committee recommends that this resolution be referred to the Council on Medical Education and Hospitals for its guidance in its collaborative activities with other accrediting organizations.

On motion of Dr. T. K. Gruber, Michigan, duly seconded and carried, the Resolution on the Nursing Shortage was taken from the table.

Dr. Kosmak moved adoption of the resolution as introduced and the motion was seconded by Dr. Wingate M. Johnson, North Carolina. After discussion and after a motion to rerefer to the committee was lost, another motion to rerefer the matter to the reference committee, made by Dr. T. K. Gruber, Michigan, seconded by Dr. Walter E. Vest, West Virginia, and carried, was adopted and this resolution was rereferred to the reference committee.

Section 2 (*a*) of the report of the reference committee, disapproving of the Resolutions on Allotment of Residencies, was adopted on motion of Dr. Kosmak, seconded by several and carried.

It was moved by Dr. Kosmak, seconded by Dr. Thomas S. Cullen, Maryland, and carried, that section 2 (*b*) of the report of the reference committee, referring the resolution to the Council on Medical Education and Hospitals, be adopted.

On motion of Dr. Kosmak, seconded by several and carried, the report of the reference committee, with the exception of the first section that was rereferred to it, was adopted as a whole.

Report of Reference Committee on Reports of Officers

Dr. James R. Reuling, Chairman, presented a report, which as amended reads as follows:

Supplemental Session of the House of Delegates to Include Scientific Meeting: Your committee recommends that the annual supplemental session of the House of Delegates be held in various sections of the country and that this supplemental session be preceded or followed by a scientific session devoted exclusively to the general practitioner, and that the arrangements for such sessions be under the joint auspices of the Board of Trustees and the Council on Scientific Assembly.

On motion of Dr. Reuling, seconded by Dr. Charles R. Rowntree, Oklahoma, and carried after amendment to the report had been adopted, the report of the reference committee was adopted.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Elmer Hess, Chairman, presented the following report of the reference committee, which was adopted section by section and as a whole on motions of Dr. Hess, duly seconded and carried:

REPORT OF SECRETARY

1. Growth of American Medical Association: Your reference committee compliments the Secretary on his very substantial increase in membership, and with the cooperation of the state secretaries and the editors who have been influenced by his leadership.

2. Specialty Boards: Only two resolutions were referred to the Secretary, and one of these concerned changes in the requirements of specialty boards. These were referred to the proper reference committees. Your reference committee wishes to emphasize the necessity for a change in the policy of these boards.

3. Secretary's News Letter in Report of Executive Assistant: This is a step in the right direction, and the information contained in this News Letter has kept before the various medical leaders in the states and counties information of extreme value and should be continued. Comment on the information contained in the News Letter, whether critical or favorable, is welcomed. Your reference committee strongly advises the continuation of efforts for coordination of the public relations activities at headquarters and believes that the efforts made to channel back to the states and county societies is invaluable. The committee recommends that this service be enlarged and that the information be available to other organizations interested in medical affairs.

4. Promotion for Council on Medical Service in Report of Executive Assistant: Your reference committee recommends that this effort should be continued and requests that new prepayment medical service plans be given the experience of the older plans on an actuarial basis.

5. Press Section in Report of Executive Assistant: Frequently information is given to the press before that information is available to the practicing physician. Your reference committee recommends that information released to the press as new be simultaneously channeled to the profession. This will prevent the embarrassment of the physician when questioned by the laity concerning such news releases. Your committee realizes that this is difficult and it believes that a splendid contribution to public relations has been made by these news releases.

6. Appreciation: Your reference committee wishes to express its appreciation to the Board of Trustees for its foresight in obtaining as Secretary a man of the caliber of Dr. George F. Lull. It believes that under his leadership and with his experience the affairs of his office could be in no better hands.

7. Office of Executive Assistant: Your reference committee notes with deep satisfaction that this office is temporarily unfilled. It realizes the value of the office and hopes that proper personnel may soon be employed to the satisfaction of the medical profession. The Secretary and General Manager needs efficient assistance from this department.

Respectfully submitted,

ELMER HESS, Chairman.
THOMAS F. THORNTON.
ALLEN G. RICE.
ALBERT A. GARTNER.
THEODORE H. HARWOOD.

Report of Reference Committee on Miscellaneous Business

Dr. James Z. Appel, Pennsylvania, presented the following report, which was adopted section by section and as a whole on motions of Dr. Appel, duly seconded and carried after discussion:

1. Resolutions on Placing Statue of Dr. William Crawford Gorgas in New York University Hall of Fame for Great Americans: The work of Dr. Gorgas speaks for itself. Its far reaching effect on the health of humanity the world over has been particularly brought home to us during World War II. Your committee therefore believes that the provision of these resolutions should be carried out and recommends their adoption.

2. Resolution on Deductible Items for Federal Income Tax Purposes: Your reference committee recommends the adoption of this resolution.

3. Resolution on News Releases of American Medical Association: After consulting with the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, your committee has learned that THE JOURNAL is mailed each Wednesday. The Postoffice Department insists that the periodical go on sale at news stands the same date it is mailed. Thus it is impossible to control the date of news releases, particularly since the date THE JOURNAL is received by physicians varies from Friday to the Wednesday following the mailing date. Your committee therefore recommends that this resolution be not adopted.

4. Resolution on Clarification of Rules Relating to Medical Service Fees Received from the Federal Government: Your committee recognizes that with the gradual extension of government into fields of medicine with the promulgation of various rules, regulations and directives of the various bureaus, agencies and commissions, there will be great confusion and inconsistencies. It will be of great advantage to both government and medicine if this matter can be clarified as provided in the resolution. Your committee recommends the adoption of this resolution.

5. Report of the Committee on Military Rank: Since the objectives of this committee have been realized or are in process of realization, your committee recommends that the report be adopted and that the committee be discharged with the thanks of the American Medical Association.

6. Resolution on Increasing Pay of Medical Officers in the Several Services: The provisions of this resolution present no controversial problems. Its sentiments are endorsed by all. Your committee recommends adoption of the resolution.

7. Resolution on Treatment of Plastics for X-Ray Visualization: Your committee is in sympathy with the objectives of this resolution but it does not wish its action to be construed as an instruction to the legislative committee. With this in mind, your committee recommends the adoption of the resolution.

8. Report of Joint Committee for the Coordination of Medical Activities: Your reference committee believes that the work of this committee in acting as a liaison with all medical services is invaluable. It strongly urges that the committee continue to function and recommends the adoption of the report.

9. Resolution on Dissemination of Information Pertaining to Matters of Public Health: After careful study of this

resolution and the hearing of testimony from various members of the Section on Ophthalmology in which no favorable comment was obtained, your committee believes that the provisions of this resolution contain too many broad implications for this House of Delegates to accept. It therefore recommends that this resolution be not adopted.

10. Resolutions on Rebates: The fact that accepting rebates by ophthalmologists has year after year been declared unethical by the Judicial Council and such declaration has been approved by each House of Delegates to which the Council reported, it seems convincing evidence that the House of Delegates frowns on this practice. Furthermore, at this very session of the House of Delegates, you have approved a most forceful enunciation of this principle in the present report of the Judicial Council. Your reference committee can only reaffirm this principle and recommend that it be adopted.

Your reference committee, however, believes that the American Medical Association should not "request" constituent societies to expel members under any circumstances. This procedure is suggestive of and might be interpreted as dictatorship. It therefore, with the approval of the author of these resolutions, has amended them so that the last paragraph shall read: "*Resolved*, That the Secretary of the American Medical Association communicate this action to the various county societies forming the constituent associations and advise them again that members accepting rebates are violating our Principles of Medical Ethics and recommend that each component society take appropriate action whenever this situation exists."

It further amends these resolutions, without the knowledge of their author, that another "resolved" be added to it as follows: "*Resolved*, That the Board of Trustees of the American Medical Association appoint a committee to investigate all phases of this subject, including the alleged arbitrary control of the retail price of optical appliances by manufacturers, which committee is to report its findings to the House of Delegates at the next supplemental session."

In conclusion, your committee believes that the Section on Ophthalmology of the American Medical Association could and should stop this practice.

11. Resolutions on Safety in Flying: Your reference committee recognizes the dangers involved in the action of the Civil Aeronautics Administration by lowering the physical standards for private and student pilots and by permitting persons other than doctors of medicine to make these examinations. Even so soon after a great war, in which many physicians were well trained in aviation medicine, there are sections of the country in which it might be difficult to find such a trained doctor of medicine. It therefore recommends the adoption of these resolutions with a change made in the second "resolve" of the resolutions so that it shall read: "*Resolved*, That in the opinion of the Association physical examination of all grades of pilots should be conducted only by those who are doctors of medicine and preferably by such doctors of medicine who have had some training in aviation medicine." Your committee recommends the adoption of these resolutions.

12. Resolution on Care of Veterans: The request involved in this resolution cannot but be endorsed. Your committee is convinced that it is not only the desire of the medical profession but also the wish of the veteran himself that he be given home town medical care. Your committee recommends the adoption of this resolution.

13. Report of the Council on Medical Service: As has become customary, the Council on Medical Service has rendered a splendid report of the exceptionally fine work that it has accomplished the past year for organized medicine. There is very little that your committee can say in comment on this report. However, it does wish to point out the great advance that has been made in prepayment plans, which advance, it feels sure, has been due to the efforts of the Council on Medical Service. Your committee certainly must congratulate the Council on Medical Service for its News Letter. In the report the Council states "the mailing list has continued to increase in size, with the addition not only of physicians but of members of the Woman's Auxiliary, special professional societies and laymen who are interested in medical service activities." Your reference committee believes that this mailing list should continue to expand. Much of the information in the News Letter appears in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, but its conciseness and readability is much better portrayed in the News Letter. Your committee believes that very few of our Fellows read this portion of THE JOURNAL but would read these News Letters if they receive them. It therefore recommends that the House of Delegates investigate the possibility of extending this mailing list to include all Fellows of the American Medical Association, and if this is impossible that at least it be sent to all officers of component county societies. With this thought in mind, your committee recommends the adoption of the report of the Council on Medical Service.

14. Supplementary Report of the Council on Medical Service: The supplementary report of the Council on Medical Service is divided into five parts.

The first part deals with the United Mine Workers Health and Hospital Fund and particularly with the Boone Survey. Your committee agrees thoroughly and recommends that this recommendation be adopted.

The second portion of this report deals with the Veterans Administration Home Town Medical Care Program. Your reference committee believes that the recommendations of this Council will further the aims of the resolution which it has already recommended that you adopt and therefore it recommends the adoption of your Council's recommendations.

The third portion of the report deals with the American Cancer Society program, in which the Council believes that "uniform policies with reference to certain parts of this program should be developed." Your reference committee urges the Council to continue its study of the extent and experience of the programs now in operation and report its findings to the profession.

Cash Sickness Benefits: Your reference committee feels that cash sickness benefits might become a dangerous thing to medicine. It therefore recommends that your council continue its study of such legislative programs and keep the state societies informed of this study so that they will be in a position to meet any possible future legislation.

In that portion of the Council's supplementary report on the Hospital Construction Act the Council submits without comment the report of Dr. Dean F. Smiley on the definition of a health center. Your reference committee has studied this report and will only burden you with a discussion of its completeness. In his conclusions Dr. Smiley states in part: At least fourteen different functions have been assigned to health centers since 1912. Of these fourteen functions it is recommended that only five (communicable disease control efforts, sanitation, maternal-infant-child hygiene measures, vital statistics and health education) be generally included under the title of Public Health Center as that title is used in the Hospital Survey and Construction Act of 1946, and that first assistance be given to the construction of public health centers as headquarters for county and multicounty public health units rather than to more rural public health centers serving as extensions of the county and multicounty health units.

Your reference committee recommends the adoption of these recommendations as read.

Dr. Smiley further states that in rural communities from 4,000 to 18,000 in need of sick beds but not in position to afford a 50 bed general hospital, community clinics of 10 to 40 beds should be provided by hospital authorities rather than "Public Health and Medical Service Centers" provided by public health authorities.

These community clinics would offer a limited medical and maternity service but would not include major surgery or specialty services.

Your reference committee believes that there should be added to the recommendation of Dr. Smiley the statement "Such community clinics should be so organized and administered that they will not infringe on the private practice of medicine by physicians." Your committee is fearful lest even the term "hospital authorities" rather than "public health authorities" should provide a wedge by which government might enter the private practice of medicine.

Dr. Smiley further stated that, if public health centers are housed in community hospitals or community clinics, it is recommended that such centers continue to be administered independently.

With these points in mind as amended by your reference committee, it recommends the adoption of the Smiley report.

Your committee therefore recommends the adoption of the supplementary report of the Council on Medical Service.

Respectfully submitted,

James Z. Appel, Chairman.
Stephen R Monteith.
John W. Cline.
Hugh P. Smith.
Edward H. McLean.

On motion of Dr. Thomas S. Cullen, Maryland, seconded by Dr. H. B. Everett, Tennessee, and carried, the House reverted to new business.

NEW BUSINESS

It was moved by Dr. T. K. Gruber, Michigan, seconded by several and carried as amended, that the resolutions be read by title and their purpose indicated The resolutions so presented are printed in full

Resolutions on Health of the Nation

Dr. T. D. Cunningham, Colorado, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

Whereas, The American Medical Association has often been accused *of neglect in performance of its duty regarding the medical care of* all of the citizens of the United States, and

Whereas, The federal government is currently planning drastic legislative *action concerning the health of all of the citizens of this country*; and

Whereas, The action that is planned by the government, if carried out, *would threaten the very foundations of the practice of medicine;* and

Whereas, The American Medical Association is not now equipped with all of the necessary facts either to combat the criticism leveled against us or to correct our inadequacies or the bad public condition, if such inadequacies or bad condition do exist, now therefore be it

Resolved, By the House of Delegates of the American Medical Association that each state in the United States shall be completely surveyed as to the distribution and adequacy of medical and hospital services and care, such survey to include every county in the United States and to be conducted under the direction of the organized medical profession by such skilled personnel as may be needed, and be it further

Resolved, That each state medical association be requested to report to the Secretary of the American Medical Association not later than July 15, 1947 as to whether or not that association can arrange and finance such survey in its own state, this House of Delegates directing the Board of Trustees of the American Medical Association to offer financial assistance and personnel for the conduct of such surveys in any state in which the state medical association is unable to conduct such survey without assistance, and be it further

Resolved, That such survey shall be conducted forthwith and its complete results reported to this House of Delegates at the supplemental session next ensuing

Resolution on Retired Members of House of Delegates

Dr L G Christian, on behalf of the Michigan delegation, Dr. Louis A. Buie, Section on Gastro-Enterology and Proctology, Dr Grover C. Pemberthy, Section on Surgery, General and Abdominal, and Dr Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The House of Delegates of the American Medical Association each year pays tribute in memoriam to those former members of the House of Delegates; and

Whereas, There are many former members of this House of Delegates who are now living and who have contributed greatly to American medicine and to the policies of the American Medical Association, therefore be it

Resolved, That the House of Delegates instruct the Secretary of the American Medical Association to send an appropriate letter of greetings to these men with the thanks of the House for their contributions to American medicine and to the American Medical Association

Resolution on Facilitating Efficiency of Work of House of Delegates

Dr. C. F. Strosnider, North Carolina, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, There is no central point of information concerning the times and places of the meetings of the reference committees; and

Whereas, This condition results in confusion which prevents delegates and members of the Association from appearing before committees concerning important resolutions, therefore be it

Resolved, That at future sessions of the House of Delegates of the American Medical Association a central bulletin board containing information including names of committees and hours and places of meetings be established, and that its location be announced by the Speaker of the House of Delegates

Resolution on Preparation and Presentation of Resolutions

Dr. J. D. McCarthy, Nebraska, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The efficiency of reference committees is decreased and time lost because of the lack of a standard method of preparation and presentation of resolutions; and

Whereas, This difficulty could be obviated to a great degree if there *were a model to follow; therefore be it*

Resolved, That (1) all resolutions be titled, (2) the name of the state medical society or the introducer be appended, (3) six copies be presented at the time the *resolution is read so that all members of a* reference committee may have a copy to study

Resolution on Listing Names in Daily Bulletin

. Dr K S. J. Hohlen, Nebraska, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The names of the registrants appearing in the *Daily Bulletin* of 1947 are arranged in alphabetical order rather than by states; and

Whereas, Such an arrangement makes it more difficult or almost impossible to locate a registrant from his state or locality, therefore be it

Resolved, That the proper authorities be requested to follow the system utilized in former years by publishing the names by states

Resolutions on Support of the SOS Collection of the Joint Distribution Committee

Dr. W. P. Anderton, New York, on behalf of a member of the Association, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The problems of reconstruction in Europe are the concern of all Americans and the problems of health are the particular concern of American physicians and surgeons, and

Whereas, More than 155 hospitals in D. P. camps, child care centers and other institutions are being serviced by medical teams of the joint distribution committee employing, as far as possible, European doctors, nurses and other technicians, and

Whereas, *These doctors, nurses and other technicians who survived* Nazi persecution are handicapped in their work of ministering to the needs of their shattered people by the appalling lack of equipment and *research material;* and

Whereas, Their own libraries and equipment were destroyed or looted by the Nazis; now therefore be it

Resolved, That the American Medical Association, in session assembled, voice full support of the SOS (Supplies for Overseas Survivors) Collection of the Joint Distribution Committee, major American agency aiding distressed Jews overseas, in their campaign to collect and ship medical texts and journals, equipment and supplies to European doctors; and be it further

Resolved, That this session urge the members of our profession to cooperate wholeheartedly in this campaign and contribute medical texts and journals, particularly those dealing with tuberculosis, anemia, latest methods in surgery and developments in medicine and drugs, and to send such contributions to the national warehouse of SOS at 1539 Troy Avenue, Brooklyn, N Y

Telegram from White House

Dr. F F Borzell, Vice Speaker, at the request of the Secretary, Dr. George F. Lull, who had been forced to leave the meeting, read the following night letter, receipt of which the Secretary was instructed to acknowledge with the profound thanks of the House, to which the letter had been read

Washington, D. C, June 10, 1947.

Dr. George F. Lull, Secretary and General Manager,
American Medical Association,
Hotel Traymore,
Atlantic City, N J.

Following is copy of letter addressed to Dr. Shoulders by the President under date of June 5:

Dear Doctor Shoulders:

I wish to congratulate the American Medical Association on its one hundredth anniversary and to extend to the medical profession the profound thanks of the American people for uncounted services rendered by America's doctors in war and peace.

The American genius for technical proficiency flowers nowhere more fully than in the skill of our physicians. Our capacity for organization and broad scale application of science and business methods is nowhere more apparent than in our medical schools, our laboratories, hospitals and clinics, in military and industrial medicine, and in our national, state and local public health services.

No thoughtful citizen, however, can fail to see that in achieving impersonal skills, unparalleled organization and "bigness" we have lost some of the individual and spiritual values which are the essence of our American way of life. Our family doctor has become "American medicine"; our working man, "American labor," and our storekeeper and shoemaker, "American business." In reverse, an equally deadly impersonality transforms "my patient," "my employee" and "my customer" into "the public."

Our traditions and our form of government are the world's greatest hope for individual freedom. This is because of their emphasis on the worth of the individual, his direct participation in public affairs and his freedom to become a whole man, independent in thought and action. Now, as never before, our institutions call on us to hold fast and increase the freedom of every individual for full development and use of his physical and mental powers.

We can never return to the days of the "horse and buggy" doctor; nor would we wish to. Rather, we would go forward with all the benefits of American medicine achieved and those to come. Into our methods of distributing these benefits we would infuse the personal devotion which has always been the beloved characteristic of the good physician. If every doctor will project his individual concern and care to a larger view of the needs of his colleagues and of all the people, there will be no doubt of the future growth and social value of medicine in this hazardous era which ushers in the second century of your organization.

The medical profession has been a primary leadership group in the national scene and the local community throughout this country's history. It is my hope that our physicians will give still more thought and participation as citizens to the solution of our modern problems. The problems most directly affecting their profession will claim their first attention; these include the advancement of scientific knowledge, improvement and expansion of professional training, and the extension of medical and health services. We need them also in the solution of such related problems as nutrition, housing, conditions of work, use of leisure time and other economics and environmental factors affecting health. Fortunately, physicians have, in their professional societies, channels through which to make known their individual aims and to cooperate with public and private groups.

It is to such social organizations as the American Medical Association that the nation looks for first line defense of democratic principles. In behalf, then, of the American people and for myself personally, I salute your organization and through it the men and women to whom we owe so much of personal solace in distress, to whom we entrust ourselves and those dearest to us in mankind's every vital crisis.

Very sincerely yours,

HARRY S. TRUMAN.

DR. HARRISON H. SHOULDERS, President, American Medical Association, Atlantic City, N. J.

(By WILLIAM D. HASSETT, Secretary to the President.)

On motion of Dr. William Weston, Section on Pediatrics, seconded by several and carried after discussion, the House recessed at 6 o'clock to meet at 9 o'clock Thursday morning, June 12, 1947.

(To be continued)

Washington Letter

(From a Special Correspondent)

June 26, 1947.

Medical Board to Advise Atomic Energy Commission

Seven scientists in medicine and biology have been appointed to a special medical board of review to advise the U. S. Atomic Energy Commission on atomic research in the medical and biologic fields. The group met in Washington to start work on nonmilitary phases of atomic development. Board members are Dr. Robert P. Loeb, chief, division of medicine, Presbyterian Hospital, New York, chairman; Dr. Detlev W. Bronk, chief radiologist, University Hospital, Philadelphia; Dr. Wallace O. Fenn, professor of biology, University of Rochester Medical School, Rochester, N. Y.; Dr. Herbert S. Gasser, physiologist, Rockefeller Institute for Medical Research, New York; Dr. Ernest W. Goodpasture of Vanderbilt University School of Medicine, Nashville, Tenn.; Dr. Alan Gregg, director for medical sciences, Rockefeller Foundation, New York, and Dr. A. Baird Hastings, Harvard Medical School, Cambridge, Mass.

Criticism of Health Standards in Mining Communities

Health and sanitation conditions in mining communities are criticized in a report of a four month survey of conditions in and about 260 mines in twenty-two major soft coal producing states, issued by the Coal Mines Administration of the Department of Interior and condensed in the Labor Information Bulletin for June. The article states that public health and sanitation are below standard in more than half of the mining communities, and some areas are "a disgrace to the nation." The 340 page report contains forty-seven recommendations, including establishment of a broad system of prepaid medical care for miners and their families, and improvement in the quality of medical services, public sanitation, industrial medicine, recreational activities and housing. The report says that 72 per cent of mines surveyed were inadequately prepared to provide emergency medical care to seriously injured persons. The report adds that there are occasional "tendencies to give less consideration to the quality of medical care than to profits. . . . Both management and labor appear in a few instances to have abused their responsibilities and privileges. . . . Physicians were not selected primarily on the basis of professional qualities but on the basis of personal friendships, financial tie-ups, social viewpoint or other nonmedical consideration." Conditions were reported to be generally worst in company-owned coal camps, comprising 45 per cent of surveyed mines.

House Committee Votes Funds to Start Mental Institute

The House Appropriations Committee has approved an initial appropriation of $850,000 to buy land and prepare plans for the proposed $7,500,000 Institute of Mental Health, to be built near Bethesda, Md. This was the amount asked in the President's budget. The sum covers $450,000 for land and $400,000 for plans. The institute is projected as a national mental health research center, with 200 beds for patients selected for research. It will be erected on land adjacent to the National Institute of Cancer Research on Rockville Pike.

Warm Springs "White House" Presented to Public

Basil O'Connor, president of the Georgia Warm Springs Foundation, has announced that the Little White House at Georgia Warm Springs, where President Franklin D. Roosevelt died on April 12, 1945, was to be presented on June 25 to the people of America. Governor Melvin Thompson of Georgia was to accept the deed to the property for the Franklin D. Roosevelt Warm Springs Memorial Commission created by the state of Georgia. The six room dwelling will subsequently be opened to the public.

Announcement of Allocations of Streptomycin

The Office of Materials Distribution, Department of Commerce, has announced initial streptomycin allocations for June, which total 636,800 Gm. as compared with 553,900 Gm. in May. The allocations for the armed services are 30,000 Gm.; for other government agencies, 42,000; for research, 8,450; for civilian domestic use, 456,350; for civilian export use, 100,000.

Medical Legislation

STATE LEGISLATION

Alabama

Bills Introduced.—H. 241 proposes to authorize every person of sound mind of the age of 21 years or older to designate by an instrument in writing filed in the office of the judge of probate court the **disposition to be made of his body** or parts thereof after his death. H. 256 proposes an appropriation to the state board of health to provide **streptomycin treatment of tuberculosis patients** confined in public institutions. S. 112 proposes the enactment of a law to regulate the handling, sale and distribution of barbiturates. The proposal would require **prescriptions for barbiturates** to be made only by a pharmacist on the original prescription of a person licensed to prescribe and administer barbiturates.

California

Bills Introduced.—A. 717, relating to the practice of **naturopathy,** was amended in the assembly so as to refer to naturopaths as doctors rather than naturopathic physicians. A. 1808, relating to the regulation of hospitals, was amended in the assembly by adding the proviso that no rule or regulation should be made which would prevent **the free choice by any person** who is a patient in the hospital of any physician or surgeon licensed and practicing under the Business and Professions Code. A. 2005, proposing the creation of a state **board of chiropractic examiners,** was amended in the assembly by defining an adjustment as "the act of removing an impingement by hands only" A. 2078, amending the business and professions code relating to the prescribing and **use of medicinal preparations,** was amended in the assembly by proposing that it be unlawful for any person not licensed under the provisions of division 2 of the business and professions code to use physical medicine on the body of any person, for compensation, provided that such action should not apply to the performance of physical therapy under the direction and supervision of a person licensed under the provisions of the business and professions code. S. 1278, relating to the practice of **physical therapy,** was amended in the senate so as to propose the creation of a board of physical therapy examiners and so as to define physical therapy as "the performing for compensation, received or expected, of any professional service requiring special education, knowledge or skill, by persons who undertake or represent themselves as able to treat or to alleviate ailment, deformity, fatigue, disease, injury, pain or any other physical or mental condition by physical means, including the various modalities electricity (except x-ray, radium and electrosurgery), light, heat, water, exercise and therapeutic massage." S. 1554, relating to solicitation for group hospitalization, surgical and medical care programs, was amended in the assembly by proposing that **no license should be required** in connection with the solicitation of individual or group hospitalization, surgical and medical care benefits for members or potential members of any nonprofit agricultural or horticultural organization.

Connecticut

Bill Passed.—S. 826, which passed the house June 3, proposes to repeal the **naturopathic practice act** but would provide that any person who has received a certificate of registration from the department of health entitling him to practice naturopathy in Connecticut prior to the repeal of the act would not be affected.

Florida

Bills Passed.—H. C. R. 11, which passed the house June 3, proposes the establishment of a committee to make a survey and investigation with reference to the establishment of a **medical and dental college** in the state of Florida. S. 911, which passed the house June 2, proposes to authorize the city of Jacksonville to cooperate with the state of Florida in providing a suitable site for the establishment of a **State College of Medicine and Dentistry in the city.**

Illinois

Bills Introduced.—H. 734 proposes that any person who habitually uses **narcotic drugs** or is found to be addicted thereto shall be guilty of a misdemeanor and shall be sentenced to imprisonment for a term not less than that required to effect a medical cure of the addiction and not more than one year. H. 783 proposes to authorize the department of registration and education to issue certificates of registration to naturopaths and **defines naturopathy** as "the art and science of naturopathic medicine, which includes the diagnosis, prevention and treatment of human injuries, ailments and diseases by means of any one or more of the psychological, physical or mechanical, chemical or material forces, or agencies of nature as taught by the accredited schools or colleges teaching the art and science of naturopathy." H. 791 proposes, among other things, to authorize corporations organized under the act relating to **nonprofit hospital service** corporation to act as agents for a medical service plan corporation in the solicitation of subscribers, etc. H. 792 proposes to authorize a **medical service plan corporation** to appoint a corporation existing under the nonprofit hospital service plan act to act as its agent in the solicitation of subscribers, etc. H. 872 and S. 626 propose to require the annual **registration of osteopaths** and to further require that osteopaths, at the time of their annual registration, should submit evidence that they have attended a course of refresher study of at least two days during the course of the prior year. S. 551, which passed the senate June 11, proposes to authorize the creation and establishment of a **medical center district in the city of Chicago** and to set forth the powers of the medical center commission administering such district. S. 575 proposes the establishment and operation of the Illinois Research Institute for the **Study and Treatment of Chronic Illness** and Geriatrics and makes an appropriation therefor.

New Hampshire

Bill Introduced.—S. 86 proposes to limit the sale of **barbituric acids** to the sale of prescriptions signed by a practitioner licensed by law to prescribe and administer barbiturates.

New Jersey

Bill Introduced.—A. 314 proposes an act requiring the licensing, inspecting and regulating of **private nursing homes** and private hospitals and the creation of a hospital licensing board.

Pennsylvania

Bill Introduced.—S. 846 proposes to authorize any person over the age of 16 who has been convicted of a crime to be sent to the Pennsylvania **Correctional Diagnostic and Classification Center** for diagnosis if the court is of the opinion that such person may be a defective delinquent.

Woman's Auxiliary

West Virginia

Mrs. F. Carl Chandler of Bridgeport assumed the presidency of the Woman's Auxiliary of the West Virginia State Medical Association at the twenty-third annual meeting in Charleston, May 12-14. Mrs. W. E. Hoffman of Charleston was installed as president-elect; other elective officers installed were vice presidents Mrs. John F. McCuskey, Clarksburg; Mrs. L. D. Norris, Fairmont; Mrs. T. U. Vermillion, Beckley; Mrs. Dana T. Moore, Parkersburg; recording secretary Mrs. C. J. Holley, Wheeling, and treasurer Mrs. Ross P. Daniel, Beckley. Capt. George M. Lyon (MC), U.S.N.R., of Huntington, guest speaker at the luncheon May 14, discussed the application of atomic energy in medical research. More than 225 guests attended the tea at the executive mansion Wednesday afternoon.

Illinois

The Women's Auxiliary of the Loyola School of Medicine, Chicago, held its first annual luncheon May 31. The membership numbers about 350.

Coming Medical Meetings

Alaska Territorial Medical Association, Fairbanks, July 28-30. Dr. William J. Blanton, Juneau, Secretary.

American Orthopedic Association, Hot Springs, Va., The Homestead, June 27-30. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

GOVERNMENT SERVICES

ARMY

PROPOSED LEGISLATION TO IMPROVE THE STATUS OF MEDICAL OFFICERS

Hon. Robert P. Patterson, Secretary of War, noted in an address before a luncheon of the House of Delegates of the American Medical Association in Atlantic City, June 10, that it has been evident that something was irritating the medical officer of the Army ever since doctors became associated with the Army a hundred and seventy years ago. The irritation, Mr. Patterson said, did not seem to impair seriously the medical officer's work, for in war and peace he gave his services willingly and well. "It was not until the last war, when 47,000 doctors came into the Army, that we finally put our finger on the true cause of the medical officer's complaint. It was a sense of uncertainty and dissatisfaction about being able to practice his profession in a manner which would be professionally satisfying to him." The War Department is determined, Mr. Patterson continued, that the professional status of its medical officers in the future be removed from any doubt. The caliber of medical care during World War II made the army resolve to maintain the best features of that service in the years ahead.

As a step toward making army medicine a satisfying career for qualified doctors, a bill has been introduced in Congress which, in summary, provides: 1. Payment of $100 a month extra to all medical officers with less than thirty years' service. 2. Payment of an increase of 25 per cent of base and longevity pay to medical officers designated as specialists. 3. Establishment of positions for four chief consultants who would also be professors at the Army Medical Center in Medicine, surgery, neuropsychiatry and preventive medicine. These consultants would be similar in military status to professors at the U. S. Military Academy at West Point and would have an assimilated rank of brigadier or major general. They would also have authority to establish professional leadership in planning the education and careers of junior officers and in determining the professional policies that govern the care of the soldier patient. 4. Original appointments in the medical corps of outstanding specialists from civilian life, in higher grades and at later ages than are authorized at present. 5. Employment, without regard to civil service requirements, of civilian physicians in six grades at a salary of from $3,640 to $9,800. In addition, specialists would receive 25 per cent extra up to $11,000 a year. Mr. Patterson told his audience, which was composed of doctors, that "the War Department needs your support not only for this bill but for the entire program, giving the Army a medical service in peacetime equal to that of the war years."

ARMY ASSISTS IN FLOODED AREAS

The War Department announces that the Fifth Army has furnished the Red Cross, for use in the Ottumwa, Iowa, flooded area, with 54 Lister bags, a supply of calcium hypochlorite, 30,000 halazone tablets for sterilizing drinking water and many bottles of antitetanus serum. Thirty trucks with drivers were also furnished to army engineers in that area for use in hauling sand bags to strengthen the levees. In the Rutland, Vt., flood, army water supply equipment was provided to meet civilian water requirements until the city water system was again in operation. The First Army commander took steps to furnish assistance to care for thousands of displaced persons in case the Crittenden Dam, north of Rutland, failed.

At Camp Edwards, Massachusetts, and at Fort Dix, New Jersey, one company of First Army troops at each post was alerted for possible use at Rutland for flood relief duty and various detachments were sent to Vermont. Trucks were moved from Camp Kilmer, New Jersey, to Schenectady, N. Y., and made ready to move to Rutland on short notice. Medical units also were alerted.

AVIATION MEDICAL EXAMINERS

The School of Aviation Medicine, Randolph Field, Texas, graduated thirty-two officers of the Medical Corps on May 29 from the course for aviation medical examiners. The course, which covers a period of nine weeks, is designed to make medical officers proficient in the special duties required of aviation medical examiners, to familiarize them in coordinating such duties with other activities, and to indoctrinate them in flying training. Diplomas were granted at this time to the following officers:

Brig. Gen. Wallace H. Graham
Major Richard J. Brightwell.
Major Julius A. Goldbarg.
Major Philip B Watkins, M. C.
Capt. Arthur H. Coleman.
Capt. William F. Hamilton.
Capt. David H. Stoddard.
1st Lieut. Robert S. Boyd.
1st Lieut. John H. Burkhart.
1st Lieut. Earl K. Cantwell.
1st Lieut. Erin M. Dillard.
1st Lieut. Paul G. Donner.
1st Lieut. William C. Doust.
1st Lieut. James O. Fergeson.
1st Lieut. Leewan R. Kellam.
1st Lieut. Clayton H. Klakeg.
1st Lieut. Gerald J. Kochovar.
1st Lieut. Hugh B. McManus.
1st Lieut. Eustace P. Miller Jr.
1st Lieut. William E. Murphy.
1st Lieut. Niels Neustrup.
1st Lieut. George B. Nicholson.
1st Lieut. Robert M. Russell.
1st Lieut. William L. Sager.
1st Lieut. E. W. Schmidt.
1st Lieut. Carrol C. Shinn.
1st Lieut. Jesse E. Waller.
1st Lieut. George E. Wilson Jr., M. C.
Lieut. Ricardo A. Gonella, Argentine navy.
Capt. German Aguilar, Argentine army.
Major Humberto Rossetti, Argentine army.
Capt. Eduardo Subieta, Argentine army.

NEW SURGEON GENERAL TAKES OFFICE

In ceremonies at the War Department attended by officers of the General Staff and Administrative and Technical Services and members of the Surgeon General's Office, Major Gen. Raymond W. Bliss was sworn in on June 2 as the new surgeon General of the U. S. Army. Major Gen. Norman T. Kirk, whose four year term as Surgeon General had expired, in wishing General Bliss success, stated that "he will be the captain of a splendid team which has carried on in this office with an outstanding record and which has planned during the difficult interim period for the future of the department. Through the leadership of the new Surgeon General and his deputy (Brig. Gen. George E. Armstrong, who also took the oath of office at this time) and with the support of the able remaining officers of the Medical Department, I know that the future of the Medical Department is assured." General Kirk plans to retire to his new home at Montauk, Long Island.

PERSONAL

Lieut. Col. Stephen C. Sitter, M. C., has been appointed assistant chief of the neuropsychiatry consultant division in the Surgeon General's Office. He was chief of the neuropsychiatry section at Sternberg General Hospital, Manila, P. I., in 1941. Captured by the Japs at Bataan, he spent almost three years in Cabanatuan prison camp.

Capt. Peter L. Beaconsfield, M. C., was recently awarded the Croix de Chevalier de l'ordre de la Santé Publique by the French Ministry of Public Health "for outstanding contribution and devotion to the cooperative French-American medical service for all Orly Field personnel." He served with the army air transport command in the Azores, London and Paris. Captain Beaconsfield studied medicine at Oxford University in England and Georgetown University in Washington, D. C., and interned at the French Hospital in San Francisco before entering the service.

President Truman sent to the Senate in May for confirmation the names of seventeen wartime general officers for appointment to the officer reserve corps and in this list was the name of Brig. Gen. William C. Menninger of Topeka, Kan., formerly director of the neuropsychiatry division in the Surgeon General's Office.

ARMY AWARDS AND COMMENDATIONS

Brigadier General Frederick A. Blesse

The Distinguished Service Medal has been awarded to Brig. Gen. Frederick A. Blesse, M. C., U. S. Army. The citation read as follows: He performed exceptionally meritorious and distinguished service from March 1943 to April 1944. As surgeon, North African Theater of Operations, and deputy chief surgeon and chief medical inspector of Allied Forces Headquarters, General Blesse contributed notably to the high medical standards which had thus far been attained. A great improvement of the overall efficiency of the entire medical service of the Army resulted from the many new procedures, innovations and methods which he introduced and developed. The fact that the mortality rate of our forces was much lower than that of any previous campaign of any army was due, in a high degree, to his ability, judgment and leadership. General Blesse, who has also received the Oak Leaf Cluster to the Legion of Merit, graduated from Hahnemann Medical College in 1913 and entered the military service in July 1917.

Brigadier General Thomas R. Glenn

The Legion of Merit has been awarded to Brig. Gen. Thomas R. Glenn, M. C., U. S. Army. The citation read in part as follows: For exceptionally meritorious conduct in the performance of outstanding service from Oct. 1, 1940 to Feb. 20, 1942 as surgeon, West Coast Air Corps Training, Moffett Field, California, as surgeon, Air Corps Flying Training Command, subsequently Army Air Forces Training Command, Fort Worth, Texas, from Feb. 21, 1942 to Aug. 15, 1944. General Glenn through his initiative and administrative ability planned and supervised the accomplishment of an adequate medical service in pace with the accelerated expansion of the Army Air Forces. He was prominently identified with the institution and standardization of classification tests for selecting future air crew and officers. His outstanding performance of duty and distinguished service contributed to the success of the Army Air Forces Training Command and the global mission of the Army Air Forces. Dr. Glenn graduated from Jefferson Medical College, Philadelphia, in 1914 and entered the military service May 3, 1947.

Colonel John B. Flick

The Bronze Star Medal was recently awarded to Col. John B. Flick, M. C., A. U. S., of Philadelphia, for meritorious service in connection with military operations against the enemy from April 15 to Sept. 2, 1945. As surgical consultant, Office of the Surgeon, Headquarters, U. S. Army Forces, Pacific Ocean Areas, later Middle Pacific, Colonel Flick was instrumental in achieving and maintaining high standards of surgical service in hospitals throughout the command during a period of vital combat operations which culminated in the Japanese surrender. His evaluations of medical and military abilities and skills resulted in the assignment of medical officers to duties most appropriate to their training and backgrounds. The fine professional and military attainments, tact and devotion to duty of Colonel Flick were of major importance in the success of the mission of the Medical Department in the Pacific Ocean Areas.

Colonel Flick was also awarded the Legion of Merit for outstanding service as surgical consultant, Ninth Service Command, from Nov. 1, 1943 to March 30, 1945. Dr. Flick graduated from Jefferson Medical College in 1913 and entered military service Aug. 11, 1942.

Colonel Norman W. Anderson

The Legion of Merit and the Bronze Star Medal have been awarded to Col. Norman W. Anderson, M. C., U. S. Army. In the citations exceptional medical services from December 1941 to September 1944 while in the United States are mentioned. He served in turn at the Station Hospital, Camp J. T. Robinson; with the 341st Medical Regiment; as division surgeon, 30th Infantry Division, and on the staffs of the Fourth, Eighth and Ninth armies. His accomplishments in training troops, preventive medicine and operations were outstanding.

While serving with the Army of the United States he distinguished himself by meritorious service in connection with military operations on the continent from Sept. 5, 1944 to March 30, 1945. Colonel Anderson, as executive officer, Medical Section, Headquarters Ninth United States Army, was instrumental in protecting the health of the troops of the Ninth United States Army. The meritorious service of Colonel Anderson is in keeping with the high traditions of the military service. Colonel Anderson was also awarded the Purple Heart for wounds received in action in Mastricht, Holland, Dec. 31, 1944. Dr. Anderson graduated from the University of Minnesota in 1930 and was commissioned in the regular Army in July 1931.

Colonel James Barrett Brown

The Legion of Merit has been awarded to Col. James Barrett Brown, M. C., A. U. S., of St. Louis. As chief of plastic and maxillofacial surgery at Valley Forge General Hospital from June 1943 to August 1945 he performed or personally supervised the performance of 7,822 plastic surgical operations on 4,705 patients without a single death. The citation states that through consummate skill, experience and native ability he restored thousands of young men to useful lives who were otherwise faced with hopeless invalidism. By tireless energy and devotion to duty he performed a service highly distinguished in character and of lasting benefit and enduring value to society. Dr. Brown graduated from Washington University School of Medicine, St. Louis, and entered the military service June 8, 1942.

Colonel Harold W. Jones

The Legion of Merit has been awarded to Col. Harold W. Jones, M. C., U. S. Army, retired, of Washington, D. C. The citation states that under his able guidance and leadership the Army Medical Library was developed into a source of information for the entire medical profession and was raised to the high place it now occupies among the medical libraries of the world. His outstanding contributions in making the Army Medical Library one of the foremost collections of medical literature in the world will be of continuing and lasting benefit. Dr. Jones graduated from Harvard Medical School in 1901 and entered the military service in 1906.

Colonel John D. Yeagley

The Legion of Merit has been awarded to Col. John D. Yeagley, M. C., A. U. S., of Winston-Salem, N. C., who served as assistant director and later as director, Health and Sanitation Division, Institute of Inter-American Affairs, from February 1943 to November 1945. Attention is called in the citation to the fact that he demonstrated great ability in his tactful administration of an international preventive medicine program and was instrumental in improving health conditions throughout Central and South America during the war years. Dr. Yeagley graduated from the University of Pennsylvania School of Medicine in 1930 and entered the military service in June 1946.

Lieutenant Colonel Webb Haymaker

The Army Commendation Ribbon has been awarded to Lieut. Col. Webb Haymaker (then Major), M. C., A. U. S., who is cited as having served with unusual devotion and professional skill from Aug. 24, 1942 to Jan. 23, 1946, contributing materially to the professional success of the Army Institute of Pathology, especially as it concerned diseases and injuries of the nervous system. His studies and research have resulted in significant contributions to the knowledge of these conditions, and especially the brain tumors, the encephalitides, heat stroke and changes induced by poison war gases, all conditions of great importance to the military service. Dr. Haymaker graduated from the Medical College of the State of South Carolina in 1928 and entered the military service in August 1942.

Lieutenant Colonel Bradford Cannon

The Legion of Merit has been awarded to Lieut. Col. Bradford Cannon (then Major), M. C., A. U. S., of Boston. The citation states that, as assistant chief and later as chief of the maxillofacial plastic section, Valley Forge General Hospital, from March 1945 to December 1945, he performed or personally supervised thousands of plastic surgical operations. By his professional skill, sound judgment and conscientious devotion to duty he was instrumental in making it possible for young men who might otherwise have been maimed for life to return to useful and normal careers. Dr. Cannon graduated from Harvard Medical School in 1933 and entered military service April 26, 1943.

Lieutenant Colonel Thomas H. Sternberg

The Legion of Merit has been awarded to Lieut. Col. Thomas H. Sternberg, M. C., A. U. S., of Los Angeles. The citation read in part as follows: As director of the venereal disease control division, Office of the Surgeon General, he rendered exceptional services in the medical program of the Army. He directed the venereal disease treatment program at a most critical period when the schedule of treatment was being changed from the older extended treatment to the newer penicillin methods. He played an active and important role in the research on penicillin methods of treatment. Largely through his efforts the results of this research were quickly applied to the venereal disease problem in the Army, revolutionizing within an amazingly short period the entire approach to treatment of these diseases. Lieutenant Colonel Sternberg's signal achievements were a prime factor in the establishment of a record in the control of venereal diseases that reflects great credit on himself and on the Medical Corps of the Army. Dr. Sternberg graduated from Northwestern University Medical School in 1934 and entered the military service in April 1942.

Lieutenant Colonel Wayne G. Brandstadt

The Bronze Star Medal has been awarded to Lieut. Col. Wayne G. Brandstadt, M. C., U. S. Army. The citation read as follows: For meritorious service in connection with military operations, as commanding officer, 53d General Hospital (in England) from Aug. 1, 1944 to May 8, 1945. Lieutenant Colonel Brandstadt displayed superior administrative and professional ability in the treatment, care and evacuation of battle casualties. His marked leadership and exemplary devotion to duty were a constant source of inspiration to his patients and associates and contributed to the morale, efficiency and high standards attained by the Medical Department in support of operations against the enemy, thereby reflecting great credit on himself and on the armed forces of the United States. Dr. Brandstadt graduated from Rush Medical College, Chicago, in 1924 and entered the military service in 1930. He is now editor of the *Bulletin of the U. S. Army Medical Department* and secretary of the Army Medical School, Washington, D. C

Lieutenant Colonel Malcolm J. Farrell

The Legion of Merit has been awarded to Lieut. Col. Malcolm J. Farrell, M. C., A. U. S., of Waverly, Mass., who was deputy director, neuropsychiatry consultants division, Office of the Surgeon General, from April 1942 to June 1945. The citation states that he displayed exceptional ingenuity and foresight. As a result of his initiative and resourcefulness, division psychiatrists were appointed, mental hygiene consultation services were established throughout the country and a critical backlog of psychiatric patients in the Pacific Theater was eliminated. Dr. Farrell graduated from Tufts College Medical School in 1931 and entered the military service in July 1941.

Major David H. Clement

The United States of America Typhus Commission Medal has been awarded to Major David H. Clement, M. C., A. U. S., of New Haven, Conn. The citation read as follows: He rendered meritorious service as surgeon in charge of the United States of America Typhus Commission ward in the 116th Evacuation Hospital at Dachau, Germany, from May 10 to June 10, 1945. Major Clement's devoted supervision of the care of patients suffering from endemic typhus and his scrupulous attention to the management of therapy with immune serum and with para-aminobenzoic acid contributed directly to humanitarian service and to the improvement in methods of treatment of typhus fever. Dr. Clement graduated from Harvard Medical School in 1935 and entered the military service in 1941.

Major John J. Flanagan

The Legion of Merit has been awarded to Major John J. Flanagan, M. C., A. U. S., of Newark, N. J. The citation read as follows: As chief, orthopedic section, surgical service, Kennedy General Hospital, Memphis, Tenn., from January 1943 to December 1945, he devised an original operative procedure for overcoming extensive defects in the long bones by a massive sliding stepped graft. His expert professional knowledge and loyal devotion to duty insured limbs to patients threatened with permanent and total disability. Dr. Flanagan graduated from Georgetown University School of Medicine, Washington, D. C., in 1930 and entered the military service in October 1942.

Captain Henry S. Fuller

The United States of America Typhus Commission Medal has been awarded to Capt. Henry S. Fuller, M. C., A. U. S., now of London, England. The citation read in part as follows: He rendered exceptionally meritorious service in connection with the work of the United States of America Typhus Commission in the investigation of the epidemiology of scrub typhus in Assam and Burma from November 1944 to November 1945. First as member and later as director of the mite laboratory Captain Fuller reorganized and coordinated its activities in such a manner as to lead directly to the demonstration of the important mite vector of the disease and the development of a rapid survey technic for the estimation of the hazard from disease of particular areas of terrain. Dr. Fuller graduated from Harvard Medical School in 1941 and entered the military service in April 1943.

Captain Edmund A. Flexman

The Bronze Star Medal has been awarded to Capt. Edmund A. Flexman, M. C., A. U. S., of Milledgeville, Ill. The citation read as follows: He performed meritorious service from March 13 to March 22, 1944 while engaged in an extensive typhus control program in areas infested by a particularly virulent strain of scrub typhus mite on Goodenough Island in the Southwest Pacific. Realizing the risk he ran in fighting this little understood disease of high mortality rate, he nevertheless vigorously completed the epidemiologic work entailed in controlling an epidemic on the island. He made valuable recommendations to the Surgeon General for use in combating typhus fever. Captain Flexman's work is a distinct credit to himself and to the Army Medical Corps. Dr. Flexman graduated from the University of Illinois College of Medicine in 1938 and entered the military service in October 1942.

Captain Maurice C. Gephardt

Capt. Maurice C. Gephardt, now in Tokyo, has been awarded the United States of America Typhus Commission Medal for outstanding work during the typhus epidemic in Japan during the early part of 1946. The citation read in part as follows: With unfailing energy and high intelligence, Captain Gephardt dealt successfully with many novel and difficult situations. He contributed directly to the differential diagnosis of typhus fever in Japan. He assisted in training personnel and in supervising programs in typhus control in Tokyo, Osaka and Kobe as well as other locations in Japan. Captain Gephardt, acquitting himself with distinction, contributed to the advance of military and civilian preventive medicine. Dr. Gephardt graduated from the University of Oklahoma School of Medicine, Oklahoma City, in 1943 and entered the military service in September 1945.

Captain Thomas L. De Lorme Jr.

The Legion of Merit has been awarded to Capt. Thomas L. De Lorme Jr., M. C., A. U. S., now of Boston. The citation read as follows: For exceptionally meritorious service at Gardiner General Hospital, Chicago, in the development of new methods and procedures and equipment in physical therapy during the period of Feb. 26, 1944 to Aug. 1, 1945. During this period he devised apparatus and set up the program of heavy resistance exercises in the physical therapy department of this hospital, inaugurating and improving the efficiency of a new method of treatment of orthopedic cases. Dr. De Lorme graduated from New York University in 1943 and entered the military service in January 1944.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Bray, Charles B. Jr........Birmingham
Chapman, Jesse P. Jr............Selma
Dibble, Eugene H. Jr.........Tuskegee
Harris, Elmer J.............Scottsboro
Hightower, Russell G.......Birmingham
Macruder, Thomas V. Jr....Birmingham
Podoll, Elliott........North Birmingham
Whorton, Carl M...............Gadsden

Arizona

Farness, Orin J..................Tucson

Arkansas

Binns, Van C.................Monticello
Crow, Edward W..........Little Rock
Goldberg, Harold B.........Little Rock
Rodgers, Clyde D..........Little Rock
Rhyne, James T.............Little Rock
Smith, Norman K.................Reyno

California

Barnet, Garfield S...........Santa Rosa
Bischoff, Arthur J..........Los Angeles
Blanchard, Leland B...........San Jose
Blinn, John F. Jr...............Stockton
Bloomer, William E...........Palo Alto
Brenner, William R........San Anselmo
Browning, Ellis V...............Arlington
Bucchianeri, Gino J.......San Francisco
Cherry, Ian S.........Huntington Park
Clark, Edward C..................Fresno
Cragin, Robert B..............San Jose
Cronemiller, Ray E..................Exeter
Dalton, Kenneth R...............Oakland
Daly, Joseph A.....................Ventura
Darling, Herbert H........San Francisco
Digal, Leonilo T............Los Angeles
Donahue, Daniel W.........Los Angeles
Eisele, Gregory J. Jr..........Westwood
Fields, Irving A............Los Angeles
Garol, Hugh W...................Berkeley
Gartshore, Hendrie L...........Berkeley
Gibson, Thomas A..........Los Angeles
Goble, Garvin G...........Mount Shasta
Godett, Michael R.............Pasadena
Goodwin, Marvin H.........Los Angeles
Haynes, Harry J..............Palo Alto
Jacobson, Hjalmer A...............Fresno
Jumblatt, Albert..............San Diego
Kahn, Bernard............San Francisco
Lee, Richard S.......Stanford University
McMullen, Raymon W......Los Angeles
Metz, Ralph E............San Francisco
Morse, David L....................Gilroy
O'Hare, James O..........San Francisco
Phillips, Samuel...................Duarte
Rhoden, Jackson A..........Sacramento
Rohde, Robert B.......North Hollywood
Scarborough, Dorothy L...San Fernando
Semenov, Herman..........Beverly Hills
Stryble, Francis J.................Oakland
Taylor, David R....................Reedley
Thuesen, Andrew E.............Piedmont

Colorado

Bramley, Howard F..............Denver
Chat, Emanuel................Fort Lyon
McDonald, John G................Denver
Maul, Kester, V....................Denver
Roper, William H.................Denver
Vest, Walter E....................Denver

Connecticut

Bugel, Harry J...................Ansonia
Carangelo, Edward V........New Haven
Huddleson, James H. Jr.....New Canaan
Iger, Mortimer..............Manchester
Michael, Lawrence I.........New Haven
Michalowski, Valerian S.....Kensington
Mozzer, Alexander J.........Manchester
Pulman, Peter B.........West Hartford
Ryan, Francis J.................Hartford
Tombari, Seraphino P......West Haven

Delaware

Charamella, Italo............Wilmington
Mark, Morton F.............Wilmington

District of Columbia

Agee, Fred B...............Washington
Albright, Charles J..........Washington
Coleman, Allan B............Washington
Crofton, George H...........Washington
Farrell, John C. Jr..........Washington
Glezer, Benjamin............Washington
Hantman, Irvin..............Washington
Lambert, John M............Washington
Mella, Hugo.................Washington
Pinderhughes, Charles A.....Washington
Sugar, Samuel J.............Washington
Traub, Leo M...............Washington

Florida

Anderson, Hiram M.............Sydney
Kendall, William E....N. St. Petersburg
Lang, Andrew M...............Lakeland
Lubrano, Daniel F..................Tampa
Patton, Bernard W.......St. Petersburg
Robbins, Alexander.........Miami Beach
San, James M............St. Petersburg
Sieger, Simon.................Bay Pines
Stillman, Sidney.............Jacksonville

Georgia

Baggs, Wade H. Jr.............Camilla
Cole, Thomas M..................Newman
Conger, Abraham B. Jr.......Bainbridge
Conger, Preston D..................Tifton
Cooper, Frederick W. Jr....College Park
Morse, Dan G.................Columbus
Ridley, Charles L. Jr.............Macon
Salter, William L.............Savannah

Idaho

Battles, Newell H...........Idaho Falls
Carssow, John E...............Lewiston
Corbett, Glenn W..................Grace
Cromwell, James O............Blackfoot

Illinois

Banen, David M..................Chicago
Bartling, Carl H...............Rockford
Best, George J......................Peoria
Black, Arnold.....................Chicago
Blough, George J.................Chicago
Brown, Amos J....................Chicago
Bush, Mitchell W...............Maywood
Butler, Robert E...............Oak Park
Carofiglio, Louis E..............Chicago
Carter, Kenneth L...............Mattoon
Cerny, Frank J....................Berwyn
Cockrell, Benjamin A...........Chicago
Corren, Herman...................Chicago
Dorne, Ralph M...................Chicago
Dworin, Jack W...................Chicago
Eisenman, Leon S...........Forest Park
Farney, William E...............Chicago
Forman, Jerome....................Chicago
Freeman, Leslie W..................Moline
Gelfano, Leo.......................Chicago
Giannini, Michael W.............Chicago
Golob, Meyer E....................Downey
Heiskell, Edgar F. Jr............Chicago
Hobson, Lawrence B.............Chicago
Kauder, Otto G.................Shelbyville
Klocker, Karl J....................Chicago
Landgraf, Robert L..................Seneca
McCullough, Norman B..........Chicago
McNamara, William L.............Hines
Marshall, Charles E..............Chicago
Mason, Aaron S....................Downey
Merrell, Hosmer T.................Chicago
Minner, Morris G..................Chicago
Monroe, Stanley E..............Evanston
Moore, James A.....................Urbana
Otis, William H....................Moline
Parker, Thomas W....................Alton

Illinois—Continued

Purves, Robert K...........Des Plaines
Rafool, Francis......................Peoria
Rodewald, Herbert.........Murphysboro
Rosenfeld, Robert T......Highland Park
Schrek, Robert.......................Hines
Simonson, Melvin.................Chicago
Sirca, Dionisie M..............Springfield
Slobodin, Harry....................Chicago
Stephenson, Hack U. Jr...........Hines
Stevens, Ernest J....................Hines
Stuppy, George W.................Chicago
Sumner, Albert....................Chicago
Trapnell, John M. Jr.........Kenilworth
Turner, George C..................Chicago
Wilson, Nilas M..................Oak Park

Indiana

Choate, Alton J.............Indianapolis
Cox, Wayne T...........West Lafayette
Dodd, Robert D..............South Bend
Duffy, Joseph P..................Rockport
Dulin, Basil B.....................Bedford
Flaherty, Bernard E.........Indianapolis
Kendrick, William M. Jr....Indianapolis
Kopcha, Joseph E.................Whiting
Manalan, Maurice M.........Indianapolis
Marsh, John P..................Blountsville
Melloh, Ardie F..............Indianapolis
Mendenhall, Clarence D.....Indianapolis
Moore, Kirk....................Terre Haute
Ripley, John W. Jr..............Seymour
Schuster, Dwight W.........Indianapolis
Taylor, Clifford C...........Indianapolis
Tucker, Robert L..........Fountaintown
Welsh, John B.................Anderson

Kansas

Glaser, Leland F..........North Topeka
Heasty, Robert G...............Manhattan
Hoge, Solomon F...........Leavenworth
Knauff, Harry A..................Mahaska
Mayer, Ben H...................Ellsworth
Revell, Arthur J..................Pittsburg
Robertson, Howard T.........Concordia
Rohr, Joseph H.................Burlington
Sitterley, Jay L.................Great Bend
Terry, Charles D.................Hardtner

Kentucky

Biltz, Stuart G.............Fort Thomas
Covington, Aubrey Y........Georgetown
Fink, Ira S.......................Lexington
Mayer, Frederick................Lexington
Neill, James M..........Valley Station
Ogden, Owen S...................Louisville
Quaife, Clarence E. Jr.......Fort Knox
Ross, Leon........................Outwood
Russell, Blanton E.................Clinton
Van Arsdall, Thomas C.....Harrodsburg

Maine

Blaisdell, William B. Jr.....N. Sullivan
Butler, Harry.......................Bangor
Mazzola, Stephen.................Augusta
Schwartz, David..................Augusta
Trowbridge, Maxon Jr.........Ellsworth
White, Carleton B.................Morrill

Maryland

Anchell, Melvin................Baltimore
Biehl, Harold P..................Frederick
Book, Donald T...................Bethesda
Brown, Delmer J.........Takoma Park
Conley, Carroll L.................Baltimore
Insley, James K. Jr.............Baltimore
Kohn, Schuyler G................Baltimore
Lilienfeld, Abraham M.........Baltimore
McGreevy, Joan F...........Perry Point
Mendelis, Christopher J..........Baltimore
Scherlis, Irving..................Baltimore
Steckler, Philip P............Perry Point
Velkoff, Cyril L..................Bethesda

PHYSICIANS SEPARATED FROM SERVICE

Massachusetts

Blanchard, Herbert N.	Hingham
Burwell, Edward L.	Wood's Hole
Bush, James F.	Springfield
Cannon, Bradford	Boston
Capodieci, Florindo H.	Dorchester
Chandler, John P.	East Bridgewater
Chayet, Jacob	Brookline
Conlin, John F.	Chelsea
Corwin, William	Waltham
Covner, Philip D.	Lynn
Croce, Edmund J.	Worcester
Cummings, Harwood W.	Greenfield
Golden, Samuel C.	Fitchburg
Goldthwait, Joel Cabot	Medfield
Hawk, Walter D.	Watertown
Hickey, William C.	Lawrence
King, William J.	South Hamilton
Klein, Robert Z.	Boston
Lane, Francis R.	Somerville
Livingston, Stanton K.	Boston
MacDouglass, Allister F. Jr.	Westford
Nicholson, Joseph H.	Lawrence
Risley, Thomas S.	Milton
Stone, Anthony J.	Athol
Strong, Richard P.	Boston
Sullivan, Francis X.	Revere
Thompson, Lewis B.	Newton Highlands
Toltz, Julius B.	Brookline
Wall, James R.	Lynn
Wauters, Clifford W.	Somerville
Wharton, Russell S.	Northampton

Michigan

Caputo, Joseph M.	Dearborn
Cooley, Charles W.	Jackson
Culp, Ormond S.	Detroit
Freeman, William K.	Fort Custer
Gerber, Herbert V.	Saginaw
Gladman, Arthur E.	Detroit
Hirschy, Ira D.	Ann Arbor
Kling, Victor F.	Ionia
Koch, Donald A.	Brown City
Kowalski, Henry J.	Grand Rapids
Kurtz, Joseph L.	Ironwood
Matthews, Harry C.	Detroit
Meengs, Marvin B.	Muskegon
Paye, Philip H.	Grosse Pointe
Susskind, Myron V.	Jackson
Truszkowski, Edward G.	Detroit
Van Eck, James E.	Detroit
Walker, Edmund F.	Ann Arbor

Minnesota

Anderson, James R.	Rochester
Golden, Howard	Minneapolis
Hammarsten, James F.	Wadena
Hanson, Curtis M.	Dawson
Muccilli, Frank A.	Duluth
Rockwood, Philo H.	Minneapolis

Missouri

Berry, Maxwell G.	Kansas City
Brogan, Horace E.	St. Louis
Charnas, Raymond M.	St. Louis
Epp, George J.	St. Louis
Francisco, Clarence L.	Kansas City
Goldberg, Isadore E.	Polo
Goodman, Lawrence O.	St. Louis
Groom, Horace E.	Richmond Heights
Klebba, Larry B.	Rich Fountain
Knabb, Kenneth E.	Springfield
Koerner, Kenneth A.	St. Louis
Menefee, Buell F.	Montgomery City
Pappenfort, Robert B. Jr.	Columbia
Pennington, Francis E. Jr.	Clayton
Richtarsic, Stephen R.	Clayton
Ritter, Eugene F.	Coatesville
Shaw, William J.	Fayette
Sterling, Harold W.	St. Louis
Tversky, Edgar L.	St. Louis

Montana

Casebeer, Robert L.	Butte
Goff, John L. Jr.	Valier
Rotar, Leo F.	Butte

Nebraska

Blair, James B.	Broken Bow
Blair, Ralph L.	Broken Bow
Campbell, John F.	Grand Island
Crellin, Henry G.	Lyons
Haworth, John E.	Aurora
Liston, Howard E.	Elmwood
Mann, Albert W.	Omaha
Novak, Joseph J.	Howells
Wilson, Nat J.	Lincoln

New Hampshire

Biron, Paul E.	Manchester
Daly, Kenneth J.	Manchester

New Jersey

Bernstein, Bertram M.	Trenton
Bruzza, George G.	Belmar
Carsley, Sidney H.	Crawford
Catanzaro, Vincent J.	Garfield
Chalfant, William P. Jr.	Ventnor City
Finkelstein, Malvin	Jersey City
Forer, Robert	Trenton
Giannini, Francis F.	Bernardsville
Girardo, Anthony J.	Berlin
Goff, Frank J.	Red Bank
Gottesman, Abraham H.	Farmingdale
Guertin, Diomede	Skillman
Korman, Arnold	Paterson
McWhorter, John E.	Tenafly
Martin, William E.	Elizabeth
Massey, Bart P.	Grantwood
Nevius, William B.	East Orange
Presberg, Mowey	Lyons
Shobe, Merritt B.	Salem
Smith, Byron J.	East Orange
Tuttle, John S.	Bayonne
Yaeger, Leslie A.	Trenton

New York

Alaimo, Stephen L.	Rochester
Altomare, Edward P.	Brooklyn
Ambrose, George B.	Brooklyn
Ashley, Moe	Brooklyn
Ballou, DeForrest Jr.	Castle Point
Barnaby, Henry C.	Glen Cove
Bashein, Hyman	Brooklyn
Bilik, Samuel E.	New Rochelle
Birnkrant, Harold	Brooklyn
Blanchette, Louis A.	Batavia
Bond, Franklyn F.	Rochester
Brady, William E.	Ossining
Bruns, Hans J.	Syracuse
Burger, Mortimer D.	New York
Burgess, Harry W.	Brooklyn
Cantow, Lawrence A.	New York
Casesa, Philip R.	Brooklyn
Catinella, Anthony S.	New York
Cavanagh, Harold E. A.	Buffalo
Chamberlain, William H.	Warwick
Conant, Roger	Amsterdam
Condello, Anthony V.	Brooklyn
Constantine, Oleinick P.	Canandaigua
Coyne, Martin J.	Geneva
Crain, Irving J.	Brooklyn
Cramer, Irving	Utica
Crowther, John A.	Honeoye
Curley, Robert T.	Brooklyn
Cutler, Martin	Brooklyn
Davis, William B.	New York
Deutschman, Reynold P.	Bronx
Falk, Abraham	Batavia
Finkle, Theodore H.	Woodmere, L. I.
Fisher, Vincent E.	Rochester
Friedman, Alexander W.	New York
Friend, Maurice R.	New York
Galdston, Morton	Long Island
Geiger, William	New York
Gelband, Samuel	Brooklyn
Gelber, Julius	Brooklyn
Geringer, Benjamin	New York
Germain, Alton A.	Buffalo
Germaine, Aaron H.	Brooklyn
Giacomini, Antonio J.	Bath
Giganti, Biagio F.	Elmhurst, Queens

New York—Continued

Gilbert, Earl S.	Buffalo
Gold, Theodore	New York
Goldberg, Norman L.	New York
Goldfein, Joseph	Mount Vernon
Goldstein, Daniel L.	New York
Graham, Joseph A.	New York
Grobstein, Herman J.	Brooklyn
Grynbaum, Bruce B.	New York
Isaacson, Philip A.	Brooklyn
Kantor, George J.	Brooklyn
Kleeman, August M. Jr.	Warwick
Klein, Charles	Bronx
Kleinfeld, Morris	Brooklyn
Knight, George G.	Piermont
Koch, James	Long Island
Kopins, Howard J.	New Rochelle
Kostant, George H.	Brooklyn
Kriz, Joseph R.	Elmhurst, L. I.
Latteri, Francis S.	New York
May, Renwick, C.	Cornwall-on-Hudson
Mazza, Peter A.	Mount Vernon
Mendelson, Max M.	New York
Mendlowitz, Milton	New York
Mensch, Saul A.	New York
Merolla, Edwin F.	Brooklyn
Michael, Sidney R.	Lynbrook, L. I.
Miller, Jay W.	Syracuse
Moyce, Robert W.	Buffalo
Nathan, Louis	New York
Norman, Abraham	New York
O'Brien, Richard B.	Albany
Oppenheim, Elliott	Brooklyn
Palmisano, Aldo N.	Jamaica, L. I.
Peck, William K.	Carthage
Petras, Michael	New York
Poller, Sam	White Plains
Reuben, Richard N.	New York
Rhodes, Harry Jr.	New Rochelle
Ries, William H.	Lodi
Robb, Samuel A.	New York
Robbin, Sidney	Jackson Heights
Roberts, Arthur J. D.	Bronx
Roberts, Milton	Brooklyn
Roberts, Norbert J.	Buffalo
Roesch, Charles B.	Centerport, L. I.
Roland, Paul S.	New York
Rosenthal, Norman	Brooklyn
Ross, Bernard	South Bronx
Rothman, Harold	Brooklyn
Sasson, Leon	New York
Schmerer, Frederick	New York
Segel, Nathan P.	Buffalo
Severy, Wendell L.	New York
Shay, John F.	Binghampton
Simon, David	Brooklyn
Slepian, Alexander	Buffalo
Sober, Samuel	New York
Sokolowicz, Zundel	Rockville Centre
Turner, Milton	Ridgewood
Turner, Seymour	Brooklyn
Wagner, Bernard	Brooklyn
Wexler, Louis	Buffalo
Whalen, Gerald F.	White Plains
Williams, Michael D.	New York
Wolk, Sidney	Brooklyn
Young, Dennison	Jamaica, L. I.
Zuckerman, Sidney	New York

North Carolina

Blair, James S.	Gastonia
Creech, Lemuel U.	High Point
Cromartie, William J.	Elizabethtown
Cuttino, John T.	Durham
Daniel, William W.	Wilson
Douglas, John M.	Davidson
Durham, William R.	Oteen
Gilliam, Robert L.	Raleigh
Johnston, Harold W.	Chadbourn
Jones, Ransom J.	Kingston
Langmuir, Alexander D.	Fayetteville
Stelling, Richard N.	Greensboro
Thompson, William N.	Raleigh
Turner, Larry	Rocky Mount

PHYSICIANS SEPARATED FROM SERVICE

North Dakota

Olson, Earl J.	Keene

Ohio

Baker, William D.	Shreve
Barry, Ray W.	Cleveland
Berman, Alvin L.	Cleveland
Besserglick, Irving	Cleveland
Bilsky, Harold B.	Cleveland Heights
Blackledge, Ord C.	Cleveland
Brickley, Daniel Webster Jr.	Marion
Broh-Kahn, Robert H.	Cincinnati
Caldwell, James S.	Cincinnati
Campbell, Samuel J.	Bucyrus
Cassell, Edward F. Jr.	Dayton
Conn, James J.	Columbus
Craddock, William H.	Cincinnati
Cramer, Chester O.	Columbus
Crist, Jerry O.	Centerburg
Gans, Jerome A.	Cleveland Heights
Geer, Joseph A.	Lancaster
Goodman, Milton L.	Columbus
Goodman, Seaburt	Cleveland
Greene, Joseph C.	Cleveland
Grove, Paul D.	Cincinnati
Hohf, Jerome C.	Cleveland
Kaufman, Victor E. Jr.	Canton
Levin, Isadore L.	Lorain
McIlroy, George H.	Cincinnati
Marshall, Merritt K.	Columbus
Martin, Morris B.	Springfield
Martz, Raymond W.	Hamilton
Matuszewski, Stanley J.	Cleveland
Neher, Royal G.	Lima
Owens, William I.	Shadyside
Pickett, Robert E.	Columbus
Pierpont, Howard C.	Marietta
Reed, John R.	Cleveland Heights
Roberts, David J.	Akron
Rupp, Edson C. Jr.	Granville
Tanner, Henry	Chillicothe
Turek, Robert O.	Cleveland Heights

Oklahoma

Hackler, Harold W.	Tahlequah
Knight, William E.	Oklahoma City
Phillips, James G.	Oklahoma City
Prier, William M.	Oklahoma City
Roberts, Robert E.	Stillwater
Whiteneck, Rhonald A.	Oklahoma City

Oregon

Legrand, Joseph B.	Portland
McCrae, Spencer C.	Portland
Macrobert, Robert L.	Portland
Schaefer, Otto	Roseburg

Pennsylvania

Allen, Adam G.	Coatesville
Barto, Robert E. Jr.	Elizabethville
Berkman, Eugene F.	Monaca
Bierwirth, Robert E.	Forest Hills
Bowers, Frank C.	Erie
Cohen, Archibald C.	Pittsburgh
Cohen, Reuben J.	Philadelphia
Coleman, Thomas H.	Carbondale
Corrado, Albert G.	Connellsville
Cox, Paul A.	Newville
Crothers, Kenneth J.	Chester
De Long, Philip L.	Bala-Cynwyd
Doane, John H.	Trucksville
Feinberg, Albert R.	Wilkes-Barre
Fischer, Herman	Philadelphia
Frohner, Richard N.	Philadelphia
Furlong, John H. Jr.	Chester
Gamba, Carl L.	Williamsport
Gollings, Richard H.	Pittsburgh
Goshen, Charles E.	Juniata, Altoona
Kapcar, Albert D.	Fredericktown
Kerry, Marshall	Reading
Kinsey, William C.	Evans City
Koenig, Theodore R.	Knox
Kohler, Henry J.	Philadelphia
Laubach, Charles A. Jr.	Berwick
McHugh, John B.	Summit Hill

Pennsylvania—Continued

Marks, Morton	Philadelphia
Martin, John A.	New Bethlehem
Matsko, Michael E.	McAdoo
Medof, Milton I.	Pittsburgh
Melenson, David M.	Philadelphia
Meltzer, David	Philadelphia
Oxman, Morris F.	Philadelphia
Pearce, Rowan C. Jr.	Bala-Cynwyd
Pennypacker, Charles S.	Ardmore
Rhoads, Donald Z.	Allentown
Ricchiuti, Amerigo G.	Mahanoy City
Robinson, Joseph P.	Williamsport
Rose, Frederick A.	Erie
Rosenberg, Albert A.	East Pittsburgh
Rouse, Paul V.	Dushore
Shellman, Alexander	Olyphant
Simonson, Leo H.	Luzerne
Smith, Albert E. III	Philadelphia
Srodes, William G.	Pittsburgh
Steinberg, Edgar I.	Philadelphia
Townsend, William H.	Homestead
Ulshafer, Thomas R.	Nesquehoning
Werts, Kenneth G.	Westport
Winham, Arthur J. Jr.	Davids
Yoder, Robert D.	Aspinwall, Pittsburgh

Rhode Island

Blazar, Howard A.	Providence
Cotter, Thomas P.	Providence
Lewis, Robert V.	Pawtucket
Trott, Raymond H.	Providence

South Carolina

Brunson, George W. Jr.	Columbia
Jennings, Douglas Jr.	Bennettsville
Murrah, Thomas A. III	Union
Turner, James D.	Winnsboro

South Dakota

Cunningham, Robert S.	Sioux Falls
Merryman, Murlin P.	Rapid City
Stokes, Harold A.	Aberdeen
Van Heubelen, Gerald J.	Pierre

Tennessee

Blau, Leslie	Johnson City
Calhoun, Harold W.	Memphis
Colsky, Jake	Memphis
Crawford, John K.	Somerville
Fowler, Samuel B.	Hendersonville
Goltman, Jack S.	Memphis
Griffith, John W. Jr.	Nashville
Morris, Al Kelly	Fork Mountain
Ogle, Homer C.	Sevierville
Olsen, Edward G.	Knoxville
Palmer, Jeffress G.	Chattanooga
Thornton, John C. Jr.	Brownsville
Truex, Spencer A. Jr.	Jackson

Texas

Addy, Ervin E. Jr.	Canton
Black, Walter A.	Waco
Causey, Emmett G.	El Paso
Cochran, Leroy M.	Amarillo
Corson, Wesley C.	Amarillo
Cox, Charles H. Jr.	Temple
Coxe, Lemuel F.	Houston
Crim, Earl T.	Greenville
Crow, Jack A.	Abilene
Deatherage, William R.	Dallas
Heatly, Maurice D.	San Marcos
Johnson, James H. Jr.	Dallas
Kinder, Thurman A.	Brownsville
Koontz, Arch C.	Woodsboro
Livingston, Charles S.	San Antonio
McKinnon, John B. Jr.	Long View
Mast, John R.	Wichita Falls
Muirhead, Samuel J.	Dallas
Pokorny, Alex D.	Taylor
Quay, John E.	Waco
Rice, Maurice M.	San Antonio
Rodgers, Lawrence R.	Amarillo
Smith, William C.	Anna
Waller, Alvin L.	Woodville
Williams, Philip T. Jr.	Port Arthur

Utah

Call, Richard A.	Logan
Wedell, William J.	Ogden

Vermont

Gage, Terence F.	Vergennes
Johnstone, Robert E.	Burlington

Virginia

Bird, Robert M.	University
Butler, Henry L.	Hampton
Byrd, Allen L.	Danville
Candler, Paul K.	Reedville
Crichton, Robert B.	Arlington
Dougherty, Clyde H.	Franklin
Face, Edward G. Jr.	Norfolk
Harrell, William F. Jr.	Portsmouth
Horgan, Edmund	Delaplane
Jamison, King A.	Blacksburg
Kolze, Vernon W.	Alexandria
Leper, Mark H.	Alexandria
Lewis, Augustine W. Jr.	Aylett
McCown, Albert S.	Alexandria
McKnew, Hector C.	Arlington
Michaux, Richard A.	Michaux
Palmer, John C.	Roanoke
Pogue, Elbert H.	Bedford
Potter, Harold W.	Newport News
Renick, Fred T.	Callaway
Roberts, Ernest S.	Hampton
Robinson, Robert F.	Hampton
Smith, Charles E.	Alexandria
Tice, William P.	Roanoke
Trice, Clarry C.	Richmond
Tyson, William R.	Norfolk
Vermilya, Walter E.	Clifton Forge
Wager, Harold E.	Charlottesville
Woodson, Frederick G.	Roanoke
Wysor, Edwin S.	Clifton Forge

Washington

Brown, John L.	Lynden
Cox, Troy V. Jr.	Seattle
Gianelli, Salver A.	Burien
Goering, William H.	Tacoma
Hepfer, Penrod G.	Seattle
Marsh, Norman E.	Chehalis
Newcomb, Wendell J.	Seattle
Pollock, Leon E.	Rosalia
Stevens, Glenn E.	Okanogan
Underhill, Frank J.	Seattle

West Virginia

Burke, John H.	Elbert
Coplin, Robert W.	Huntington
Crites, John L.	Charleston
Douglas, Paul L.	Charleston
Gaydosh, Michael A. Jr.	Wheeling
Grubb, George L.	Charleston
Trotter, Robert R.	Morgantown
Yost, Ernest Lee	Fairmont

Wisconsin

Drake, William L. Jr.	Milwaukee
Egan, Gregory J. Jr.	La Crosse
Hildebrand, James F.	Sheboygan
Johnson, Herbert C.	Racine
Kah, William W.	Milwaukee
Kohler, Homer H.	Madison
McMillan, John A.	Milwaukee
Martin, Harold E.	Dale
Murphy, Charles P.	Waukesha
Postorino, Joseph D.	Racine
Prusa, Victor H.	Merrillan
Rouse, John J.	Hillsboro
Rowlands, Owen B.	Waukesha
Schrank, Leonard W.	Grafton
Schroeder, Irvin L.	Milwaukee
Williamson, Carl S.	Green Bay

Wyoming

Glotfelty, James S.	Sheridan
Stone, Calvin F.	Cheyenne

Hawaii

Chock, Wah T.	Hilo, Hawaii

NAVY

GRADUATE MEDICAL AND TECHNICAL TRAINING

Approved residency training is being conducted in the major specialties at the naval hospitals at Bethesda, Md., Chelsea, Mass., Great Lakes, Ill., Long Beach, Calif., Oakland, Calif., Philadelphia, St. Albans, N. Y., and San Diego, Calif. A few other naval hospitals are also being used for training in obstetrics and gynecology. These hospitals were surveyed by the Council on Medical Education and Hospitals of the American Medical Association and action for full or limited approval of various training programs has since been taken by the Council in cooperation with the respective specialty boards.

In the organization of the Graduate Medical Training Program, a board of consultants to the Bureau of Medicine and Surgery was appointed, made up of members representing each of the major specialties and the Council on Medical Education and Hospitals, in order to provide closer liaison between the Council, the American specialty boards and the Navy, and to assist the Navy in establishing a program which would provide training to meet the requirements of the Council and the specialty boards. As the program progressed, consultants to the various teaching hospitals were appointed to supplement the staffs where American board members were not available in sufficient number to carry on the teaching. These consultants are giving as freely of their time as it is possible for them to do.

Residency training is being carried out in anesthesiology, dermatology and syphilology, internal medicine, neurosurgery, obstetrics-gynecology, ophthalmology, orthopedics, otolaryngology, pathology, pediatrics, psychiatry and neurology, radiology, surgery, thoracic surgery and urology. As of May 1, 1947, 152 medical officers were in residency training in naval hospitals in these specialties.

The basic sciences, as required in residency training and in the preparation for examination by the American specialty boards, are being taught in a ten months course at the Naval Medical School, Bethesda, Md. At the St. Albans naval hospital the residents are obtaining their basic sciences at New York University College of Medicine; those at Chelsea naval hospital receive them at Harvard Medical School, and those at the Long Beach naval hospital at the University of California (Southern Branch). Residents in hospitals where the basic sciences are deficient will be sent to civilian institutions or to naval hospitals where they are available later in their training period.

Ninety-two medical officers are receiving residencies, courses or fellowships in civilian institutions, such as the Lahey Clinic, Mayo Clinic, Northwestern University, Tulane University, Duke University, University of Pennsylvania, University of Michigan, Memorial Hospital (New York) and Henry Ford Hospital (Detroit).

The Medical Department of the Navy has 98 nurses in training in anesthesiology, dietetics, occupational therapy, physical therapy, psychiatric nursing and teaching and ward administration in courses at the University of Utah School of Medicine, Baylor University Hospital, University Hospitals (Cleveland), George Washington University, Medical College of Virginia, Pennsylvania Hospital (Philadelphia) and Teachers College, Columbia University (New York).

Fifty-one Hospital Corps officers are in training in sanitation, venereal disease and rodent control, law, accountancy and business administration, personnel administration, federal budgetary administration and hospital administration. Twelve hundred and ninety-one enlisted men are receiving training in aviation medicine, clerical procedures, clinical laboratory, commissary, dermatology and syphilology, diving, duplication technic, electrocardiology and basal metabolism, electroencephalography, fever therapy, malariology, medical photography, medical repair service, neuropsychiatric nursing, neuropsychiatric clerical, operating room technic, property and accounting, physical therapy, occupational therapy, spectacle dispensing, submarine training, x-ray and photofluorography, basic hospital corps instruction and intermediate course.

The audiovisual training section of the Bureau of Medicine and Surgery has in progress a series of curriculum integrated films to be used in conjunction with the Graduate Medical Training Program. While the first of these films will be in the field of basic sciences, later, it is planned to include clinical subjects.

NAVY AWARDS AND COMMENDATIONS

Vice Admiral Ross T. McIntire

The United States of America Typhus Commission Medal has been awarded to Vice Admiral Ross T. McIntire (MC), U.S.N. (retired), who as Surgeon General of the Navy rendered exceptionally meritorious service as a member of the United States of America Typhus Commission from August 1942 to June 30, 1946. The citation adds that through his expert knowledge he contributed to the formulation and operation of the commission's research and control of typhus fever in all theaters of operation. In the midst of responsibility of high governmental positions he had the problems of typhus and the utilization of the commission constantly in mind and helped to make it an effective means of controlling the spread of typhus and protecting the health of military and civilian personnel. His services increased his distinguished leadership in preventive medicine. Dr. McIntire graduated from Willamette University Medical Department, Salem, Ore., in 1912 and entered the military service May 23, 1917.

Rear Admiral Morton D. Willcutts

Read Admiral Morton D. Willcutts (MC), has been awarded the Navy Commendation Ribbon for outstanding service rendered during World War II. The citation reads in part as follows: For outstanding service as medical officer in charge of the Naval Hospital, San Diego, Calif., from June 20, 1943 to March 7, 1945. Commodore Willcutts ably directed the handling of thousands of Navy, Marine Corps and Coast Guard casualties during this period. By his professional skill and initiative in evacuating war casualties to other American hospitals and in returning physically qualified men to active duty, he maintained facilities for receiving incoming cases. His devotion to duty throughout was a contributing factor in the success of the hospital's mission and reflects the highest credit on himself and the Naval Service. Dr. Willcutts graduated from the Indiana University Medical College in 1916 and entered the naval service in 1917.

Captain George Brackett Dowling

Capt. George Brackett Dowling (MC), U.S.N., has been awarded the Honorary Officer of the Military Division of the Most Excellent Order of the British Empire. The citation makes clear that Captain Dowling was responsible for the medical arrangements for the part played by the United States Navy in the invasion of Normandy. He subsequently served in the Research Department of the Bureau of Medicine. His wholehearted cooperation with his many British colleagues was outstanding, and he was an energetic and firm supporter of United States-British liaison. He was of the greatest assistance to the British naval medical authorities both in the United Kingdom and in the United States, and his services to the Allied cause were of the greatest value. Dr. Dowling graduated from George Washington University Medical School in 1917 and entered the military service in July 1917.

Captains Brunson, Hubbard and Terry Commended

Capt. Clyde W. Brunson (MC), medical officer in command, U. S. Naval Hospital, Houston, Texas, has received a special commendation by Rear Admiral Clifford A. Swanson, Surgeon General, for the part he played in directing help to both Texas City and the hospitals in Galveston during the April 16 disaster. The commendation reads in part that, by exercise of sound judgment when the call came for help, Captain Brunson immediately dispatched ambulances, medical officers, dental officers, nurses, corpsmen and first aid equipment within twenty minutes.

Thus medical personnel and supplies arrived in Texas City in time to play a very important role in caring for the injured during the first few hours and was the first military organization at the fire. Not only did he dispatch other personnel to Texas City and to the hospital at Galveston, but his foresight in making available 500 beds for the injured, the method by which he continually dispensed supplies to that area as long as was needed, and the manner in which he continued to carry out his duties at the hospital, although short of personnel, is worthy of mention. Dr. Brunson graduated from the University of Pennsylvania Medical School in 1918 and entered the naval service in 1918.

For his outstanding performance of duty as the medical officer in command, U. S. Naval Hospital, Corpus Christi, Texas, during the Texas City disaster of April 16 Capt. H. D. Hubbard (MC), has received a special commendation by the Surgeon General of the Navy, Rear Admiral Clifford A. Swanson. The commendation reads, in part, that by the exercise of sound judgment on the part of Captain Hubbard, when the call came from the stricken city for help and when two navy planes were made available he dispatched medical officers, nurses, hospital corpsmen and supplies to the scene of the disaster, so that the medical personnel and supplies arrived at Texas City in time to play an important role in caring for the injured. Dr. Hubbard graduated from the University of Southern California Medical School in 1917 and entered the naval services in November 1917.

For outstanding performance of duty as medical officer in charge of the Naval Hospital, Houston, Texas, first aid group during the Texas City disaster April 16, 1947, Capt. Charles C. Terry (MC), has received a special commendation from the Surgeon General which reads in part as follows: The efficient and capable manner in which Captain Terry established casualty stations in the disaster area and directed the care of the injured and removal of the dead under hazardous conditions of fire and poison gases contributed in large measure toward overcoming the ill effects of this unfortunate event. He demonstrated outstanding professional ability and resourcefulness and it is considered that, as a result of his prompt and sound judgment in shifting his casualty stations and clearing the adjcent areas of all civilian and naval personnel, many lives were saved that would have otherwise been lost through the effects of subsequent explosions. Dr. Terry graduated from the University of Michigan Medical School in 1927 and entered the naval service in 1942.

Commander Robert Allan Phillips

Comdr. Robert Allan Phillips (MC), U.S.N., has been awarded the Honorary Member of the Military Division of the Most Excellent Order of the British Empire. Commander Phillips, in collaboration with Dr. Donald D. Van Slyke at the Rockefeller Institute for Medical Research, was credited in the citation for being responsible for development of an excellent and simple technic for rapid examinations of the blood in patients suffering from shock. Early information on this method was made available to British medical circles, and it proved of inestimable value in the treatment of the British wounded in Africa, Italy, Northwest Europe and Southeast Asia. Dr. Phillips graduated from Washington University School of Medicine, St. Louis, in 1929 and entered the military service in 1940.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Alabama

Ford, Hugh G.	Auburn
Vaughn, Robert H.	Tuskegee

California

Bierman, Howard R.	Oakland
Bishop, John A.	San Jose
Closson, Harold O.	San Francisco
Derby, Richard	San Francisco
Karr, Norman W.	San Francisco
Ferguson, Russell S.	San Francisco
Heitman, Claire E.	Los Angeles
Reed, Karl A.	San Francisco
Reich, August	San Francisco
Spohn, Eugene L.	San Francisco

Colorado

Nelson, James M.	Aurora

Florida

Simmons, Samuel J.	Belle Glade
Wilhoit, William M. C.	Quincy

Georgia

Daniel, Ernest F. Jr.	Millen

Illinois

Bell, John L.	Aurora
Greider, Jack L.	Decatur
Hershenhouse, Samuel B.	Chicago
Moffett, Howard F.	Savanna
Rulison, Clyde A.	Paxton

Indiana

Mitchel, James A.	Winona Lake
Smith, Marsh H.	West Lafayette

Iowa

Frey, Harry	Fairfield

Massachusetts

Genest, Aloria H.	Aldenville
Sommer, Francis X. Jr.	Ashburnham
Swift, William H.	Taunton
Wood, Dwight R.	Braintree

Michigan

Graham, Walter L. Jr.	Detroit

Mississippi

Bologna, Anthonu N.	Shaw
Brooks, Thomas J. Jr.	Oxford

Missouri

Derrington, Albert E.	Kansas City

New Jersey

Harris, Carl A.	Cedar Grove
Jancsics, Mathew J. Jr.	Newark
Riley, Richard L.	Madison
Wells, William C. V.	Delanco
Wujciak, Henry J.	Newark

New York

Basilicato, Gennaro	Brooklyn
Cassone, Peter G.	Port Chester
Divine, Walter E.	Brooklyn
Foote, Edward L.	Sunmount
Kehr, Fred W.	Olean
Kellogg, Ralph H.	Saratoga Springs
Livshin, Norman	Syracuse
Peck, John M.	Walden
Sandler, Benjamin P.	Bronx
St. Mary, John T.	Malone
Vorwald, Arthur J.	Saranac Lake

Ohio

Ecker, Paul G.	Cleveland
Riemenschneider, Paul A.	Berea
Weintraub, Josef D.	Cincinnati

Pennsylvania

Callen, Harold S.	Bradford
Cunningham, Raymond F.	Camp Hill
Ellis, Matthews J. M.	Bryn Mawr
Forbes, Harry M.	Chester
Giffin, Herbert M.	Philadelphia
Goldstein, Eli W.	Pittsburgh
Isard, Harold J.	Philadelphia
McCune, William W.	McKeesport

Rhode Island

Gobeille, Alfred B.	Hope Valley

Texas

Bell, Frederic W.	San Antonio
McCurdy, Marion W.	San Antonio
Smotherman, Ervin R.	Hillsboro

Utah

Brooke, Wallace S.	Salt Lake City
Callister, Thomas K.	Salt Lake City
Daines, William P.	Salt Lake City
Jenson, Harold S.	Salt Lake City
Kearns, Grant F.	Ogden
Nielsen, Orville F.	Huntsville
Openshaw, Calvin R.	Salt Lake City
Sears, Richard H.	Minti

Vermont

Glass, Walter M.	Burlington

Virginia

McCosh, James N. Jr.	Alexandria
McNeely, Robert E. L.	Danville

Washington

Friend, LeRoy F.	Seattle

Wisconsin

Johnson, Henry T. Jr.	Appleton

Canada

Fuller, Frank D.	Verdum, P. Q.

VETERANS ADMINISTRATION

CONSOLIDATE THREE HOSPITALS

To economize in its use of doctors and nurses, the Veterans Administration has ordered consolidation of three "emergency" hospitals and transfer of 659 patients to better equipped structures. Two of the hospitals are temporary wooden wartime plants acquired as surplus from the Army and Navy. The third was leased from New York State. The shift in medical personnel will permit the Veterans Administration to open sufficient wards in its larger hospitals to offset the loss in beds. The move is expected to produce economies also in maintenance and administrative costs. The three hospitals to be consolidated are:

1. Sampson, N. Y., where 366 veterans suffering from tuberculosis are receiving treatment. These patients will be moved to the Veterans Administration hospital at Staten Island, N. Y.

2. Saratoga Springs, N. Y., where 45 general medical and surgical patients are hospitalized. These patients will be transferred to other Veterans Administration hospitals in New York state, including Brooklyn, Batavia, Bath and the Bronx. The Saratoga hospital was considered too small for economical operation.

3. Thomasville, Ga. The 248 general medical and surgical patients will be transferred to other Veterans Administration hospitals in that area. Staff shortages have prevented the Veterans Administration from operating this hospital to its full capacity.

The Sampson hospital is at the Navy's former training station on Lake Seneca. The plant will be turned back to the Navy Department for disposal. The Veterans Administration experienced difficulty in staffing its Sampson hospital with sufficient nurses.

The Thomasville hospital is the Army's former Finney General Hospital. The decision to transfer patients from this hospital results from the inability of the Veterans Administration to staff it with sufficient nurses. Employees of the three institutions will be urged to transfer to other Veterans Administration hospitals.

AUTOMOBILES FOR AMPUTEES

More than 15,000 World War II veterans who lost, or lost the use of, one or both legs had been certified as eligible under Public Law 663 to receive automobiles or other conveyances at government expense by the end of April. Of these more than 11,500 had made sales agreements with dealers for cars averaging $1,588 each, or $12 under the maximum allowable cost of $1,600. Although disabled veterans may obtain other conveyances as well as passenger cars, more than 99 per cent applied for automobiles. The appropriation for conveyances for disabled veterans authorized by Congress expired June 30.

Such disabled World War II veterans and paraplegics who obtained free automobiles from the government are receiving driving lessons from American Red Cross volunteers in cities throughout the United States; in addition, a driver-training program has been in effect in California as a cooperative project of the Red Cross, American Legion Auxiliary and the Bureau of Motor Vehicles. Although the law requires disabled veterans to hold current drivers' licenses before applying for new cars, many servicemen otherwise eligible had never driven automobiles before, and all are unfamiliar with the special handicap control appliances. The driver-training programs are designed to teach them to operate their automobile well enough to pass state driving tests and obtain state licenses.

VETERANS OF PREVIOUS WARS

During April, 105,691 veteran patients were under the care of the Veterans Administration, and of these 5 were veterans of the Civil War, 2,836 veterans of the Spanish American War, 48,340 veterans of World War I and 51,273 veterans of World War II. Patients from the regular military establishment numbered 2,808, 234 patients were retired officers and enlisted men and 195 were veterans of the Philippine Insurrection, Indian wars and lesser periods of conflict. All veterans with disabilities incurred in or aggravated by service in the armed forces are eligible for hospital care by the Veterans Administration. Veterans with non-service connected ailments may be hospitalized if beds are available and are not needed for service connected cases, and if they say they cannot pay for treatment elsewhere.

PUBLIC HEALTH OFFICERS AND THE G. I. BILL

Commissioned officers of the U. S. Public Health Service who were assigned to and served with the armed forces during World War II and are now back on duty with the Public Health Service are eligible for benefits of the G. I. bill, Veterans Administration has announced. These benefits include education or training; subsistence allowances for those in education or training, and loan guaranties for home, farm or business purposes.

The ruling was based on the case of a Public Health Service officer who served with the Coast Guard from March 1942 until January 1943, when he reverted to civilian status and returned to the Public Health Service, where he still is on duty. His military service was performed under an executive order, issued Dec. 31, 1941, in which the President directed that commissioned officers of the Public Health Service on duty with the Coast Guard shall constitute a part of the U. S. naval forces. This service was performed before the President issued the executive order, effective July 29, 1945, in which he declared the entire "commissioned corps of the Public Health Service to be a military service and a branch of the land and naval forces of the United States during the period of the present war."

The Veterans Administration has ruled that these officers are eligible to receive benefits under the G. I. bill if their release from service with the Army, Navy or Coast Guard is under other than dishonorable conditions and they otherwise meet the requirements of that act.

PERSONAL

Dr. Peter Ver Meulen has been appointed to serve as medical officer for the Veterans Administration in the upper peninsula at Escanaba, Mich. For several years Dr. Ver Meulen served the Veterans Administration at Sioux Falls, S. D.

Dr. Horace B. Cupp has been appointed manager and chief medical officer of the Lawson Veterans Administration hospital, Atlanta, Ga. Dr. Cupp formerly served at the veterans' hospital at Mountain Home, Tennessee.

Dr. Samuel A. Schuyler, New York, has been appointed chief medical officer of the Connecticut regional office of the Veterans Administration. Dr. Schuyler is a graduate of the University of London School of Medicine, a veteran of World War II and formerly was deputy medical administrator of Queen's General Hospital, Jamaica, L. I.

Dr. L. E. Bovik, Waukegan, Ill., has gone to Butler, Pa., to become chief of the surgical service at the veterans' hospital. Dr. Bovik served in both the first and second world wars.

MISCELLANEOUS

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. Physicians who are veterans have certain priorities in the purchase of this government property.

Regional Office, 501 W. O. W. Building, Omaha. Sale of hospital laboratory equipment and supplies including anesthesia apparatus, oxygen apparatus, hospital bed screens, bedside tables and invalid chairs.

Regional Office, Twelfth and Spruce Street, St. Louis, sale of x-ray units, stereoscopes, cystoscopes and dental chairs. Sale opened June 5 and is continuous.

Regional Office, 699 Ponce de Leon Avenue N.E., Atlanta 5, Ga. Sale of drugs, medical supplies and hospital equipment. Sale opened June 9 and is continuous.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Changes in Health Officers.—Dr. Harvey F. Hendrickson is leaving the California State Department of Health as of June 30 for health reasons. Dr. Hendrickson is a colonel in the medical corps of the regular army, retired, rather than major as stated in The Journal, May 31.

Cancer Research Unit Opens.—A cancer research unit has been established in San Francisco at the Laguna Honda Home sponsored jointly by the United States Public Health Service and the University of California Medical School. The research program will include problems of (1) electronic characteristics of normal and malignant growth, (2) physiologic changes in patients with cancer, (3) experimental clinical chemotherapy of cancer and (4) characteristics of human malignant tissues. The laboratory will be under the direction of Dr. Michael B. Shimkin, passed assistant surgeon, U. S. Public Health Service, and member of the staff of the National Cancer Institute, Bethesda, Md., and his associate Dr. Howard R. Bierman, recently Commander (U. S. N. R.) Naval Medical Research Institute, Bethesda, Md.

CONNECTICUT

Increase in Diphtheria.—Over the past nine years diphtheria in Connecticut reached a very low level. Connecticut had 36 cases in 1941, with no deaths. In 1946, however, there were 72 cases and 6 deaths in the state. The state department of health advises immunization for its control.

State Appointments.—The governor has announced the appointment of Dr. H. Bruno Arnold, New Haven, to the State Board of Examiners for Physiotherapy Technicians, and the reappointment of Dr. Joseph H. Howard, Bridgeport, to the Commission on the Care of the Chronically Ill, Aged and Infirm.

Personal.—At the meeting of the American Board of Neurological Surgery June 3 Dr. William J. German, New Haven, was elected secretary-treasurer of the board to succeed Dr. Paul C. Bucy, Chicago, whose term has expired.——Dr. Thomas P. Murdock, New Haven, chief, medical division, Meriden Hospital, was reelected chairman of the governing council of the Connecticut State Medical Society at the recent annual meeting.

ILLINOIS

Survey on Care of Chronically Ill Persons.—The Illinois Commission on the Care of Chronically Ill Persons has completed a 120 page report which recommends immediate action to construct adequate facilities for the chronically ill and to initiate research into the causes and cures of chronic illnesses. About 117,000 persons in Illinois are suffering from such ailments, the report said, and 35,000 require hospital care, although there are only 12,000 beds available for them. The research institute, proposed by Dr. Andrew C. Ivy, director of the University of Illinois schools of medicine, dentistry and pharmacy, would cost $2,500,000 to build.

Chicago

Dr. Furey Heads Chicago Medical Society.—At the annual dinner of the Chicago Medical Society June 18 Dr. Warren W. Furey took office as president of the society. Dr. J. Roscoe Miller, dean of Northwestern University Medical School, was made president-elect and chairman of the council, and Dr. Willard O. Thompson was reelected secretary. Dr. Malcolm T. MacEachern was honored as outgoing president.

Northwestern's Half Century Club Initiates Five.—Five members of the 1897 class of Northwestern University Medical School, all practicing physicians, received certificates of membership in the alumni association's Half Century Club at a luncheon June 16. They are Drs. James H. Davis, Carlinville, Ill.; S. Marx White, Minneapolis; Thomas H. Marsden, Fennimore, Wis.; Paul F. Morf, Chicago, and Albert J. Roberts, Ottawa, Ill.

Industrial Plants to Stop Polluting Water Supply.—Eighteen of the twenty industrial plants accused of dumping waste into Chicago's water supply have signed agreements to install disposal plants. The signatures were obtained as a result of suits instituted forty-four months ago by Attorney General George F. Barrett in a campaign to clean up Chicago's drinking water by prohibiting Indiana industrial plants from dumping sewage into Lake Michigan.

INDIANA

Personal.—Dr. Orva T. Kidder, Fort Wayne, has been appointed medical director of the Irene Byron Sanatorium, Fort Wayne, succeeding Dr. Merlin H. Draper, who had served as medical director since 1931 and who resigned to become medical consultant to the medical staff of Bay Pines Veterans Hospital, Tampa, Fla.

Medical Distribution Map.—The Indianapolis Medical Society has prepared a map 8 feet by 3 feet drawn to a scale of 4 inches to the mile, showing locations of various physicians by colored pins. The map hangs in the society office and has been especially valuable to young physicians who are interested in establishing their offices.

Immunization Program.—The Jackson County Medical Society in conjunction with the county public health nurse has completed an immunization program in which 1,850 children were immunized against diphtheria and 2,144 were vaccinated against smallpox. Cooperation of the medical society and community support were the keynotes in the program. Fifteen physicians participated. Groundwork for the immunization program was laid by an intensive educational campaign which included visits to schools by the public health nurse and state board of health consultant, who distributed immunization literature and showed films on immunization, and newspaper releases giving details of the program and urging parents to cooperate.

KANSAS

Personal.—Dr. Mark L. Bishoff, Topeka, chief surgeon of the Atchison, Topeka and Santa Fe Hospital Association, was honored at a recent dinner marking his retirement after forty-five years of service.

The Care of Premature Infants.—The state board of health has started the second phase of its program to reduce the number of deaths of premature infants in Kansas. In April twenty-six nurses from hospitals and public health departments attended a course on the care of premature infants. Assistance was given by staff members of the University of Kansas Medical and Nursing Schools and by representatives of the state and local health departments. In 1946 premature infant fatalities ranked as the ninth cause of death in Kansas, according to figures compiled by the state board of health.

MISSOURI

State Medical Election.—At the annual meeting of the Missouri State Medical Association in April Dr. Morris B. Simpson, Kansas City, became president. Drs. Robert Mueller, St. Louis, was made president-elect; Otto T. Blanke, Joplin, Sidney M. Bailey, Malden, and Donald M. Dowell, Chillicothe, vice presidents; Charles E. Hyndman, St. Louis, treasurer, and William A. Bloom, Fayette, secretary. The next annual meeting will be held in St. Louis.

NEW YORK

Fifteen Fifty Year Physicians Honored.—Fifteen Monroe County physicians who have practiced medicine for fifty years or more were honored at the annual meeting of the state medical society in Buffalo, May 5-9, when they received certificates at special ceremonies. These physicians are Drs. William B. Cochrane, Clifford V. C. Comfort, James C. Davis, Arthur M. Johnson, Montgomery E. Leary, Frank B. Maynard, Nathan D. McDowell, Charles Reitz, Alvah C. Remington, Joseph Roby, Jeremiah H. Sullivan, John M. Swan, Vallance A. Wickens, Charles D. Young, all of Rochester, and Horace J. Mann, Brockport.

New York City

University News.—Dr. John M. Lore, clinical professor of otorhinolaryngology, New York University College of Medicine, is the new president of the College Alumni Association.

Hospital Under Construction.—An addition to the Jewish Sanitarium and Hospital for Chronic Diseases now under construction will add 250 beds, making a total of 791. The addition will make the hospital one of the largest nonprofit voluntary hospitals for chronic diseases in the country. The six story building will include an entire floor for the management of acute illnesses and one to be devoted entirely to laboratories for routine hospital requirements as well as for research. Equipment for superficial and high voltage therapy and for hydrotherapy will be added.

Adler Memorial Meeting.—The Alfred Adler Medical Society of New York and the Individual Psychology Association, New York, held a memorial meeting May 26 observing the tenth anniversary of the death of Alfred Adler. The principal speakers were Dr. Frank L. Babbott, former president, Long Island College of Medicine, Brooklyn, who spoke on "Personal Recollections of Alfred Adler," and Heinz L. Ansbacher, Ph.D., associate professor of psychology, University of Vermont and State Agricultural College, Burlington, whose subject was "Alfred Adler's Place in Psychology Today."

Dr. Ginzburg Made Director of Surgery.—Beth Israel Hospital, 16th Street and Stuyvesant Park East, announces the appointment of Dr. Leon Ginzburg as director of surgery, effective October 1. A native New Yorker, Dr. Ginzburg graduated from the Columbia University College of Physicians and Surgeons in 1920 and continued his education abroad under an Emanuel Libman fellowship in surgery and pathology. During the war Dr. Ginzburg served as assistant chief of the surgical service of the Third General Hospital and as chief of the surgical service of the 235th General Hospital and the 25th General Hospital of the U. S. Army.

Dr. Lanza Appointed Professor of Industrial Medicine.—Officials of New York University College of Medicine, New York, recently inaugurated the Institute of Industrial and Social Medicine as a unit of its New York University-Bellevue Medical Center and announced that Dr. Anthony J. Lanza, New York, one of the nation's leading authorities in the field of industrial health, will join the institute as professor of industrial medicine. The dual announcement came at a luncheon June 3 at the Harvard Club, attended by medical directors of some of the nation's largest industries. A veteran of both world wars, Dr. Lanza holds the Legion of Merit and in 1946 received the William S. Knudsen award for the most significant contribution to the field of medicine. He is associate medical director of the Metropolitan Life Insurance Company. Dean Currier McEwen, New York University College of Medicine, said that the institute will offer training for both professional and lay workers and will award appropriate degrees. In conjunction with the institute a new general group practice clinic, staffed by members of the college faculty, will be set up. The general clinic, which will be in operation by next fall, he said, will offer to wage earners a comprehensive program of medical care. He added that there will also be offered a graduate program, not only to qualified physicians, but to others wishing to specialize in the field. The institute will also offer industry special services covering research in toxicology, physiology, worker psychology and tropical medicine. Dean McEwen announced that Dr. Lanza will voluntarily give half time service until the end of 1948, after which he will be able to devote his full time to the new program. He will act as co-director of the institute with Dr. Henry E. Meleney, professor of preventive medicine, New York University College of Medicine, New York.

OHIO

Narcotic Violation.—The Bureau of Narcotics, Washington, D. C., reports that Dr. Guy W. Fishbaugh, 3759½ Rhodes Avenue, New Boston, pleaded guilty at Cincinnati to violation of the federal narcotic law and on April 2 was placed on probation for a period of two years.

Professors to Conduct Investigation in Japan.—Dr. Katharine Dodd, associate professor of pediatrics, and Dr. Samuel Rapoport, assistant professor of pediatrics, University of Cincinnati College of Medicine, arrived in Japan the first of June on a U. S. Public Health research assignment. They will spend most of their time this summer in Tokyo investigating an acute diarrheal disease known as "ekiri."

Research in Children's Diseases.—Western Reserve University School of Medicine, Cleveland, has received a ten year grant of $250,000 from the Brush Foundation for the study of the effect of infectious diseases on infants and children. The study will be made in the department of preventive medicine headed by Dr. John H. Dingle, who will be aided by four of his associates: Drs. George F. Badger, associate professor of biostatics, and Richard G. Hodges, Charles H. Rammelkamp Jr. and Otto E. Feller, assistant professors. Delayed effects of infectious diseases will be studied in a preventive medicine clinic to be established.

Professors to Lecture in Europe.—Dr. Albert B. Sabin, professor of research pediatrics, University of Cincinnati College of Medicine, will address the fourth International Congress on Microbiology in Copenhagen, Denmark, July 20-26 on "Poliomyelitis." Dr. Louis G. Herrmann, associate professor of surgery, will spend August in France, where he has been commissioned to teach in three provincial universities on "Recent Advances in Surgery." On September 8 he will address students of medicine at the University of Strasbourg. At a joint meeting in London, September 14, of the Royal College of Surgeons and the Société Internationale de Chirurgie Dr. Herrmann will give the official response to the address of Professor René Leriche, Paris, then go to the first postwar assembly of the Royal College of Surgeons of Belgium in Brussells, and thence to the fiftieth Congress of French Surgeons in Paris.

OKLAHOMA

University Appointment.—Dr. Vernon D. Cushing, for the past year resident in pathology at the University of Oklahoma Hospitals, has been appointed director of the health service of University Hospitals and Medical School and instructor in the School of Medicine. Dr. Cushing, a graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1939, served in the army medical corps overseas in the recent war.

State Medical Election.—At the annual meeting of the Oklahoma State Medical Association May 13-16 Dr. Paul B. Champlin, Enid, was inaugurated as president. Officers elected were Dr. Clarence E. Northcutt, Ponca City surgeon, president-elect; Dr. Shade D. Neely, Muskogee urologist, vice president; Dr. Lewis J. Moorman, Oklahoma City, secretary-treasurer and editor of the state journal. Dr. Charles R. Rountree, Oklahoma City, was reelected delegate to the American Medical Association. Physicians registered numbered 675.

PENNSYLVANIA

Tuberculosis Scholarships.—Five scholarships of $300 each are being offered to young physicians, preferably those practicing in rural communities of the state, to take the graduate course at the Trudeau School of Tuberculosis at Saranac Lake, N. Y., which opens September 8 and continues for four weeks. The awards will be determined by a committee of physicians competent in the field of tuberculosis. Requests for application forms should be directed to the Pennsylvania Tuberculosis Society, 311 South Juniper Street, Philadelphia 7.

Ninth Councilor District Meeting.—At the ninth Councilor District Meeting of the Medical Society of the State of Pennsylvania at the Wanango Country Club between Oil City and Franklin, June 20, fifty year testimonials were presented to Drs. Charles A. Rogers, Freeport; Forrest J. Bovard, Tionesta; Charles R. Stevenson, Ebensburg, and John L. Hadley, Oil City (posthumously). The speakers on the scientific program included Drs. John F. Beauregar
assistant professor of Medicine,
of Medicine; Russell L. Hader
Hospital; Isador S. Ravdin, professor of surgery, University of Pennsylvania, and Moses Behrend, Philadelphia.

Philadelphia

Appoint Assistant Director of Phipps Institute.—Dr. Russell E. Teague, surgeon, U. S. Public Health Service, recently assigned to the Henry Phipps Institute of the University of Pennsylvania by the Tuberculosis Control Division of the Public Health Service, has been appointed assistant director of the institute and assistant professor of public health in the university. Dr. Teague will divide his time between his new duties at the Phipps Institute and his continuing responsibilities as consultant on tuberculosis for district 1 of the U. S. Public Health Service, which includes the New England states, New York, New Jersey, Delaware and Pennsylvania.

TEXAS

Grants Degree in Medical Art.—A degree of Master of Medical Art, the first awarded at any university, was conferred by Southwestern Medical College, Dallas, on Miss Patricia O'Neill, who has done graduate work in the medical art department during the past year. A banquet in honor of the occasion was held in the Melrose Hotel and was attended by Dallas notables in the fields of medicine and art. Many tributes were paid to Lewis Waters, Ph.G., whose self-sacrificing industry has developed the department of medical art and visual education to a unique place in medical education. Among the speakers were Dr. Edward H. Carey, emeritus professor of ophthalmology, who spoke on "Art at Southwestern."

VIRGINIA

Dr. Haag Appointed Dean.—Dr. Harvey B. Haag, professor of pharmacology, Medical College of Virginia, Richmond, on July 1 will become dean of the school of medicine to succeed Dr. Jacques P. Gray, who resigned last fall. Dr. Haag has long been associated with the college, having taken his Ph.G. degree there in 1923 and his M.D. in 1928. With the exception of a year at Cornell University Medical College, where he was assistant in pharmacology, he has been on the teaching staff of the Medical College of Virginia since 1923 and professor since 1933.

WEST VIRGINIA

Emergency Paternal and Infant Care Program Ends.—This program, in operation over the country for the past four years, will be discontinued July 1. It was created by an act of Congress for the duration of the war and six months thereafter. According to Dr. Newman H. Dyer, Charleston, state health commissioner, pregnancies occurring before June 30 will be eligible for care provided the husband is actively engaged in the armed forces in the four lower pay grades, and the child will be entitled to pediatric care for one year after birth. If the mother does not apply for this service in the first months of pregnancy, if she can prove that the pregnancy occurred prior to June 30, care for herself and her child for one year will be authorized after this date. From the inauguration of the program through Dec. 1, 1946, authorizations for care of 14,874 mothers in West Virginia were completed at a total cost of $1,159,025.02, the attendants at birth receiving $638,449.65 and the hospitals $520,575.37. For the same period care was furnished for 2,198 infants throughout the first year of life at a cost of $110,973.91, the physicians receiving $38,016.01 and the hospitals $72,957.90. During the four years the state department of health has been operating, deliveries in hospitals have increased 69 per cent and infant deaths in West Virginia have decreased from 52.4 per thousand live births in 1943 to 40.5 in 1946, the lowest ever recorded in West Virginia.

ALASKA

Appointments to the Department of Health.—The territorial department of health has increased its staff by several members. Dr. Joseph H. Marshall, a graduate of the Medical College of the State of South Carolina, Charleston, will serve as tuberculosis consultant. He has been a county health officer in Tennessee and served overseas as a major in the Army Medical Corps. A second tuberculosis consultant assigned to Juneau by the United States Public Health Service is Dr. Donald J. McMinimy, Washington, D. C. Dr. Phillip H. Moore, Greeley, Colo., is now orthopedic surgeon at Mount Edgecombe hospital. He is a graduate of the University of Oregon Medical School.

Nutritional Survey.—A three months nutrition study by the territorial department of health will be conducted this summer by Dr. Carroll F. Shukers and John R. Totter, Ph.D., associate professors of physiologic chemistry at the University of Arkansas School of Medicine, Little Rock, to appraise the nutritional status of representative sections of the population of Alaska. It will note clinical signs of malnutrition and evidence of deficiency diseases and will investigate the diets, food supply and food cost. A special effort will be made to determine the cause of corneal opacities. Biochemical determination of various nutrients in the blood and urine will be made in those areas in which eye conditions have been observed. In making this investigation Alaska Native Service personnel will work with the health department. The study has been made possible by grants from the U. S. Public Health Service, the Nutrition Foundation of New York and the U. S. Children's Bureau.

PUERTO RICO

Annual Health Report.—Puerto Rico's population continued to increase as vital statistics for the year 1945, just released, indicated a record high birth rate—42.3 per thousand inhabitants—and a new low death rate—14.1 per thousand. The population of the island in 1946 was estimated at 2,100,000 inhabitants. A decline occurred in all leading causes of death in 1945, except for diarrhea and enteritis, which showed a slight increase. A decrease of more than 20 per cent was recorded in communicable diseases. Malaria, which last year led the list of communicable diseases, dropped to third place in 1945. Highlight of the local public health program was a campaign for the immunization of children against smallpox, whooping cough and diphtheria. During 1945, the report indicates, 24,811 children were inoculated against these diseases, compared with 16,909 the previous year. The incidence of malaria is steadily decreasing. In 1945, the report adds, there were 6,168 cases reported as against 11,209 in 1944. The death rate per 100,000 inhabitants for malaria was 41.6 in 1945 against 49.9 in 1944. The morbidity rate for 1945 was 301.5 per 100,000 inhabitants, against 557.1 in 1944. House to house search and treatment of malaria was continued by 60 public health aides who made 53,445 field visits during the year and 25,202 blood smears, of which 12.1 per cent were positive. Important in the malaria control program during 1945 was the construction of permanent drainage at Santa Isabel and Ponce, the latter project operated cooperatively with the U. S. Public Health Service. At the beginning of the fiscal year 1945-46, the Federal and Insular Malaria Control Bureaus instituted a test of the value of DDT residual spraying of houses, under the direction of the U. S. Public Health Service. The municipality of Santa Isabel was chosen as the test site because of its high death and case rate and because it is typical of malarious municipalities of the south coast of the island.

GENERAL

History of Medicine Meeting.—The twentieth annual meeting of the American Association of the History of Medicine was held May 25-26 at the Cleveland Medical Library, Cleveland. "One Hundred Years Ago," a symposium, was presented by the Johns Hopkins Institute of the History of Medicine. At the dinner session Dr. John F. Fulton, New Haven, Conn., gave an address on Harvey Cushing.

Aero Medical Awards to Drs. Bauer and McFarland.—The Aero Medical Association has just established two annual can Medical Association during the convention in Atlantic City June 4-6. The Theodore C. Lyster Award for contributions to aviation medicine in general was given to Dr. Louis H. Bauer, Hempstead, N. Y., editor of the *Journal of Aviation Medicine* and one of the founders of the association.. The Raymond F. Longacre Award for contributions to aviation medicine in the fields of neuropsychiatry or psychology went to Ross A. McFarland, Ph.D., Cambridge, Mass.

Articles Lost at Atlantic City.—The office of the American Medical Association during the convention in Atlantic City received a number of personal objects which were found in the hall, all of which except a very few have been returned to their owners: There remain a pair of polaroid sun glasses made by V. R. Tedesco, 17 Hanson Place, Brooklyn 17, New York, and some keys including apparently house and car keys; also a pair of eye glasses, some gloves and other personal objects. If the owners care to communicate with the Headquarters Office of the American Medical Association in Chicago, addressing Mr. A. R. Stack, these will be returned.

American Heart Association Election.—At the annual meeting of the American Heart Association in Atlantic City June 6-7 Dr. Arlie R. Barnes, Rochester, Minn., assumed the presidency and Dr. Tinsley R. Harrison, Dallas, Texas, was made president-elect. Other officers elected included Drs. Carl J. Wiggers, Cleveland, vice president; Harry E. Ungerleider, New York, secretary, and Mr. Samuel Harrell, Indianapolis business man, treasurer. In accordance with the plan of reorganization, which calls for the election of laymen as well as physicians to the governing bodies of the association, Thomas I. Parkinson, president of the Equitable Life Assurance Society of the United States, was named chairman of the board of directors. Continuing in their present posts will be Drs. Harold M. Marvin, New Haven, Conn., executive secretary; David D. Rutstein, New York, medical director, and Charles A. R. Connor, New York, associate medical director.

Three New Research Grants.—The award of three new research grants and renewal of a fourth have been announced by Sharp and Dohme, Inc., Philadelphia. A grant to Dr. Oswald P. J. Falk, consultant at the St. Louis City Hospital, St. Louis, will support a clinical study to evaluate caronamide as an adjunct to penicillin in the treatment of infectious diseases. Dr. Charles N. Hendricks, El Paso Medical and Surgical Clinic, El Paso, Texas, received a grant in support of a clinical study and use of tyrothricin and other preparations as an aerosol. The third research grant went to Dr. Marshall C. Cheney, physician in charge of student health, University of California, Berkeley, Calif., in support of his research into the prevention of the common cold by means of respiratory vaccines. The company also renewed a grant to Tulane University of Louisiana, New Orleans, in support of C. Gordon Johnson's research program in connection with problems involving phthalylsulfathiazole and sulfamerazine in preoperative and postoperative urinary tract infections.

Education of School Children on Role of Animal Experimentation.—Through the active cooperation of the National Teachers Association, the National Society for Medical Research will initiate a plan for education in elementary and secondary schools on the role of animal experimentation in medical research. The National Science Teachers Association, a department of the National Education Association, has as its objective the improvement of science teaching at all educational levels. The association regularly sends out informational packets to 5,000 science teachers in various parts of the country and to the membership of 30 science teachers associations affiliated with the National Science Teachers Association. First step in the society's plan for work with science teachers will be the establishment of a joint committee to develop materials useful in teaching. Mr. Tom J. Blakley, assistant secretary of the National Society for Medical Research, is at present working on final drafts of educational leaflets and announces that the joint committee will be set up in the immediate future.

Conference on Conservation, Nutrition and Human Health.—This conference will be held June 28-29 at Ohio University, Athens, Ohio, by Friends of the Land in cooperation with the University. Discussions will present the relationships that exist between the quality of the soil and the health of the people who live on it. Among the speakers Saturday will be Dr. Axel Emanuel Hedback, Minneapolis, who will discuss "The Aging of Man"; Dr. Paul R. Cannon, Chicago, "Building Stones of Health"; Milburn L. Wilson, Ph.D., "Giving the People of the United States an Optimal Food Supply," and J. Russell Smith, Ph.D, "Plan or Perish." On Sunday Curt P. Richter, Ph.D., will speak on "Instinctive Dietary Habits"; Ladd Haystead, "The Future of Farm Life in America"; Warren S. Thompson, Ph. D., "Population Problems of the United States"; Robert Cook, editor of the *Journal of Heredity*, "Conservation of Soil and Genes"; C. M. Long, "Taking the Farm to the Clinic—Diagnosis and Treatment," and Dr. Jonathan Forman, Columbus, "Current Thinking on Nutrition."

American Urological Association.—This association will hold its annual meeting June 30-July 3 at the Hotel Statler, Buffalo. In addition to numerous members of the association and invited guests, the following will address the scientific sessions: Dr. Terence Millin, London, England, on "Retropubic Prostatectomy"; Dr. Armando Trabucco, Buenos Aires, "Congenital Sterility"; Ju Chen Hsiung, Shanghai, China, "Influence of Mineral Oil on the Absorption of Diethylstilbestrol from the Gastrointestinal Tract." Dr. Jack Lapides, Ann Arbor, Mich., will deliver the winning prize essay of the Committee on Research on "The Physiology of the Intact Human Ureter." The association will present its second annual award for research on the human male reproductive tract to Dr. Robert S. Hotchkiss, New York, who will address the session on "Reflections on Infertility in Men." The presidential address by Dr. Charles McMartin, Omaha, will be delivered July 3 on "Teaching Urology to the Undergraduate." It will be followed by the Ramon Guiteras Lecture by Dr. George W. Thorn, Hersey professor of the theory and practice of physic, Harvard Medical School, on "Treatment of Renal Insufficiency."

Dr. Clarence E. Moore of Pennsylvania Wins Golf Championship.—At the annual American Medical Golfing Association tournament, Atlantic City, June 9, Dr. Clarence E. Moore, Harrisburg, Pa., won the Will Walter Trophy and the championship of the American Medical Golfing Association with a score of 148 for 36 holes over the Linwood Country Club course. The handicap championship for 36 holes and the Detroit Trophy went to Dr. George N. Hemmer, Syracuse, N. Y. In the 18 hole contest Dr. Regis A. Wolff, Pittsburgh, won the Golden State Trophy for the best gross score, and Dr. Eugene E. O'Neal, Boston, bagged the Ben Thomas Trophy with the best net; Dr. William H. Glass, East Orange, N. J., took home the Atlantic City Trophy as the runner-up. The day's second best gross score for 36 holes was made by Dr. Delon A. Williams, Kansas City, who has his name engraved on the St. Louis Trophy, emblematic of championship in flight A. Dr. Thomas A. Kyner, Kansas City, won the President's Trophy, presented by Dr. James W. Morgan of San Francisco, for the handicap championship in flight A. In the event limited to Fellows 60 years of age or older, the Minneapolis Trophy went to Dr. William C. Speidel of Seattle. Dr. Erastus S. Edgerton, Wichita, Kan., won the Wendell Phillips Trophy in the "Old Guard" event, limited to past presidents of the A. M. G. A.

Section Event

Seven sterling silver bowls were presented by the San Francisco Medical Society to the following winners in the section event:

General Practice	Dr. Albert M. Donato, Indianapolis.
Internal Medicine	Dr. Peter F. Harrington, Providence, R. I.
Surgery	Dr. C. G. Prather, Westwood, N. J.
Obstetrics and Gynecology	Dr. David H. Houston, Seattle.
Eye, Ear, Nose and Throat	Dr. Sylvester E. Lentz, Lehighton, Pa.
Proctology	Dr. James W. Morgan, San Francisco.
Other Specialties	Dr. Sheldon H. Stuurmans, St. Paul.

Special prizes were presented to Dr. José Valls, Buenos Aires, president of the Argentina Medical Association, who came the greatest distance to the tournament, and to Dr. Baxter H. Timberlake, Atlantic City, for a hole in one.

Election

Dr. Waltman Walters of Rochester, Minn., was chosen president of the American Medical Golfing Association for the ensuing year. Dr. William C. Speidel, Seattle, was elected first vice president and Dr. Jean A. Gruhler of Atlantic City second vice president. Bill Burns and J. Lyn Leet of Lansing, Mich., were reelected secretary-treasurer and assistant secretary-treasurer respectively. The next annual tournament will be held in Chicago in June 1948.

Deaths in Foreign Countries

Sir Frederick G. Hopkins, noted for his work on the growth promoting vitamins and a joint winner of the Nobel Prize for medicine in 1929, president of the Royal Society 1930-1935, died May 16, aged 86.

CORRECTION

Radio Broadcasts at Atlantic City.—In the leading editorial in The Journal June 21 it was stated (p. 696) that the Mutual Broadcasting System "duplicated" a broadcast in the series "Stephen Graham—Family Doctor" at the Monday night dinner of the House of Delegates. This was not a duplicate performance but the origination of the actual nationwide broadcast in the presence of the guests at the dinner. Reference should have been made to the cooperation of the Columbia Broadcasting System in the broadcast of "The Two Worlds of Dr. Frederick Banks" on June 7 in commemoration of the Centennial and in broadcasting the speech of the President of the Association, Dr. Edward L. Bortz; also of the cooperation of the Mutual network in broadcasting an interview with Dr. Bortz.

Marriages

Hugh Edward Tyner, Leaksville, N. C., to Miss Anna Katherine Bell of Morehead City in Winston-Salem March 8.

William Clark Thomas Jr., Gainesville, Fla., to Miss Brenda A. Wiltshire of Buenos Aires, Argentina, recently.

Stonewall Jackson Van Hook, Whitehaven, Tenn., to Miss Gladys Mae Scarbrough of Maryville March 1.

William Harper Weiss, Fairmont, W. Va., to Miss Rosemarie Lauer of Decatur, Ill., in St. Louis March 4.

Jerome Victor Treusch to Miss Constance Gloria Ripley, both of Beverly Hills, Calif., Dec. 8, 1946.

Harry S. Douglas, Washington, D. C., to Miss Bernadine Curley, of Billings, Mont., Dec. 14, 1946.

Edward S. Crosland, Reno, Nev., to Miss Esther Buckwalter of Leola, Pa., in San Francisco recently.

Harrie Rogers Chamberlin, Belmont, Mass., to Miss Betsy Inches of Chestnut Hill, Dec. 17, 1946.

Millard B. White, Tampa, Fla., to Miss Mary Elizabeth Snow of Savannah, Ga., Dec. 26, 1946.

Lester James Talbot, Bala-Cynwyd, Pa., to Miss Dorothy Harrison of St. Davids February 15.

Alfred N. Smith, Calmar, Iowa, to Miss Mary Louise Wyman of Yampa, Colo., recently.

Adron A. Sullenger, Marion, Ind., to Miss Cuma Cottingham of Indianapolis March 8.

Louis Spigelman, Jamaica, N. Y., to Miss Doris Altman of Corona recently.

Deaths

Ulysses Silver Kann ⊕ New York; Université de Paris Faculté de Médecine, France, 1901; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; fellow of the New York Academy of Medicine and American College of Physicians; past president of the Broome County Medical Society and the Binghamton Academy of Medicine; served with the National Guard on the Mexican border in 1916 and in France during World War I; for many years on the staffs of the Ideal Hospital in Endicott, Tioga County General Hospital in Waverly, Broome County Tuberculosis Hospital in Chenango Bridge, Binghamton City Hospital and the Binghamton State Hospital; died in the Lenox Hill Hospital April 7, aged 74, of coronary thrombosis.

Thomas Hendrick Russell ⊕ New York; Jefferson Medical College of Philadelphia, 1908; member of the founders group of the American Board of Surgery; assistant director and professor of clinical surgery at the New York Post-Graduate Medical School; fellow of the American College of Surgeons; member of the New York Surgical Society; consulting surgeon at the Gouverneur Hospital in New York, St. Joseph's Hospital in Far Rockaway, Nyack (N. Y.) Hospital, Rockaway Beach Hospital in Rockaway Beach, St. Agnes Hospital in White Plains and the Jersey City Medical Center in Jersey City; director of the surgical service at New York Post-Graduate Hospital and Dispensary; died April 5, aged 61, of coronary thrombosis.

James Richey Horner, Cleveland; Homeopathic Hospital College, Cleveland, 1883; New York Homeopathic Medical College, New York, 1884; Western Reserve University Medical Department, Cleveland, 1907; formerly professor of nervous and mental diseases at the Cleveland Homeopathic Medical College; served on the staff of the Cleveland City Hospital, as president of the staff of the Cleveland Homeopathic Hospital and as secretary of the American Institute of Homeopathy; until 1942 secretary of the staff of the Huron Road Hospital in East Cleveland, where he died March 20, aged 86, of carcinoma of the sigmoid and uremia.

Richard Burgess Webb ⊕ Paintsville, Ky.; University of Louisville School of Medicine, 1932; interned at the Hillman Hospital in Birmingham, Ala., Highsmith Hospital in Fayetteville, N. C., and the Aultman Hospital in Canton, Ohio; served a residency at the Colorado Springs (Colo.) Psychopathic Hospital; began active duty as a lieutenant in the medical corps, Army of the United States, in May 1942; served nine months overseas in the Asiatic and the Pacific theaters; separated from the service with the rank of captain on April 22, 1946; died June 30, 1946, aged 40, of coronary thrombosis.

Joseph Stokes ⊕ Moorestown, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; past president of the Burlington County Medical Society; since 1933 chairman of the board of trustees and past president of the Burlington County Trust Company; served as president of the Moorestown National Bank; for many years affiliated with the Friends School; served on the board of the Friends Hospital in Philadelphia; on the visiting staff of the Burlington County Hospital in Mount Holly; died April 7, aged 85, of hemiplegia and hypertensive cardiovascular disease.

Lisbon C. Allen, Hoschton, Ga.; University of Georgia Medical Department, Augusta, 1888; member of the American Medical Association; formerly member of the state legislature; for many years member of the board of trustees of the local schools; served as bank president; died in the Piedmont Hospital, Atlanta, March 6, aged 84, of adenocarcinoma of the colon.

James Archie Barker, Ames, Iowa; State University of Iowa College of Medicine, Iowa City, 1900; served during World War I; at one time governor of Battle Mountain Sanatorium in Hot Springs, S. D.; served on the staffs of the Veterans Administration facilities in Lincoln, Neb., in Bath, N. Y. and others; died in Biloxi, Miss., March 9, aged 71, of carcinoma of the stomach.

George Crawford Beekman, Middletown, N. J.; New York University College of Medicine, New York, 1940; interned at the Lenox Hill Hospital in New York, where he served a residency; diplomate of the National Board of Medical Examiners; served during World War II; died in the Riverview Hospital in Red Bank, March 23, aged 32, of a fracture of the skull and crushed chest received when a tractor he had been driving toppled down an embankment.

David Eliot Bixby ⊕ Cleveland; Eclectic Medical College, Cincinnati, 1921; member of the American Psychiatric Association; for many years affiliated with the Cleveland State Hospital; died in the Cleveland Clinic Foundation Hospital April 4, aged 63, of complications following a gallbladder operation.

John McCue Bowcock, Williamson, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1901; on the staff of the Williamson Memorial Hospital; died March 20, aged 72, of coronary thrombosis.

Irene Ballou Bullard, Charlottesville, Va.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; died March 21, aged 70, of cerebral hemorrhage.

Marshall Dickson Carnell, Okmulgee, Okla.; University of Nashville (Tenn.) Medical Department, 1908; member of the American Medical Association; formerly superintendent of health of Okmulgee County and health officer of Sequoyah County; died in the Mayo Clinic, Rochester, Minn., February 22, aged 69, of heart disease.

Harry Everette Carver, Earlham, Iowa; State University of Iowa College of Homeopathic Medicine, 1899; member of the American Medical Association; past presiednt of the Madison County Medical Society; served during World War I; died in the Veterans Hospital in Des Moines, March 18, aged 72, of coronary thrombosis.

Timothy Joseph Casey ⊕ Oakland, Calif.; John A. Creighton Medical College, Omaha, 1916; served during World War I; consultant to the Veterans Administration; died February 10, aged 57, of heart disease.

Claud North Chrisman, Dayton, Ohio; Miami Medical College, Cincinnati, 1895; member of the American Medical Association; past president of the Montgomery County Medical Society; for many years on the staff of St. Elizabeth Hospital, where he died March 23, aged 77, of acute myocarditis and influenza.

Roy Cross, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1908; at one time teacher of chemistry at his alma mater; died in St. Luke's Hospital March 22, aged 63, of cerebral hemorrhage.

Alfred Green Doust, Syracuse, N. Y.; Syracuse University College of Medicine, 1887; served on the staff of the Crouse-Irving Hospital; died in the Syracuse Memorial Hospital March 15, aged 82, of arteriosclerosis and pneumonia.

Robert Lamar Drury, St. Louis; Washington University School of Medicine, St. Louis, 1934; member of the American Medical Association; served during World War II; served on the staffs of the Missouri Baptist Hospital, St. Luke's Hospital and the Frisco Employes' Hospital, where he died March 20, aged 37, of endothelioma with metastasis.

Lester Julian Efird ⊕ Tampa, Fla.; University of Maryland School of Medicine, Baltimore, 1903; served overseas during World War I; died in Winston-Salem, N. C., March 21, aged 68, of hypertensive cardiovascular disease.

John Ebenezer Evans ⊕ Wilmington, N. C.; University of Maryland School of Medicine, Baltimore, 1916; served during World War I; on the staff of the James Walker Memorial Hospital; died March 22, aged 56, of coronary thrombosis.

Rose Cecilia Faughnan ⊕ Passaic, N. J.; Woman's Medical College of Baltimore, 1910; formerly affiliated with the U. S. Public Health Service; served as physician for the board of education of Newark, where she had been on the staff of St. James Hospital; died March 26, aged 73, of bronchopneumonia and adenocarcinoma of the bladder.

Walter Wallace Fenton, San Bernardino, Calif.; Vanderbilt University School of Medicine, Nashville, 1914; school physician; formerly affiliated with the U. S. Public Health Service reserve; county health officer for many years; served during World War I; died in Loma Linda Sanitarium and Hospital in Loma Linda March 21, aged 68, of coronary heart disease.

John Harvey Fouts, Franklin, N. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; died March 8, aged 82, of coronary thrombosis.

Patterson Tilford Frazer Jr., Hopkinsville, Ky.; Meharry Medical College, Nashville, Tenn., 1913; served during World War I; died March 30, aged 57, of influenza and pneumonia.

Edward Frothingham ⊕ Woodhaven, New York; New York Homeopathic Medical College and Hospital, New York, 1918; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; on the staff of the Brooklyn Eye and Ear Hospital; died in the Methodist Hospital in Brooklyn, March 22, aged 54, of cerebral hemorrhage.

Arthur Louis Gagnon, San Diego, Calif.; Rush Medical College, Chicago, 1900; member of the American Medical Association; served on the staffs of the Norwalk (Calif.) State Hospital and as attending physician at the Nazareth Orphanage in Mission Valley; formerly on the staff of the Mercy Hospital; at one time medical examiner for the county welfare department; died March 26, aged 73, of coronary thrombosis.

Julius Golembe, New York; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1924; member of the American Medical Association; served during World War I; on the staff of the Mount Sinai Hospital; died March 19, aged 50, of coronary thrombosis.

John Hurter Gordon ⊕ Birmingham, Mich.; Tufts College Medical School, Boston, 1919; fellow of the American College of Surgeons; served as chief of staff of St. Joseph Mercy Hospital in Pontiac; served during World War I; died on a train between Palm Beach and Winterhaven, Fla., March 2, aged 56, of coronary thrombosis.

Charles Orson Gose ⊕ Hennessey, Okla.; Keokuk (Iowa) Medical College, 1894; served as director of the Farmers and Merchants National Bank; died in the Oklahoma City General Hospital, Oklahoma City, March 8, aged 79, of cancer.

Joseph John Gramling ⊕ Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; died March 18, aged 68, of coronary occlusion.

Willis Curtis Groce, Byrdstown, Tenn.; University of Nashville Medical Department, 1905; died March 31, aged 68, of heart disease.

James Morgan Grove, Cherokee, Iowa; Harvey Medical College, Chicago, 1903; member of the American Medical Association; on the staff of the Cherokee State Hospital, where he died March 28, aged 76, of arteriosclerotic heart disease.

Solomon Augustus Hatfield ⊕ Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1912; clinical professor of medicine at his alma mater; member of the city board of health and the Columbus Academy of Medicine; formerly superintendent of the Starling-Loring Hospital; on the staffs of the University, St. Francis, Grant and St. Anthony's hospitals; died March 23, aged 58, of coronary occlusion.

Jacob Davis Hershey ⊕ Manheim, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; past president of the Lancaster County Medical Society; formerly burgess of Manheim; served as deputy coroner; county coroner from 1927 to 1935; died in the Lancaster (Pa.) General Hospital March 5, aged 71, of uremia.

Harold Crawford Hill ⊕ Holyoke, Colo.; Rush Medical College, Chicago, 1914; fellow of the American College of Surgeons; superintendent and medical director of the Holyoke Hospital, where he died March 12, aged 57, of coronary occlusion.

Lyndon M. Hill, Atlanta, Ga.; Meharry Medical College, Nashville, Tenn., 1911; served as president of the National Medical Association; died in the Harlem Hospital in New York March 17, aged 66, of carcinoma of the vertebrae.

Wilson Warren Holmes, Keokuk, Iowa; Keokuk Medical College, 1892; member of the American Medical Association; on the staffs of the St. Joseph Hospital and the Graham Hospital, where he died March 20, aged 78, of cerebral hemorrhage.

William Amos Holt, San Diego, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; died in National City March 29, aged 85, of mesenteric thrombosis, arteriosclerosis and cerebral hemorrhage.

Frank Albert Hubbard, Columbus Junction, Iowa; Keokuk Medical College, 1895; member of the American Medical Association; served in France during World War I; died March 21, aged 79, of cerebral hemorrhage.

Thomas Franklin Hudson ⊕ Luxora, Ark.; Memphis (Tenn.) Hospital Medical College, 1907; secretary of the Mississippi County Medical Society; killed March 20, aged 64, when the automobile in which he was driving was struck by a train.

King Lyman Hull, Bloomfield, Ind.; Indiana University School of Medicine, Indianapolis, 1929; member of the American Medical Association; past president of the Greene County Medical Society; county coroner; on the staff of the Freeman Greene County Hospital in Linton, where he died March 16, aged 49, of coronary thrombosis.

Henry L. Kirkpatrick, White Sulphur Springs, W. Va.; Medical College of Ohio, Cincinnati, 1881; member of the American Medical Association; served as a member of the Fayette County Court; died March 15, aged 92, of congestive heart failure.

Edwin Jay Koontz, Wadsworth, Ohio; Cleveland University of Medicine and Surgery, 1896; member of the American Medical Association; on the staff of the Wadsworth Municipal Hospital; died March 1, aged 76, of cardiovascular renal disease.

Lyman Converse Lewis ⊕ Belmont, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; served as president and secretary of Allegany County Medical Society; since 1915 health officer of the consolidated health district of Amity-Belmont; served during World War I; on the staff of the Jones Memorial Hospital in Wellsville, where he died March 21, aged 70, of coronary thrombosis.

William Lomax, Evansville, Ind.; Medical College of Indiana, Indianapolis, 1881; died in Indianapolis March 12, aged 92, of coronary occlusion and chronic nephritis.

Frank E. McCurtain, Denver; Denver College of Physicians and Surgeons, 1897; died in March, aged 76, of lung abscess and lobar pneumonia.

John Bertral McKenzie, Wilmington, Ohio; Starling Medical College, Columbus, 1900; died in Lake Worth, Fla., March 8, aged 73, of coronary thrombosis.

Cleveland Charles MacLane ⊕ Chicago; Loyola University School of Medicine, Chicago, 1917; on the staffs of the Illinois Masonic and St. Bernard's hospitals; served during World War I; died in Tucson, Ariz., March 16, aged 63, of emphysema.

George Elzear Maley, Galesburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; died March 20, aged 66, of heart disease.

William J. Maurits, Morrison, Ill.; Detroit College of Medicine, 1900; member of the American Medical Association; died in St. Luke's Hospital, Chicago, March 24, aged 71, of bronchogenic carcinoma.

Frank Richard Morrow ⊕ Miami, Fla.; Ohio State University College of Medicine, Columbus, 1927; specialist certified by the American Board of Internal Medicine; for many years on the staff of the Jackson Memorial Hospital; died March 5, aged 45, of pulmonary edema.

Harry G. Nicks ⊕ St. Louis; Ensworth Medical College, St. Joseph, Mo., 1890; formerly professor of physical diagnosis and practice of medicine at the St. Louis College of Physicians and Surgeons; died March 24, aged 85, of monocytic leukemia.

William T. O'Halloran ⊕ Boston; Tufts College Medical School, Boston, 1924; assistant professor of medicine at the Boston University School of Medicine; fellow of the American College of Physicians; physician in chief of the sixth medical service at the Boston City Hospital; died March 21, aged 48, of hypertensive heart disease.

John Henry Outland ⊕ Kansas City, Mo.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; died in Laguna Beach, Calif., March 24, aged 76, of cerebral thrombosis.

William Thomas Owens, Hartford, Conn.; University of Vermont College of Medicine, Burlington, 1899; served as officer in the state national guard, on the Mexican Border and during World War I; on the staffs of the Hartford and St. Francis hospitals; died March 13, aged 71, of pulmonary tuberculosis.

Herman B. Parker, Guayaquil, Ecuador; University of Pennsylvania Department of Medicine, Philadelphia, 1896; formerly affiliated with the U. S. Public Health Service; died in Miami, Fla., March 16, aged 72, of embolus of the right colic artery.

Charles Orley Peters, Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; member of the American Medical Association; served during World War I; on the staff of St. Vincent's Hospital; died February 1, aged 60, of bronchopneumonia and Parkinson's disease.

Albert Pfeiffer, Fremont, Ohio; Louisville (Ky.) Medical College, 1893; formerly coroner of Allen County; served during World War I; served on the staff of the Lima State Hospital; died March 21, aged 89, of arteriosclerotic gangrene.

Charles Jacob Pflug, Brooklyn; University of the City of New York Medical Department, New York, 1895; member of the American Medical Association; fellow of the American College of Surgeons; surgeon, South Side Hospital in Bay Shore; consulting surgeon, St. Catherine's and Wade hospitals; attending surgeon, Wyckoff Heights Hospital, where he died March 22, aged 73, of acute coronary occlusion, diabetes mellitus, arteriosclerosis and gangrene of left big toe.

Barnie Lee Piper, Georgiana, Ala.; Emory University School of Medicine, Atlanta, 1916; member of the American Medical Association; died in Roanoke March 17, aged 59, of nephritis.

Lafayette Oren Roberts, Portland, Ore.; University of Oregon Medical School, Portland, 1912; member of the American Medical Association; served during World War I; died March 19, aged 66, of coronary sclerosis.

Charles Bradford Rodes ⊕ Butte, Mont.; St. Louis University School of Medicine, 1908; specialist certified by the American Board of Radiology; member of the American College of Radiology; served as medical director of the Murray Hospital; died March 31, aged 67.

Morris Martin Rottman ⊕ Chicago; Chicago Medical School, 1929; served during World wars I and II; on the staffs of the Grant and Cuneo hospitals; died March 15, aged 47, of coronary thrombosis.

Rubin Ryvkin, Berlin, N. Y ; Universita Karlova Fakulta Lékařská, Prague, Czechoslovakia, 1928; died February 5, aged 48, of coronary occlusion.

Henry T. Schildroth, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C, 1893; formerly coroner of St. Clair County, Ill.; on the staffs of the Georgetown University Hospital and the Providence Hospital, where he died March 29, aged 80, of arteriosclerosis.

Walter Shropshire, Yoakum, Texas; Missouri Medical College, St. Louis, 1890; past president of the Lavaca County Medical Society; formerly vice president of the State Medical Association of Texas and councilor of the Eighth District; served as city health officer; died April 3, aged 84, of hypostatic pneumonia and myocarditis.

George Sinnamon, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Medical Association; for many years police surgeon; on the staffs of the Stetson Hospital and the Episcopal Hospital, where he died March 10, aged 78, of cerebral hemorrhage.

Irving William Slack, Tampa, Fla.; University of Vermont College of Medicine, Burlington, 1911; died February 28, aged 80, of coronary thrombosis

Guy Beckley Stearns, New York; New York Homeopathic Medical College and Hospital, New York, 1900; formerly professor of materia medica at his alma mater; died March 25, aged 76, of carcinoma.

John Anthony Steinwandel, Philadelphia; Jefferson Medical College of Philadelphia, 1890; on the staff of the Jefferson Hospital; died March 30, aged 86, of heart disease.

Ralph Methven Thomson, Savannah, Ga.; Medical Department of Tulane University of Louisiana, New Orleans, 1898; died March 24, aged 71, of pneumonia

Lieut. William S. Allee
M. C., A. U. S., 1912-1944

Col. Charles M. Downs
M. C., U. S. Army, 1900-1945

Capt. Joel Y. Marshall
M. C., A. U. S., 1912-1945

Max Schoenbaum ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1905; on the staff of St. Elizabeth Hospital; died March 27, aged 64, of coronary thrombosis.

Harry Fenton Settle, Kansas City, Mo.; Kansas City College of Medicine and Surgery, 1919; died March 22, aged 64, of coronary disease

William Grant Williams, Bayard, Neb ; University Medical College of Kansas City, Mo, 1907; died March 20, aged 82, of endocarditis and hypertension.

Abraham Zelnigher ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1923; on the staff of the Israel Zion Hospital; died March 14, aged 47, of coronary occlusion.

KILLED IN ACTION

William Sylvanus Allee, Wadsworth, Kan ; Washington University School of Medicine, St. Louis, 1938; interned at St. Luke's Hospital and served a residency at Frisco Employes' Hospital, both in St. Louis; began active duty as a first lieutenant in the medical reserve corps of the U. S. Army on May 14, 1941; prisoner of war of the Japanese; died in the South China Sea Oct. 24, 1944, aged 32, when the ship on which he was being transported was sunk.

Charles McCabe Downs ⊕ Colonel, M. C., U. S. Army, Bloomington, Ind ; born in Casey, Ill., on March 9, 1900; Indiana University School of Medicine, Indianapolis, 1927; Army Medical School and Medical Field Service School in 1930; entered the medical corps of the U. S. Army as a first lieutenant in 1928: promoted through the various grades to that of colonel; in service for eighteen years and in Pacific war zones for three years; in 1945 awarded the Bronze Star for meritorious achievement in connection with military operations on Leyte with the 10th Army Corps, of which he was surgeon; at one time surgeon for the Second Cavalry Division and for the Ninth Armored Division; received the posthumous award of the Army Commendation Medal; killed in action over Mindanao, P. I., June 1, 1945, aged 45.

Joel York Marshall, Alfred Maine; University of Western Ontario Medical School, London, Ont., Canada, 1941; interned at St. Luke's Hospital in Cleveland, where he served a residency; captain, medical corps, Army of the United States; served with an Engineer Medical Corps unit; killed in action in Germany March 15, 1945, aged 33.

Foreign Letters

OSLO

(From Our Regular Correspondent)

May 9, 1947.

Memories of the German Occupation

Bit by bit we are piecing together the experiences of our fellow beings during the German occupation of Norway, and now we have learned how Dr. G. H. Monrad-Krohn, professor of medicine (neurology), played his part. An involuntary testimonial to his patriotism was given him by a former assistant, Dr. Ostrem, one of Quisling's henchmen, who wrote a letter denouncing the professor to the quisling camp. A few days after it was written the professor received a photostatic copy of it provided by the intelligence service of the underground movement. On Jan. 1, 1941 the professor was elected dean of the University of Oslo by the Faculty of Medicine. When the rector of the university and some other professors were arrested and held as hostages, the deans of the various faculties were the only remnant of the original university staff. Clandestine meetings of the deans were held in the professor's office, where plans for the circumvention of nazi rule were devised. In the autumn of 1943 the Germans closed the university and sent several hundred students to prison in Germany. There was now a great danger of a reopened university run by and for quislings. To avoid this, and on the initiative of Professor Monrad-Krohn, the university buildings were turned into hospitals and school rooms for children.

Marriage and Mental Disease

On the paradoxical principle that the busier you are the more time you find for supplementary activities, Dr. Oernulv Oedegaard, medical superintendent of the Gaustad State Asylum near Oslo, continues to make valuable contributions to the psychiatric education of the public and to research. His recent article on the relative importance of heredity and environment with regard to mental disease, published in a Norwegian journal read by laymen, is a stimulating corrective to the fatalism of the hitlerite school of heredity. His recent research into the relationship of marriage to mental disease is based on a study of 14,231 first admissions to Norwegian mental hospitals. He found that the incidence of mental disease was much higher among the single than among the married. He discusses three possible explanations: (1) that a single person who develops mental disease is more readily admitted to a mental hospital, (2) that the subjects of mental disease present certain personality traits which, before its outbreak, act as marriage handicaps and (3) that there are in married life certain factors preventing the outbreak of mental disease. He can find little evidence in support of this last explanation, whereas the second explanation is supported by much valid evidence.

Who Is Best Off, Doctor or Bank Clerk?

The scandal of the inadequate remuneration of doctors holding junior hospital appointments has led to an investigation of the standards of living of members of the community other than doctors in order to draw an instructive comparison. While in Sweden the wage earner selected for this comparison was a typical bus conductor, in Norway the bank clerk has served as a control. He begins to earn when he is 19, whereas a doctor does not do so till he is 27. In the *Journal of the Norwegian Medical Association* for April 1, 1947 an actuary, Herr Gunnar Trier, has calculated how much a doctor ought to earn if his standard of living is to equal that of the bank clerk, after due consideration has been paid to the lean years after the age of 19. He finds that the doctor's annual earning must be at least 13,000 kroner, or $2,600. What we would, of course, also like to know, but are not told, is the actual average earning of our colleagues. What we do know is that as from March 1, 1947 the remuneration attaching to junior hospital appointments is to be scaled upward. But even so these terms are considered far from satisfactory by the medical profession and will assuredly have to be revised in the near future.

CHILE

(From Our Regular Correspondent)

March 15, 1947.

Construction of Hospitals

A law was enacted in July 1945 for the creation of a society to construct hospitals in various regions of the country. This law creates a mechanism in which the Public Beneficence, the national treasury and the people participate in the creation of hospitals for the poor. The funds are integrated by (1) money obtained by the government through certain special laws and the general budget of the country, (2) money and property of the Public Beneficence and (3) and (4) money of either private institutions or private parties as given in the nature of investment. The shares are nontaxable. This society has a capital of 300,000,000 Chilean pesos (100,000,000 of the national treasury, 50,000,000 of the Public Beneficence and 150,000,000 of private parties). The amount is progressively increasing. It is in charge of a board of seven directors appointed respectively by the three different constituent parties. The main members of the board of directors now are Drs. Sótero del Río, president, and Benjamin Cid Quiróz, both professors of the University of Chile. As soon as construction of a hospital of the society is finished, the national treasury should rent it with an annual interest of 9 per cent over the cost of construction, to be given to the Public Beneficence for use. The national treasury will give the interest on its shares to the hospitals after completion of their construction. Private holders will have dividends of 8 per cent a year. The hospitals in table 1 are now under construction.

TABLE 1.—*Hospitals Now Under Construction*

Hospital	Number of Beds	Value of Complete Construction
San Juan de Dios (Santiago)	627	$19,362,961.00
Vina del Mar	332	13,152,098.32
Los Angeles	240	15,365,146.00
Arica	150	15,543,452.00
Quillota	194	14,308,102.00
San Vicente (Santiago)	700	40,000,000.00
	2,243	$117,731,739.32

TABLE 2.—*Hospitals To Be Constructed Later*

Hospital	Number of Beds	Approximate Amount
San Francisco de Borja (Santiago)	900	$60,000,000
Chañaral	30	3,000,000
Ancud	50	4,000,000
Loncoche	40	3,500,000
	1,020	$70,500,000

The hospitals in table 2 will be constructed later on in the year.

During 1947 the expenses in hospitals will be about 220,000,000 Chilean pesos, with a total of 2,500 beds. The hospitals will be entirely modern and completely equipped.

Production of Penicillin

A plant for the production of penicillin is regularly working at the Instituto Bacteriologico of Chile at Santiago. This is a semiautochthonous, semiofficial center of scientific research in which vaccines, serums, arsenicals, pentavalents and similar items are prepared for the National Department of Public Health and the hospitals. The production of penicillin is in charge of Chilean technicians. The daily production is 120 million units. Penicillin from the plant is used by the National Department of Public Health and the Hospitals of Beneficence, mainly in the antivenereal campaign.

Cardiologists in Chile

Drs. Pedro Cossio, Antonio Battro and Antonio Taquini, all of the Faculty of Medicine of the University of Buenos Aires and well known Argentine cardiologists, visited the universities and hospitals of Santiago during last October and gave important lectures. Dr. Cossio lectured on cardiac auscultation, on surgical therapy of hypertension and on tachycardia, Dr. Battro on coronary thrombosis and Dr. Taquini on the physiopathologic problem of cardiac dyspnea. They gave clinical bedside lectures to students in the medical departments of the university.

ITALY

(From Our Regular Correspondent)

April 26, 1947.

Academy Centennial

The Academy of Medicine in Turin celebrated its centennial under the chairmanship of Professor Gamna. The old seat, which had witnessed a hundred years of scientific activity, was destroyed by bombardment during the war; consequently the bibliographic patrimony was lost, but the vice president, Professor Luigi Ferrio, reconstructed the history of the academy by patiently investigating the archives and libraries of other institutes in Turin which had not been damaged by the war. This history was published to commemorate the centennial of the academy.

The anniversary was celebrated by a conference with Sir Alexander Fleming, who had been invited for this purpose. He recalled the long research which resulted in the discovery of penicillin and the first clinical applications of the new product. Fleming emphasized that his product should not be considered as a panacea.

Surgical Society

At a meeting of the Surgical Society in Naples under the chairmanship of Professor Cantelmo, Schisano described a case of carcinoma of the uterus in a girl aged 9 who for two years had lost small quantities of blood. Biopsy revealed an epithelioma of the cervix, and total hysterectomy was performed. Postoperative macroscopic and microscopic examination of the specimen proved the diagnosis. For four years after the intervention the patient enjoyed good health.

Radice reported a case of cancer of the vaginal portion of the uterus in a woman aged 19 who was operated on. Death occurred from metastasis within a short time. Niccolo and Greco presented their belief that the anatomicopathologic and the clinical malignancy of a tumor are not always parallel. It may be considered as established that one has to deal with blastomas, which often arise from undifferentiated embryonal elements and which may explain why their microscopic picture is characterized by undifferentiated cells.

Palma discussed the pathogenesis of postanastomotic peptic ulcers based on 23 patients operated on. Interdependence between visceroparietal adhesions and postoperative ulcers may be suggested by the numerous adhesions of the liver, stomach and omentum to the abdominal wall in nearly all cases. In 6 cases the ulcer was localized in the efferent and in 3 cases in the afferent intestinal loop. In 14 cases it was at the new stoma. A silk thread was found in 4 cases at the bottom of the ulcer. Except for the 3 cases of perforation with free peritoneum, death occurred in 3 of the remaining 20 cases, i. e. a mortality of 15 per cent.

The speaker first discussed the factors which other authors consider as contributing to the condition (threads of silk, compressors), but he emphasized that inadequate surgical technic (gastroenterostomy with employment of a longer loop and in a high position) and the visceroparietal adhesions may be responsible in the first order. Various surgeons participated in the discussion of Palma's paper. Bracale stated that some North American authors have demonstrated acute deficiency of one component of the vitamin B complex. The symptoms disappeared and the x-ray examination became negative after these patients were given massive doses of vitamin B.

Intraosseous Anesthesia in Man

Dr. D'Errico tested anesthesia by the intraosseous route with barbituric acid preparations on 19 patients in the surgical clinic of the University of Naples. According to the new technic solution of 2.50 per cent of pentothal sodium is injected into the manubrium of the sternum. It offers several advantages, for instance the possibility of producing anesthesia in persons whose veins are not on the surface, of injecting repeated dose without requiring any apparatus of fixation of the needle and for keeping it passable, and the possibility of easy control during the anesthesia. Untoward reactions, which were related directly to the technic, however, occurred in several cases and consequently D'Errico does not advise its general use for the present.

Deaths

Professor Paolo Fiori, director of the surgical clinic of the university, died in Genoa. Fiori began his university career as an assistant to the Faculty of Medicine of Pavia, dedicating himself to the study of general pathology and endocrinology under the leadership of Professor Giulio Vassale. He then studied clinical surgery and after years of service with other universities was called to succeed his master Professor Giuseppe Tusini in Genoa. Particularly brilliant were his studies on gastric ulcer, experimental hydrosalpinx, gas gangrene and in vitro tissue cultures. His most important surgical contributions dealt with tuberculosis of the cecum, hemolytic splenomegaly and cysts of the spermatic cord. His surgical school is now being continued by such capable pupils as Professors Fedeli and Agrifoglio, the latter of whom has been assigned to university teaching.

Professor Giovanni Boeri, aged 79, formerly director of the medical clinic of the University of Naples, is dead. During the war he suffered the loss of his entire private library of medical papers as the result of bombardment from the air. He was the first physician to reveal in 1914 that amebiasis may in endemic form and without any relation to imported cases from abroad be manifested in the temperate regions of Europe.

Professor Giuseppe Zagari, director, medical clinic, University of Naples, died likewise advanced in years. His studies (1887) on bacterial antagonism were based on the vital competition of micro-organisms and on a new means of prophylaxis against carbuncles; they demonstrated that products of bacterial metabolism may accrue in the culture substance of cholerigenous vibrio; these products of metabolism have an effect on the anthrax bacillus for which then the term "antiseptic" was used by the author, while "antibiotic" is the modern term for this effect. His studies on hydrophobia, carried out in collaboration with Di Vestea, showed that the virus of rabies may reach the nerve centers by the peripheral nerves rather than by the blood vessels.

Zagari contributed to the great Italian treatise of Medical Pathology and Clinical Propedeutics with chapters on rabies, carbuncles, glanders and erysipelas. Only recently he contributed a chapter on septicemia to the Treatise on Internal Medicine by Ceconi.

Correspondence

ALLERGATON—A WARNING

To the Editor:—The Food and Drug Administration desires to warn the medical profession in the Northwest of the presence of a fly-by-night salesman doing business under the trade name of Associated Allergaton Labs., purportedly of 421 Moss Avenue, Oakland, Calif. This salesman, whose name is H. L. Scott, details physicians personally and attempts to sell ampules or vials of a product called "Allergaton," which is represented as a specific for skin irritations such as itching, or in place of liver extract, or for allergic disorders or arthritis.

Samples of this medicine which have been analyzed by the Food and Drug Administration show that it is an alkaline polysulfide solution which causes severe reactions when administered to patients. One patient to whom it was administered by a Seattle physician became violently ill and was confined to bed for two days, as if paralyzed following its administration, and was unable to work for a week after the injection.

There is no such firm as the Associated Allergaton Labs. of Oakland. Mr. H. L. Scott and his associates have been operating recently in the states of Washington and Idaho. They leave no forwarding address or, if they leave one, it is false. They do not operate systematically in any particular area. If any physician is contacted by these promoters we would appreciate his notifying local health authorities or the Seattle office of the Food and Drug Administration in the Federal Building, since the preparation which is being peddled by these promoters is a dangerous one and is capable of causing serious injury when injected, in addition to being useless for the purpose offered.

RALPH W. WEILERSTEIN, M.D., San Francisco.

DETERMINATION OF PROTHROMBIN

To the Editor:—The one stage method for the determination of prothrombin has assumed a steadily increasing importance in the clinical laboratory ever since its introduction in 1935. Unfortunately, much confusion concerning the test still exists, mainly because of unwarranted modifications of the procedure. These, for the most part, have contributed nothing as to increasing its simplicity, accuracy or practicability. It is encouraging to note, however, that many laboratories adhere strictly to my procedure and are reporting exact and consistent results.

The introduction of dicumarol into therapy has made it obligatory, first, that the determination of prothrombin be done correctly, and secondly that the prothrombin of the blood should be reduced to a level which is therapeutically effective. The correct technic for carrying out my method is exceedingly simple. It can be acquired by any qualified technologist in one or two hours, as has been demonstrated repeatedly in my laboratory. One additional hour is required to learn the procedure for preparing thromboplastin from rabbit brain. Technologists thus trained can consistently get a prothrombin time of 11 to 12½ seconds for normal human plasma. This value has now been obtained by me since 1938 and even from thromboplastin made in that year and stored until now. The constancy of this reagent has introduced a degree of accuracy into the study of coagulation which is particularly striking when compared with the notorious inaccuracies that formerly characterized this field.

On the basis of animal experiments as well as by clinical observation it has been found in my laboratory that the critical level of prothrombin at which hemostasis is definitely affected is indicated by a prothrombin time of approximately 19 seconds (equivalent to 30 per cent of normal). This level can be assumed also to be the one at which intravascular clotting is inhibited and therefore the level to which the prothrombin must be reduced for effective therapeutic results. To be sure of the correct level, a reliable thromboplastin must be used, and thus far acetone dehydrated rabbit brain has been the only preparation which has met the requirement for my method.

Particular precaution must be taken if a thromboplastin is prepared from such tissue as lung, which is difficult to free from blood, for such preparations are contaminated with component A, a coagulation factor which I discovered in 1943 (Quick, A. J.: *Am. J. Physiol.* **140**:212 [Nov.] 1943). This has become of practical importance since Owren (Owren, P. A.: *Lancet* **1**:446 [April 5] 1947) has recently reported a hemorrhagic condition in which this factor is presumably diminished. Obviously a thromboplastin contaminated with the very factor lacking in the blood in this condition is entirely unsuited and unsatisfactory. It may be somewhat tedious to fillet a rabbit brain, but it is decidedly worth while, since the product obtained is probably the purest thromboplastin now known and one that has yielded results that have blazed new trails in the assuredly difficult field of blood coagulation.

ARMAND J. QUICK, M.D., Milwaukee.

GENERAL PRACTICE AND RADIOLOGY IN A LARGE HOSPITAL

To the Editor.—Dr. Miller's article on "General Practice in a Large Hospital" in the March 3 issue of THE JOURNAL has been read with considerable interest. He stated that the regular staff of his hospital was organized into four sections: (1) medicine, (2) surgery, (3) obstetrics and gynecology and (4) general practice. Since diagnosis is the cornerstone of modern medical practice, it was rather astonishing to see no mention of departments of radiology or pathology. You are doubtless aware that in the modern nationwide educational program of the Veterans Administration hospitals, the following four departments are stressed: (1) medicine, (2) surgery, (3) pathology and (4) radiology. By giving the two principal diagnostic departments an equal standing with those of medicine and surgery, responsibility is properly assigned and opportunity for advancement in those fundamental specialties increased. This surprising omission was mentioned in a letter to Dr. Miller; he was good enough to inform me that the Mount Carmel Mercy Hospital included a section on pathology and radiology in the department of medicine. It is respectfully suggested that greater progress in sound diagnostic methods would be made if the precedent of the modern Veterans Administration structure were followed, than Dr. Miller's breakdown. General practice may well merit a separate department in addition to the four main ones listed.

L. HENRY GARLAND, M.D., San Francisco.

ACUTE YELLOW ATROPHY OF THE LIVER

To the Editor:—I have read your editorial in the April 12 issue of THE JOURNAL on acute yellow atrophy of the liver. The analysis is an interesting one and it is especially interesting to me that two of the three periods of excessive frequency appeared to have occurred during and after world wars. During these periods an unusually large number of workers were exposed to hepatotoxic substances in industry: The manufacture of trinitrotoluene and the use of chlorinated naphthalenes and diphenyls for insulating cables are examples. While I do not have statistical data as to the extent of this exposure and cannot draw definite conclusions therefore as to its relative importance in the total picture, I believe that it is one of the factors which should be mentioned along with the others in a discussion of this subject. I am bringing this matter to your attention primarily because occupational exposures are so often overlooked in discussions of clinical disease entities.

MAY R. MAYERS, M.D., New York.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Charitable Hospital: Liability for Negligence of Employees in Mistaking Boric Acid for Dextrose.—The plaintiff sued for damages for his daughter's death alleged to have resulted from negligent acts of the servants of the defendant hospital. From a verdict and judgment for the plaintiff, the defendant appealed to the Supreme Court of Errors of Connecticut.

The defendant is a charitable hospital. Its pharmacy, located in the basement of the hospital building, consisted of the pharmacy proper, or workroom, and six rooms containing all sorts of supplies. Boric acid and dextrose, which look alike, were purchased from the same concern, and the containers were of similar cylindric size and shape and were similarly labeled. On the boric acid label, however, were the additional words in small type "for external use only." Both substances were stored on the floor in the pharmacy proper about 4 feet apart. Boric acid is a poison and may be fatal to newborn babies if taken internally. Paula Machnik, a competent pharmacist, was in charge of the pharmacy, and to assist her the housekeeper had assigned Henry Lindner to report to the pharmacy every day between 10 and 12. While in the pharmacy he did what the pharmacist told him to do. He carried packages, washed bottles and filled containers, when directed to do so, with such bulk supplies as talcum powder, green soap, mouthwash, witch hazel, lysol and mineral oil. The various departments of the hospital had so-called supply days (Monday and Thursday for the maternity department) when they sent various containers to the pharmacy in large baskets with order books indicating the material requisitioned. Under hospital routine, in effect at the defendant hospital, newborn infants were given a feeding of 5 per cent dextrose solution. On Thursday, April 6, the dextrose bottle was nearly empty and was sent to the pharmacy to be refilled. It was filled instead with boric acid, the use of which in the feeding formula resulted in the death of 5 babies, 1 of whom was the plaintiff's daughter. The court pointed out that there were two possible bases of liability submitted to the jury: First, was the defendant negligent in the selection of its agents and servants? Second, was it guilty of corporate negligence in failing to provide proper facilities, safeguards and surroundings in the pharmacy? It is the settled law of this state, the Supreme Court emphasized, that a charitable corporation is not liable for the negligence of employees whom it has selected with due care.

The evidence, said the court, as to who filled the bottle with boric acid was a matter of inference from the testimony. The jury reasonably could have concluded that the requisitioned material for the maternity wing on the day in question was supplied by either the pharmacist or Lindner, that in view of her training and experience it was not probable that the pharmacist would have mistaken boric acid powder for dextrose, and that, therefore, in spite of his categorical denial, Lindner did fill it. Negligence on the part of the competent pharmacist would not be a basis of liability, said the court. Assuming that the jury reasonably could have found that Lindner filled the dextrose bottle with boric acid, the same principle would apply, since there was no evidence from which the jury reasonably could have found that the hospital did not use due care in selecting him or in assigning him to do the kind of work for which he was hired under the direction and supervision of the competent pharmacist. The most that the evidence tended to show, the court said, was that the pharmacist improperly directed or permitted Lindner to fill the container. That is far from proving that the corporation or its board of directors failed to use due care in selecting their employees. Furthermore, said the court, the trial court should not have submitted to the jury the question of whether or not the defendant failed to provide proper facilities and safeguards in the pharmacy, since all the evidence introduced was to the effect that the pharmacy was set up in accordance with standard practice. No written rules for its conduct had been prescribed, but there was no evidence that standard practice required this or that their existence would have changed the situation.

Because of errors in instructing the jury, the judgment in favor of the plaintiff was set aside and the case remanded for a new trial.—*Evans v. Lawrence & Memorial Associated Hospitals, Inc., 50 A. (2d) 443 (Conn., 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, June 21, page 736.

BOARDS OF MEDICAL EXAMINERS

Arizona: * *Examination.* Phoenix, July 1-2. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

California: *Written.* San Francisco, July 7-10. *Oral.* San Francisco, July 19-20. Sec., Dr. Frederick N. Scatena, 1020 N. St., Sacramento 14.

Connecticut: *Examination.* Hartford, July 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 8. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 8-10. *Endorsement.* Dover, July 15. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

Georgia: Atlanta, Oct. 14-16. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

Hawaii: *Examination.* Honolulu, July 8-11. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

Idaho: Boise, July 14-16. Sec., Bureau of Occupational Licenses, Dr. S. M. Poindexter, Eastman Bldg., Boise.

Kentucky: *Examination.* Louisville, Sept. 22-24. Sec., State Board of Health, Dr. P. E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Augusta, July 1-2. Sec., Board of Registration in Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

Massachusetts: *Examination.* Boston, July 8-11. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 E State House, Boston.

Montana: Helena, Oct. 6-8. Sec., Dr. Otto G. Klein, 302 N. Main St., Helena.

New Hampshire: *Examination.* Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

North Dakota: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

Oregon: * *Examination.* Portland, July 23-25. Applications must be on file on or before July 9. Sec., Miss Lorienne M. Conlee, 608 Failing Bldg., Portland.

South Dakota: * Pierre, July 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

West Virginia: *Examination.* Charleston, June 30, July 1-2. Commissioner, Public Health Council, Dr. Newman H. Dyer, State Capitol, Charleston 5.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: Sept. 16. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Colorado: *Examination.* Denver, Sept. 17-18. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

District of Columbia: *Examination.* Washington, Oct. 20-21. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6012 E. Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, Nov. 1. Final date for filing application is Oct. 16. Sec., Dr. W. M. Emmell, University of Florida, Gainesville.

Iowa: Des Moines, July 8. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Ann Arbor and Detroit, Oct. 10-11. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

Nebraska: *Examination.* Omaha, Oct. 7-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, State Department of Health, Room 1009, State Capitol Bldg., Lincoln 9.

Oklahoma: The date for the next examination has not been set as yet but will be sometime in the spring of 1948. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, Sept. 6. Final date for filing application is Aug. 20. Sec., Board of Higher Education, Basic Science Examining Committee, Mr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island: *Examination.* Aug. 13. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Wisconsin: *Examination.* Madison, Sept. 27. Sec., Mr. William H. Barber, Watson and Scott Streets, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

53:359-540 (March) 1947. Partial Index

Presidential Address: Advance of American Medicine. L. F. Smead.—p. 359.
*Pregnancy in Patient with Hypertensive Disease. L. C. Chesley and J. E. Annitto.—p. 372.
Morbidity Associated with Induction of Labor. M. A. Roblee.—p. 382.
Treatment of Pelvic Tuberculosis in Female by Radiation Therapy Based on Experimental Evidence in Animal and Clinical Results in the Human. R. E. Campbell.—p. 405.
Background of Cancer of Corpus. J. A. Corscaden and S. B. Gusberg.—p. 419.
Pituitary Extract in Uterine Inertia: Is It Justifiable? N. J. Eastman.—p. 432.
Analysis of Deaths from Postpartum Hemorrhage. C. T. Beecham.—p. 442.
Treatment of Amenorrhea in Young Women. L. M. Randall.—p. 453.
Serology and Obstetrics. R. T. LaVake.—p. 459.
Rh Factor in Abortion. A. B. Hunt.—p. 467.
Red Degeneration of Uterine Myomas. R. L. Faulkner.—p. 474.
Conservative Treatment and Therapeutic Test for Endometriosis by Androgens. J. C. Hirst.—p. 483.
Second Stage of Labor: Internal Rotation. L. A. Calkins.—p. 488.
Obstetric Management of Pregnancy Complicated by Heart Disease. D. N. Henderson.—p. 494.
*Problem of Talcum Glove Powder and Contraindications for Its Employment. F. M. Douglass.—p. 500.
Discussion of Classification of Toxemias of Pregnancy. L. E. Savel.—p. 505.
Preliminary Evaluation of Dienestrol in Menopause. Rita S. Finkler and Sylvia Becker.—p. 513.
Absorption of Penicillin from Vagina. M. A. Goldberger, R. I. Walter and L. S. Lapid.—p. 529.

Pregnancy in Patient with Hypertensive Disease.—Chesley and Annitto collected from the files of their hospital records of women in whom recorded blood pressures before the twenty-fourth week of gestation permit the diagnosis of "hypertensive toxemia." In the thirteen year period from October 1931 through 1944 there were 301 pregnancies occurring in 218 women in whom the diagnosis of hypertensive disease could be established. Fetal loss in prior pregnancies was 35 per cent, in first hypertensive pregnancy 38 per cent, in subsequent pregnancies 40 per cent. Fetal loss increased with higher initial blood pressure, second trimester rises in blood pressure, higher pressures near delivery, decreased renal function, proteinuria and superimposed toxemia. Of 47 sisters of these hypertensive patients who were delivered at the hospital 45 per cent had at least one toxic pregnancy. Nearly 40 per cent of the hypertensive patients showed drops in the blood pressure in midpregnancy. Proteinuria of some degree occurred in half of the pregnancies. Renal function was normal in 93 per cent of the pregnancies. Premature separation of the placenta occurred in 5.6 per cent of the pregnancies. There were 13 immediate and late puerperal deaths among the 301 women. Of these 13 fatalities 8 were probably associated with hypertensive disease, while 5 were attributable to intercurrent causes.

Problem of Talcum Glove Powder.—As the result of studies on scars Douglass believes that many cases exhibiting postoperative incisional pain and tenderness may be charged to inflammatory reaction generated by magnesium silicate crystals deposited by the gloved hands or drains at the time of operation. Until a substance is found that does not have the disadvantages of magnesium silicate, the author advises that only enough magnesium silicate powder be applied to the inside of the gloves before dry sterilization to avoid the adhesion of their surfaces during the sterilizing process. Cream of tartar is applied to the hands in small quantities, enough to assist the hands into the sterile gloves. All powder remaining on the external surface of the gloves is removed by washing through two basins of sterile water.

American Journal of Physiology, Baltimore

148:531-764 (March) 1947. Partial Index

Application of Radioactive Red Cell Method for Determination of Blood Volume in Humans. G. R. Meneely, E. B. Wells and P. F. Hahn.—p. 531.
Sodium Therapy of Experimental Tourniquet Shock. H. N. Harkins.—p. 538.
Importance of Afferent Nervous Factor in Experimental Traumatic Shock: Effect of Chronic Deafferentation. S. C. Wang.—p. 547.
Prothrombin a Unitary Principle or a Complex? E. C. Loomis and W. H. Seegers.—p. 563.
Distribution and Movements of Carbon Dioxide and Chloride Between Cells and Serum of Oxygenated Human Blood. J. P. Peters, M. Tulin, T. S. Danowski and Pauline M. Hald.—p. 568.
Metabolism of Glucose in Starvation and Water Deprivation. A. Wollenberger and M. A. Linton Jr.—p. 597.
Effect of Restricted Caloric Intake on Longevity of Rats. W. H. Riesen, E. J. Herbst, Catherine Walliker and C. A. Elvehjem.—p. 614.
Effects in Young Men Consuming Restricted Quantities of B Complex Vitamins and Protein, and Changes Associated with Supplementation. G. H. Berryman, C. R. Henderson, N. C. Wheeler and others.—p. 618.
Renal Hyperemia in Dogs Induced by Oral Administration of Cinchona Alkaloids. E. P. Hiatt and Virginia Suhrie.—p. 684.
Influence of Thyroid Hormone on Effector Systems of Mammalian Heart. F. Hoffman, Elena J. Hoffman and J. Talesnik.—p. 689.
Further Studies on Antigonadotropin Formation Following Gonadotropic Hormone Administration. J. H. Leathem.—p. 700.
Studies on Permeability of Leukocyte. J. L. Tullis.—p. 708.
Difference in Action of Parasympathetic Drugs in Application to Serosa or Mucosa of Isolated Intestine. A. E. Meyer and Jean P. McEwen.—p. 715.
Study of Coronary Flow Under Conditions of Hemorrhagic Hypotension and Shock. D. F. Opdyke and R. C. Foreman.—p. 726.
Phasic Changes in Inferior Cava Flow of Intravascular Origin. R. W. Eckstein, C. J. Wiggers and G. R. Graham.—p. 740.
Comparison of Changes in Inferior Cava Flow After Hemorrhage and Circulatory Failure Following Transfusion. R. W. Eckstein, G. R. Graham, I. M. Liebow and C. J. Wiggers.—p. 745.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

57:281-408 (March) 1947

Radium Treatment of Cancer of Cervix: Historical Review. Janeway Memorial Lecture. F. W. O'Brien.—p. 281.
Aerosinusitis, with Special Reference to Roentgen Diagnosis. J. A. Cocke.—p. 298.
*Roentgenologic Findings in Myasthenia Gravis Associated with Thymic Tumor. C. A. Good.—p. 305.
*Myelosclerosis with Leukoerythroblastic Anemia. M. L. Sussman.—p. 313.
Lacunar Skull (Lückenschädel) of Newborn: Report of 7 Cases. R. G. Karshner and D. L. Reeves.—p. 321.
Amebiasis: Roentgen Study of Relatively Early Gastrointestinal Findings. P. J. Hodes and L. Mammoser.—p. 329.
Benign Ulcer of Fourth Portion of Duodenum. G. J. Culver, T. F. Frawley and W. J. Goade.—p. 333.
Nephrography. H. S. Weens and T. J. Florence.—p. 338.
Massive Congenital Hydronephrosis: Case Report. W. C. Hall and E. A. Ockuly.—p. 342.
Significance of Retracted and Curved Horizontal Fissure of Lungs. R. E. Dwork.—p. 344.
Fractures of Ribs, with Comparison of Standard and One-Film Two-Exposure Technic. F. Liberson.—p. 349.
Avascularization of Astragalus. D. C. Weir.—p. 355.
Double Uterus: Report of Case. W. G. Herrman.—p. 357.
Biologic Evaluation of 20 Million Volt Roentgen Rays: II. Decoloration of Hair in Mice. H. B. Chase, H. Quastler and L. S. Skaggs.—p. 359.
Oil Circulation in Diagnostic Roentgen Tubes. R. H. Morgan and W. W. Van Allen.—p. 362.

Roentgenologic Findings in Myasthenia Gravis.—Good made a study of 100 consecutive cases of myasthenia gravis that had been observed at the Mayo Clinic since 1941. In 17 of these roentgenologic examination disclosed a tumor in the anterior mediastinum. Exploratory operation was performed in 11 cases and necropsy in 3 other cases. Microscopic examination in all but 1 case demonstrated that the tumor originated in the thymus. Thymic tumors found in this series have been grouped into two classes according to the ease of roentgenologic recognition. One type is well defined and is easily seen in all roentgenograms. The other type is plaque-like in shape and is easily overlooked. In order not to overlook thymic tumors the recommended roentgenologic procedure consists in roentgenoscopy and lateral roentgenograms of the thorax as well as the more customary stereoscopic roentgenograms made in the frontal projection.

Myelosclerosis with Leukoerythroblastic Anemia.—Sussman presents the histories of 9 patients in whom myelosclerosis was demonstrated roentgenologically in the presence of leukoerythroblastic anemia. This type of myelosclerosis is usually characterized by an increase of megakaryocytes and platelets and for this reason it is sometimes designated as megakaryocytic leukemia. Differentiation from other conditions associated with myelosclerosis is not difficult. Although the disease may be chronic, there is usually progression into frank leukemia as seen at postmortem examination.

Anesthesiology, New York

8:113-226 (March) 1947

Analgesia and Anesthesia in Obstetrics. C. S. Hellijas, R. M. Tovell and K. R. Holt.—p. 113.
Cell Respiration and Fermentation: Background for Study of Narcotic Action. J. Field.—p. 127.
Clinical Use of Metopryl as Anesthetic Agent. A. J. Fisher and R. J. Whitacre.—p. 156.
Respiratory Reflex Originating from Thoracic Wall of a Dog. R. W. Whitehead and W. B. Draper.—p. 159.
Deterioration of Solutions of Pentothal Sodium. M. H. Robinson.—p. 166.
*Use of Curare in Infants and Children. S. M. Smith.—p. 176.
Hypobaric Pontocaine Spinal Anesthesia: 1,640 Consecutive Cases. P. C. Lund and A. C. Rumball.—p. 181

Curare for Infants and Children.—Smith used curare in the treatment of 41 infants and children who ranged in age between 20 hours and 30 months and in weight between 4½ and 29 pounds (2 and 13 Kg.). Intocostrin was used in 8 cases and d-tubocurarine chloride in 33 cases. These curare preparations were given intravenously to 15 patients, intramuscularly to 21 and by other routes to 5. The initial dose varied from 4 to 44 units. The supplemental dose ranged from 2 to 20 units. The total dose varied from 0.16 to 3.6 units per pound. The interventions included Rammstedt's operation, appendectomy, splenectomy and 15 other intra-abdominal procedures, also herniorrhaphy and repair of diaphragmatic hernia. Atropine was given as the sole premedication to 9 patients. Two other patients had atropine and morphine, 2 had atropine and phenobarbital sodium and 28 received no premedication. No difficulty was encountered when atropine was not administered. The operative conditions and postoperative results were excellent. In view of the conclusive demonstration that curare has no significant central depressant or analgesic action, the author believes that curare should always be employed in combination with agents capable of producing analgesia or anesthesia.

Annals of Internal Medicine, Lancaster, Pa.

26:341-488 (March) 1947

Separation of Blood into Fractions of Therapeutic Value. E. J. Cohn.—p. 341.
*Use of Gamma Globulin from Large Pools of Adult Blood Plasma in Certain Infectious Diseases. J. Stokes Jr.—p. 353.
*Hemophilia: Clinical Use of Antihemophilic Globulin. G. R. Minot and F. H. L. Taylor.—p. 363.
Other Uses of Plasma Fractions, with Particular Reference to Serum Albumin. C. A. Janeway.—p. 368.
Bronchiogenic Carcinoma: Analysis of 343 Cases. R. K. Hollingsworth.—p. 377.
Rehabilitation: Wartime Lessons Applied to Peacetime Needs. H. A. Rusk.—p. 386.
Penicillin in Treatment of Neurosyphilis: IV. Cerebrospinal Fluid Changes in Cases of Symptomatic Neurosyphilis. F. W. Reynolds.—p. 393.
Management of Infectious Hepatitis. R. B. Capps and M. H. Barker.—p. 405.
Reflex Sympathetic Dystrophy: Report on 57 Cases. J. A. Evans.—p. 417.
Spondylosis and Spondylarthritis. J. Borak.—p. 427.

Gamma Globulin from Large Pools of Blood in Infectious Diseases.—Stokes points out that the protein fraction of blood plasma termed gamma globulin has assumed a greatly enhanced significance as a result of the fractionation of plasma and of the pooling of plasma for fractionation from hundreds of thousands of blood donors under the system of blood collection inaugurated by the American Red Cross. The large size of the plasma pools tends to assure a surprisingly uniform titer of antibodies against the infectious agents endemic to the geographic area in which the blood donors reside. Gamma globulin from fractionated pools of plasma concentrates and preserves such antibodies in a readily usable form, which thus far apparently has been free from the danger of serum hepatitis. The amount of specific protective antibodies in the gamma globulin and their effectiveness against various epidemic diseases obviously differs. The author discusses the value of gamma globulin in measles, mumps, infectious hepatitis and poliomyelitis.

Antihemophilic Globulin.—Minot and Taylor say that in addition to decreasing the coagulation time of hemophilic blood by the use of globulin preparations progress has been made in the development and utilization of thrombin preparations for the control of hemorrhage. The introduction of such hemostatics has materially lowered the dangers attendant on surgical operations on hemophilic patients.

Archives of Internal Medicine, Chicago

79:253-364 (March) 1947

Present Status of Problem of Amebiasis. E. C. Albright and E. S. Gordon.—p. 253.
*Hemolytic Streptococcic Sore Throat: Course of Acute Disease. L. A. Rantz, W. W. Spink and P. J. Boisvert.—p. 272.
*Bronchogenic Adenoma: Benign Tumor of Bronchus. B. M. Fried.—p. 291.
Primary Hypertrophy and Hyperplasia of Parathyroid Glands Associated with Duodenal Ulcer: Report of Additional Case, with Special Reference to Metabolic Gastrointestinal and Vascular Manifestations. H. M. Rogers, F. R. Keating Jr., C. G. Morlock and N. W. Barker.—p. 307.
Coincidence of Diabetes Mellitus and Hypopituitarism. F. Feldman, J. B. Roberts, S. Susselman and B. Lipetz.—p. 322.
*Penicillin Therapy of Subacute Bacterial Endocarditis: Study of End Results in 34 Cases, with Particular Reference to Dosage, Methods of Administration, Criteria for Judging Adequacy of Treatment and Probable Reasons for Failures. W. S. Priest, J. M. Smith and C. J. McGee, with technical assistance of Irene Gilbert and Dolores Kenney.—p. 333.

Acute Hemolytic Streptococcic Sore Throat.—Rantz and his co-workers described in an earlier paper the initial phase of acute sore throat caused by group A hemolytic streptococci in young men. They now report the subsequent events which occurred in this group of patients during the initial phase of the disease and the suppurative complications that followed. The degree and duration of fever and the initial erythrocyte sedimentation rate were poorly correlated with the degree of physical abnormality of the throat and neck. A more prolonged febrile illness occurred if a cutaneous rash was present. The initial leukocyte count varied with the severity of the acute disease. A rash occurred only when the infecting streptococcus was of type 3, 17, 19 or 30. The disease caused by six serologic types was otherwise similar. Several therapeutic regimens involving the administration of sulfadiazine and penicillin alone and in combination were utilized. None effectively terminated the disease or consistently eradicated the hemolytic streptococcus from the nose and throat.

Bronchogenic Adenoma.—Fried points out that bronchogenic adenoma is the commonest benign bronchial tumor, comprising from 6 to 12 per cent of all bronchial neoplasms. It is prevalent in patients in the third and fourth decades and occurs oftener in women and more frequently on the right side. It occurs in bronchi accessible to inspection with the bronchoscope. Therapy applied in the early stages eradicates the disease, while dilatoriness is fraught with dangerous complications, such as putrid abscess and bronchiectasis, pneumonitis and empyema.

Penicillin Therapy of Subacute Bacterial Endocarditis.—Priest and his associates review the end results obtained in 34 unselected cases of subacute bacterial endocarditis in which the patients were treated with penicillin. Twenty-two are alive and free from evidence of the disease from thirteen to thirty-five months after completion of treatment. Duration of the disease ranged from one and a half to fifty-two weeks before admission. Streptococcus viridans predominated as the offending organism, but six other organisms were encountered. Administration of penicillin in isotonic solution of sodium chloride by continuous intravenous drip was found superior to intermittent intramuscular injection in the maintenance of constant adequate blood levels and of the patient's comfort. To increase the dose of penicillin seems simpler than to use para-aminohippuric acid or diodrast to retard the rate of excretion from the kidneys. No clinical or histologic evidence was found to favor the use of anticoagulants. The danger of fatal hemorrhage suggests caution in their use. Adequate daily dosage over a sufficiently long period is the most important single factor in treatment. With the use of the continuous intravenous drip the minimal efficacious dose is 500,000 units per day, with administration of 1,000,000 to 2,000,000 units per day or more if clinical criteria dictate or if the disease is of over twelve weeks' duration. If intermittent intramuscular injection is the only feasible method, minimal doses of 100,000 units at ninety minute intervals are recommended. Treatment should be continued for not less than four weeks.

Archives of Ophthalmology, Chicago

37:261-402 (March) 1947

*Associated Systemic Factors in Retinitis Pigmentosa. I. Givner and M. Bruger.—p. 261.
Use of Frozen-Dried Cornea as Transplant Material. I. H. Leopold and F. H. Adler.—p. 268.
Modified Corneal Incision with Iridodialysis and Iridectomy for Opening Anterior Chamber Angle. F. C. Parker.—p. 277.
Hemifacial Spasm: Report of 2 Cases. D. M. Gordon.—p. 282.
Complete Unilateral Ophthalmoplegia Due to Primary Carcinoma of Sphenoidal Sinus: Sphenoidal Fissure-Optic Canal Syndrome with Complete Ophthalmoplegia; Report of Case. I. S. Tassman.—p. 294.
Treatment of Late Postoperative Intraocular Infections with Intraocular Injection of Penicillin. J. Schneider and S. S. Frankel.—p. 304.
Pseudo-Graefe Phenomenon. J. Ferreira Filho, translated from the Portuguese by E. Ressencourt.—p. 308.
Buphthalmos in Six Month Premature Infant. D. Wexler and A. Kornzweig.—p. 318.
Pathogenesis of Glaucoma and "Glaucomatous" Atrophy of Optic Nerve. L. Hess.—p. 324.
Sensorial Retinal Relationship in Concomitant Strabismus. H. M. Burian.—p. 336.
Congenital Vertical Motor Pareses. G. J. Epstein.—p. 369.
Primary Tuberculosis of Conjunctiva. G. M. Bruce and D. Locatcher-Khorazo.—p. 375.

Associated Systemic Factors in Retinitis Pigmentosa.—Givner and Bruger studied the basal metabolism, pressure and chemistry of the spinal fluid, vitamin content of the blood plasma, hepatic function, serum cholesterol, creatinine and creatine in the urine, pupillary reactions, the auditory apparatus and the capillaries of 14 patients with retinitis pigmentosa. The basal metabolic rate was mostly normal or slightly below. Eleven patients had creatinuria. This series included 8 males and 3 females. The spinal fluid pressure was increased in 3 of 12 patients, but readings in most of the other patients bordered on the upper limit of normal rather than falling at the lower levels. *In 3 of 12 patients the total protein content of the spinal fluid* was increased. Hepatic damage was not demonstrable in any of the 12 patients investigated. The fasting ascorbic acid content of the plasma was reduced in 7 of 9 patients. Vitamin A studies on the serum of 7 patients gave normal values. In 11 patients pupillographic studies showed tonohaptic reactions and other evidences of diencephalic disorders. Analysis of the blood for retention of urea nitrogen and determination of the specific gravity of the urine after administration of pitressin failed to reveal measurable impairment in the renal function of 13 patients. Physical examination, including neurologic studies, gave essentially normal findings except for the high incidence of high-arched palate and nerve deafness, as revealed by audiometric tests. Seven of 8 patients thus studied revealed impairment of hearing. Two patients were deaf-mutes. Examination failed to reveal abnormalities in the capillaries of the finger bed.

Bulletin of U. S. Army Med. Dept., Washington, D.C.

7:247-330 (March) 1947

Psychiatric Survey at Nuremberg Trials. W. H. Dunn.—p. 274.
Medical Experiences as Prisoner of War in Germany. A. L. Cochrane.—p. 285.
Ankylosing Spondylitis: Report of 30 Cases. S. Solomon.—p. 291.
Fatigue in B-29 Crewmen. H. A. Zimmerman.—p. 304.
Methyl Bromide Delousing, DDT Insecticides and Rodent Control Problems at New York Port of Embarkation. H. H. Richardson.—p. 308.
Neurosis and Group Motivation. M. Stein.—p. 317.

7:331-412 (April) 1947

Bronchogenic Carcinoma. H. S. Van Ordstrand.—p. 350.
Lessons from Military Psychiatry for Civilian Psychiatry. W. C. Menninger.—p. 356.
Treatment of Shock by Intra-Arterial Infusion. I. H. Page.—p. 366.
Tetanus in the United States Army in World War II. A. P. Long and P. E. Sartwell.—p. 371.
Psychiatrist in an Armored Division. E. W. Mericle.—p. 386.

California Medicine, San Francisco

66:107-212 (March) 1947

Carcinoma of Stomach. T. F. Mullen.—p. 107.
What Can Internist Do to Get More Early Cases of Carcinoma of Stomach to the Surgeon? C. D. Mote.—p. 108.
What Does Gastroscopy Offer in Early Diagnosis of Cancer of Stomach? R. Schindler.—p. 110.
Problems in X-Ray Diagnosis of Early Cancer. K. S. Davis.—p. 117.
Recent Advances in Surgical Treatment of Cancer of Upper End of Stomach. G. W. Nagel.—p. 118.
Radical Surgical Treatment of Gastric Cancer. G. T. Pack.—p. 120.
Use of Thymol Turbidity Test as Aid in Diagnosis of Dysfunctions of Liver. D. C. Dodds.—p. 125.
Physiologic Basis for Treatment of Intractable Asthma. H. Miller.—p. 128.
Management of Patients with Various Types of Goiter. M. H. Soley.—p. 131.

Delaware State Medical Journal, Wilmington

19:23-40 (Feb.) 1947

Diagnosis of Intraocular Tumors: Demonstration of Kodachrome Slides. A. J. Bedell.—p. 23.
Hyaluronidase. O. J. Pollak.—p. 27.
Skin Test to Measure Susceptibility to Whooping Cough: Preliminary Report. G. J. Boines.—p. 29.

Florida Medical Association Journal, Jacksonville

33:467-532 (March) 1947

Functional Disorders of Menstruation. C. J. Collins.—p. 497.

33:533-594 (April) 1947

Discussion of Relationships Between Endocrinology and Legal Medicine. C. P. Lamar.—p. 563.
Cancer Control Agencies. L. J. Netto.—p. 568.

Journal of Clin. Endocrinology, Springfield, Ill.

6:769-868 (Dec.) 1946

*Effect of Testosterone Propionate on Carcinoma of Female Breast with Soft Tissue Metastases. J. B. Herrmann and F. E. Adair.—p. 769.
Craniopharyngioma with Panhypopituitarism: Case Report with Clinical and Pathologic Study. T. H. McGavack, Andrea Saccone, Mildred Vogel and R. Harris.—p. 776.
Bilateral Cryptorchism in Identical Twins. S. J. Glass.—p. 797.
*Chronic Cystic Mastitis and Sterility. J. H. Morton.—p. 802.
Use of Methyl Testosterone in Treatment of Premature Infants. E. K. Shelton and A. E. Varden.—p. 812.
Gastric Dysfunction of Hypoestrogenic Origin: Treatment with Benzestrol. A. R. Hufford.—p. 817.

Effect of Testosterone Propionate on Metastases of Carcinoma of Breast.—Herrmann and Adair administered testosterone propionate in doses which influence osseous metastases to 3 patients with soft tissue metastases. These doses proved ineffective. One patient showed temporary regression of the lesions. Massive daily doses of the androgen were administered to 3 other patients. One of these patients showed striking regression of the lesions. The administration of large amounts of androgen apparently had no effect on the subsequent response of lesions to roentgen therapy. During the time testosterone propionate was administered, there was in every patient, except 1, an increase in weight which was lost subsequent to the withdrawal of the androgen. Facial hirsutism, deepening of the voice, acne and an increase in libido were encountered in all the patients.

Chronic Cystic Mastitis and Sterility.—According to Morton, chronic cystic mastitis is the result of a relative or absolute excess of estrogens producing abnormal proliferation of the mammary ducts. Although the estrogenic level may be within normal limits, pregnandiol has been shown to be low or absent. Review of the literature reveals evidence indicating the endocrine origin of chronic cystic mastitis, but no suggestion of a relationship between this condition and infertility could be found. In 24 infertile women with mammary dysplasia there was a parallelism between the occurrence of chronic cystic mastitis and an absent or poorly developed secretory endometrium. This indicates that the endometrial and mammary abnormalities are both manifestations of disturbed estrogen-progesterone balance. Both this group and a second group of 15 patients complaining of mammary symptoms alone responded to treatment with chorionic gonadotropin, with improvement or disappearance of the chronic cystic mastitis. Of the 24 infertile women 8 subsequently became pregnant.

Journal of Immunology, Baltimore

55:205-308 (March) 1947

Effect of Heat on Antihemocyanin. Edna M. Follensby and S. B. Hooker, with assistance of Elizabeth T. Leach and Margaret C. Derow.—p. 205.
Studies on Nature of Antibodies Produced in Vitro from Bacteria with Hydrogen Peroxide and Heat. E. C. Rosenow.—p. 219.
Immunization of Humans and Animals with Gas Gangrene Toxoids. A. A. Tytell, M. A. Logan, Alice G. Tytell and J. Tepper.—p. 233.
Studies on Botulinum Toxoid, Types A and B: I. Production of Alum Precipitated Toxoids. Clara Nigg, G. A. Hottle, L. L. Coriell, A. S. Rosenwald and G. W. Beveridge.—p. 245.
Id.: II. Methods for Determining Antigenicity in Animals. G. A. Hottle, Clara Nigg and J. A. Lichty.—p. 255.
*Comparative Study of Pathogenicity and Antigenicity of Four Strains of Herpes Simplex. A. L. Florman and F. W. Trader.—p. 263.
Clinical Behavior, Incubation Period and Pathology of Tetanus Induced in White Swiss Mice by Injection of Crystalline Tetanal Toxin. L. Pillemer and W. B. Wartman.—p. 277.
Size and Morphology of Elementary Bodies of Psittacosis Lymphogranuloma Group of Viruses. T. J. Kurotchkin, R. L. Libby, E. Gagnon and H. R. Cox.—p. 283.
Effect of Tris(Beta-Chloroethyl)amine on Antibody Production in Goats. F. S. Philips, Frances H. Hopkins and M. L. H. Freeman.—p. 289.
Immunologic Relationship of Mammary Carcinomas Developing Spontaneously in Female Mice of High Tumor Line. L. Gross.—p. 297.

Pathogenicity and Antigenicity of Strains of Herpes Simplex.—Florman and Trader made comparative studies of pathogenicity and antigenicity of four strains of herpes simplex in order to investigate some of the differences which may exist between strains of a single viral species. Mice, rabbits, guinea pigs, white rats, hamsters, cotton rats and chick embryos were observed after inoculation of mouse brain emulsions by various routes. Although herpes simplex is a pantropic virus, differences between strains are accentuated by certain tests. Thus, death of the majority of animals following corneal infection of the rabbit or intranasal inoculation of the cotton rat can be used to indicate strains with prominent neurotropic tendencies, while severe local reactions after intradermal injection of the guinea pig are indicative of dermatotropism. These distinctions probably hold only for the particular species of animals and routes tested, as the strain which was most dermatotropic in the laboratory was the cause of fatal encephalitis in a human being. It is not known whether these differences in potentiality of herpes strain are of epidemiologic significance.

Journal of Investigative Dermatology, Baltimore

8:123-182 (March) 1947

Virus Studies on Cutaneous Material: Inoculation of Chick Chorioallantoic Membrane with Material from Cutaneous Lesions. Z. Felsher.—p. 123.
Allergic Eczematous Contact Type Dermatitis Caused by DDT. M. Leider.—p. 125.
*Erythema Multiforme Exudativum Personal Observations of Cases in Willard Parker Hospital for Contagious Diseases (1932-1946). M. J. Costello.—p. 127.
*Primary Systematized Amyloidosis with Macroglossia: Syndrome Related to Bence-Jones Proteinuria and Myeloma. L. A. Brunsting and I. D. MacDonald.—p. 145.
Impetigo Contagiosa Treated Parenterally with Penicillin-Beeswax. Major T. H. Finkle.—p. 167.
Improved Method for Diagnosing Pemphigus. D. I. Macht and M. Ostro.—p. 171.
Dermatitis Following Paratoluylenediamine Hair Dye. Margaret W. Lawrence.—p. 177.

Erythema Multiforme Exudativum.—Thirty-three cases of erythema bullosum malignans of the pluriorificial type occurred at Willard Parker Hospital for Contagious Diseases between 1932 and June 1946. Of the cases selected for study by Costello, 17 are reported in detail with one complete postmortem examination. Destructive lesions of the cornea and conjunctiva terminating in grave ocular sequelae such as panophthalmitis and blindness were the most urgent features which required constant ophthalmologic care. Vaginal and urethral stenosis occurred in 2 cases. Three patients died and 1 became blind. An upper respiratory onset occurred in over half the patients. A virus cause is suspected. The relatively large number of patients suffering from this disease were admitted to Willard Parker Hospital for Contagious Diseases because of the resemblance of this dermatosis to such contagious diseases as chickenpox, measles, influenza, agranulocytic angina and pemphigus. The treatment is symptomatic. Penicillin was administered to 2 patients and aided in their recovery.

Systematized Amyloidosis with Macroglossia.—Brunsting and MacDonald present the record of 4 patients which illustrates the characteristic signs and symptoms of the rare syndrome of systematized amyloidosis of the skin and muscles with widespread involvement of the skin and with macroglossia. In 2 instances necropsy revealed extensive deposits of amyloid in the heart and the musculature of the gastrointestinal tract, while the liver, spleen, kidneys and adrenals were spared, for the most part. The relation between amyloidosis and multiple myeloma is brought out by the demonstration of Bence Jones proteinuria and of abnormal cells of plasmocytoma in the bone marrow. Emphasis is placed on biopsy of the skin, tongue and skeletal muscles; vital staining of amyloid in the skin by the subcutaneous injection of congo red; examination of the urine for Bence Jones protein as well as of the blood proteins, including the albumin-globulin ratio; roentgenograms of the bones, and sternal aspiration in search of plasmocytoma in the bone marrow. The evidence presented confirms that amyloidosis and myeloma are part of the same systemic process, the origin of which remains obscure.

Journal of Lab. and Clinical Medicine, St. Louis

32:223-348 (March) 1947

Blood Transfusion Studies: III. Relationship of Hemoglobinemia and of *p*H of Urine to Renal Damage Produced by Injection of Hemoglobin Solutions into Dogs. E. B. Flink.—p. 223.
*Treatment of Pernicious and Related Anemias with Synthetic Folic Acid: I. Observations on Maintenance of Normal Hematologic Status and on Occurrence of Combined System Disease at End of One Year. C. F. Vilter, R. W. Vilter and T. D. Spies.—p. 262.
Studies of Distribution of Intravenously Administered Colloidal Sols of Manganese Dioxide and Gold in Human Beings and Dogs Using Radioactive Isotopes. C. W. Sheppard, E. B. Wells, P. F. Hahn and J. P. B. Goodell.—p. 274.
Effect of Pregnancy on Complement of Guinea Pigs. E. E. Ecker, C. W. Hiatt and L. M. Barr.—p. 287.
Toxicity Studies of α (4-Hydroxy-3,5-Diiodo-Benzyl-N-Butyric Acid) and α (4-Hydroxy-3,5-Diiodo-Benzyl-N-Caproic Acid): Compounds Proposed as Gallbladder Contrast Agents. D. M. Grayzel and S. Natelson.—p. 292.

Synthetic Folic Acid in Pernicious and Related Anemias.—According to Vilter and his associates folic acid in doses of 10 to 15 mg. daily or 30 mg. three times a week given orally maintained 21 persons with pernicious anemia in apparent hematologic remission for one year. Three patients with pernicious anemia whose treatment was begun during a relapse responded satisfactorily. Folic acid given orally controlled the manifestations of sprue in 2 persons for one year, nutritional macrocytic anemia in 1 person for seven months and macrocytic anemia secondary to ileosigmoidostomy in 1 person as/or more effectively than liver extract. Folic acid in doses of 10 to 50 mg. daily did not prevent the development of neurologic signs, and doses of from 100 to 500 mg. daily did not stop the progression of the neurologic symptoms, when liver extract promoted rapid improvement. These observations suggest that an unknown factor or factors in liver other than folic acid are essential for maintaining the integrity of the central and peripheral nervous systems in persons with pernicious anemia. Folic acid cannot be considered satisfactory or complete treatment for pernicious anemia and should not replace potent liver extract in the routine treatment.

Journal of Nervous and Mental Disease, New York

105:221-342 (March) 1947

Diagnostic Evaluation of Early Schizophrenia. P. Polatin and P. Hoch.—p. 221.
Serratus Magnus Palsy, with Report of 5 Cases. F. C. Ansanelli.—p. 231.
Psychosynthesis of Amnesia: Report of 2 Cases Treated by Hypnosis. G. D. Weickhardt and K. H. Langenstrass.—p. 238.
Growth Concept of Nervous Integration: VI. B. On Imagined Hearing: Second Contribution to New Theory of Hearing. A Proposed Solution for Dilemma of Taste Physiology. The Integrative Function of Tractus Solitarius and Its Relation to Ego, Superego and Id Systems. Summary of Growth Concept of Nervous Integration. D. E. Schneider.—p. 255.
Study in Attempted Suicide. J. D. Teicher.—p. 283.
Study of Suicidal Soldiers in European Theater After VE Day. W. H. Kupper.—p. 299.

Journal of Neurophysiology, Springfield, Ill.

10:89-164 (March) 1947. Partial Index

Decerebrate Rigidity. A. A. Ward Jr.—p. 89.
Injury Potentials Along Peripheral Nerves in Relation to Histologic Structure. B. Rexed.—p. 113.
Effect of Afferent Impulses on Cortical Suppressor Areas. E. Gellhorn.—p. 125.
Prolonged Facilitation of Synaptic Excitation in Sympathetic Ganglia. M. G. Larrabee and D. W. Bronk.—p. 139.
Effect of Di-isopropyl Fluorphosphate (DFP) on Action Potential and Cholinesterase of Nerve. H. Grundfest, D. Nachmansohn and M. A. Rothenberg.—p. 155.

Journal of Pediatrics, St. Louis

30:229-370 (March) 1947

*Effects of Maternal Undernutrition on the Newborn Infant in Holland (1944-1945). C. A. Smith.—p. 229.
Infantile Mortality in Budapest in Year 1945: As Reflected by Material of Children's Clinic of University. E. Kerpel-Fronius.—p. 244.
*Children Born During the Siege of Leningrad in 1942. A. N. Antonov.—p. 250.
*Airblock in the Newborn Infant. G. W. Salmon, G. B. Forbes and H. Davenport.—p. 260.
Sulfadiazine Prophylaxis in Children and Adolescents with Inactive Rheumatic Fever. Janet S. Baldwin.—p. 284.
Cardiopathy of Sickle Cell Anemia and Its Differentiation from Rheumatic Carditis. Barbara Cutting Halpern and H. K. Faber.—p. 289.
Factors in Etiology of Congenital Heart Anomalies. I. Dogramaci and H. Green.—p. 295.
Dacryostenosis. H. W. Price.—p. 302.
Intestinal Obstruction of Newborn: Report of 5 Patients Successfully Relieved by Surgery.—p. 306.
General Anesthesia in Difficult Pedodontic Patient. Mary Karp and G. W. Teuscher.—p. 317.

Effects of Maternal Undernutrition on Newborn Infants.—Smith points out that during the six or seven months which preceded the liberation of northwestern Holland in May 1945 a state of severe undernutrition was prevalent. The effects of this nutritional crisis on the infant at birth were investigated especially in the cities of Rotterdam and The Hague. During the period, and apparently because of the low food supply, about 50 per cent of urban women became amenorrheic and presumably infertile. The birth weights of infants decreased and rose after restoration of food in a manner indicating that fetal weight gain is particularly related to the maternal diet of the last half or last trimester of pregnancy. Significant decline in length also occurred but was less clearly apparent than the change in weight. No conclusions could be drawn with regard to the frequency of abortion, while that of prematurity was insignificantly increased. Stillbirth was definitely not increased, nor was neonatal mortality among infants born in hospitals. A slight but statistically insignificant increase in malformations did occur. Several of these results are widely at variance with those of other studies, so that great caution must be used in evaluating the maternal-fetal aspects of nutrition.

Children Born During Siege of Leningrad.—Antonov states that during the severe hunger period in the first half of 1942 the stillbirth rate rose to 5.6 per cent, twice the normal figure; the rate of premature births reached the unusually high figure of 41.2 per cent. The average weight of infants born at term in the first half of 1942 was 500 to 600 Gm. less than normal. The physiologic loss of weight continued longer than usual; the average loss exceeded the usual figure. The morbidity of the newborn was unusually high, 32.3 per cent, owing in part no doubt to their low vitality. The most frequent diseases were scleredema, sclerema and pneumonia. The mortality of the newborn was unusually high, 9 per cent for those born at term and 30.8 per cent for those born prematurely. Antonov does not contradict the prevailing opinion that the fetus behaves like a parasite in the mother's body, but on the basis of this material he concludes that the condition of the host, the mother's body, is of great consequence to the fetus, and that severe hunger of the mother affects decidedly the development of the fetus and the vitality of the newborn child.

Airblock in Newborn Infants.—Salmon and his co-workers are concerned with the condition produced by escape of air from the normal respiratory pathways into tissues in which it is not normally present. They believe that this condition, which has been designated as airblock, is frequently unappreciated at necropsy. Methods of postmortem examination used in the newborn period should include measures to detect the presence of aberrant air. In newborn infants interstitial pulmonary air can produce pneumothorax by either of two mechanisms: (*a*) rupturing the visceral pleura directly or (*b*) first producing mediastinal emphysema and then rupturing the mediastinal pleura. The possibility of pulmonary interstitial emphysema producing air embolism needs further investigation, as does also the effect of pulmonary interstitial emphysema on the heart. Factors which may lead to the production of pulmonary interstitial emphysema are not infrequently present in the newborn period. The incidence of pulmonary interstitial emphysema in this period is undoubtedly higher than is commonly believed.

Kentucky Medical Journal, Bowling Green

45:57-88 (March) 1947

Summer Diarrhea of Infants and Children in Office Practice. L. C. Hall.—p. 63.
Minor Surgery: Some Considerations That May Interest Family Physician. C. C. Sparks.—p. 69.
Traumatic Diaphragmatic Hernia. R. W. Robertson.—p. 74.

45:89-126 (April) 1947

Antepartum Bleeding. R. F. Monroe.—p. 92.
Postoperative Care of Surgical Patient. J. T. Funk.—p. 97.
Recent Advances in Surgery. D. W. Barrow.—p. 102.
Dr. Hume's Birthday. L. T. Minish.—p. 106.
Salt Intoxication: Report of Case. E. P. Scott and C. C. Rotondo.—p. 107.
The Kidney and Hypertension. H. E. Martin.—p. 110.

New England Journal of Medicine, Boston

236:383-418 (March 13) 1947

Arthritis in Mediterranean Theater of Operations: I. Incidence of Joint Disease—Clinical Description of Rheumatoid Arthritis. C. L. Short.—p. 383.
*Prevention of Postoperative Pulmonary Embolism: Analysis of 52 Fatal Cases in Six Years. J. A. Evans and R. J. Boller.—p. 392.
Neuropathic Foot Lesions in Diabetes Mellitus. C. C. Bailey and H. F. Root.—p. 397.
Synthetic Plastic Materials in Surgery. F. D. Ingraham, E. Alexander Jr. and D. D. Matson.—p. 402.
Mesothelioma of Pleura and Pericardium, with Metastases to Right Lung and Retroperitoneal Lymph Nodes.—p. 407.
Colloid Carcinoma of Sigmoid, with Perforation and Localized Peritonitis.—p. 415.

236:419-456 (March 20) 1947

Second Day Encephalography, with Particular Reference to Size of Ventricles. R. Schatzki, D. H. Baxter and C. E. Troland.—p. 419.
Arthritis in Mediterranean Theater of Operations: II. Clinical Description of Hypertrophic Arthritis, Arthralgia and Psychogenic Rheumatism. C. L. Short.—p. 429.
Mongolism Following Intercurrent Infectious Disease in Pregnancy. T. H. Ingalls and J. A. V. Davies.—p. 437.
Pathology. T. B. Mallory.—p. 438.
Dissecting Aneurysm of Aorta, with Rupture into Pericardium. Cardiac Tamponade.—p. 443.
Subacute Bacterial Endocarditis: Aortic Valve. Cerebral Mycotic Aneurysm, with Subarachnoid Hemorrhage.—p. 445.

Prevention of Postoperative Pulmonary Embolism.—Reviewing 52 fatal cases of postoperative pulmonary embolism, Evans and Boller found that the greatest number occurred in patients 50 to 60 years of age. Fifty-four per cent of the deaths occurred after extensive pelvic or lower abdominal surgery or both. This poses the question of routine prophylactic administration of heparin in Pitkin's menstruum and dicumarol shortly after such major surgical procedures. The variability of the signs and symptoms associated with pulmonary embolism emphasizes that a thrombotic process should be suspected postoperatively in every case of fever or tachycardia or both. Fifty-two per cent of the initial pulmonary emboli occurred between the sixth and sixteenth postoperative days, although a sufficient number occurred before and after that period to make one continuously on the alert for trouble. Routine examination of the legs postoperatively is required for evidence of phlebothrombosis. In 85 per cent of the 52 fatal cases, some preventive measure was indicated by premonitory signs, usually in the form of elevated temperature or tachycardia or both occurring a sufficient time before the fatal embolism to allow adequate therapy to be administered.

Philippine Medical Association Journal, Manila

22:409-448 (Oct) 1946

Paratyphoid Fever. P. T. Lantin —p. 409.
Modern Trends in Urology. D. Antonio Jr.—p 421.
Local Instillations of Penicillin in Chronic Suppurative Maxillary Sinusitis J. Tamesis —p. 425.
Ocular War Injuries A R. Ubaldo and C. V. Yambao —p 429.
Simplified Artificial Infant Feeding P. H. Paulino and J. R. Jimenez —p. 432.

Psychoanalytic Quarterly, Albany, N. Y.

16:1-150 (Jan) 1947

A Lion Hunter's Dreams Marie Bonaparte —p. 1.
The Jew and Adolf Hitler. Gertrud M. Kurth —p 11.
The Jew as Symbol H. Loeblowitz Lennard —p 33
Dreams of 2 Patients in Analysis Interpreted as Telepathic Rêve à Deux J. Eisenbud —p 39.
Telepathy and Repression. Geraldine Pederson Krag.—p 61.
So Called English School of Psychoanalysis E. Bibring —p. 69.

Radiology, Syracuse, N. Y.

48:213-318 (March) 1947

Quality of Radiation in Roentgen Therapy. Carman Lecture. R. R. *Newell —p 215*
Duodenal Mechanism Regulating Motor and Secretory Activity of Stomach. Its Roentgenographic Disturbance in Duodenal Ulcer. J. Gershon Cohen —p 232.
Pericardial Celomic Cysts C. R. Lam —p 239.
Gastrocolic Fistula Complicating Carcinoma of Colon: Case Report. P. Zanca —p. 244
*Rheumatic Mitral Valve Disease Without Cardiac Enlargement. B S Epstein —p 249.
Unilateral Paraspinal Abscess E L Saenger —p 256
Observations on Gunshot Fractures of Mandible A. C Galluccio —p 260
Addition to Technic of Simple Breast Roentgenography. E L Lame and E P. Pendergrass —p 266
Cholecystography: Comparative Study of Oral and Intravenous Contrast Substances. A. A Brewer —p 269.
Late Changes in Mucous Membrane of Irradiated Larynx Their Radiobiologic *Relationship to Subepithelial Connective Tissue and to Retro*gression of Laryngeal Carcinoma Histologic Studies F Windholz. —p 274
Legal Liability for Error in Diagnosis· Roentgenologist and His Employer Held Liable for *Mistaken Diagnosis.* I S. Trostler. —p 282

Rheumatic Mitral Valve Disease Without Cardiac Enlargement.—Epstein asserts that loud apical murmurs diagnostic of mitral valve disease may exist in the absence of cardiac enlargement or changes in the silhouette of the heart, just as it is possible for pronounced cardiac enlargement to be present with minimal and often misinterpreted murmurs If the murmurs are characteristic, the diagnosis of mitral valve disease must be made even in the absence of radiologic criteria Conversely, if there is any enlargement of the heart, the conclusion that organic heart disease is present must be reached It should be recognized by both the radiologist and the clinician that in mitral valve disease there may be no visible alteration in the x-ray appearance of the heart, just as murmurs may be absent or atypical.

Review of Gastroenterology, New York

14:149-210 (March) 1947

Sarcoma of Liver. Disadvantages of Thorotrast as Diagnostic Agent. H. E MacMahon, A S Murphy and Margaret I Bates —p 155
Transpleural Bilateral Vagotomy W. R Morrison —p 159
Chronic Cholangitis W. Nimeh —p. 165
Experiences with Beta (4 Hydroxy 3, 5 Diiodophenyl) Alpha Phenyl Propionic Acid (Priodax) Dye for Cholecystography. M Feldman —p 168
Belladonna and Barbiturates in Gastrointestinal Spasticity. R I Kilstein —p 171
*Gastritis in the Toothless A Rodriguez Olleros H Rey —p. 180

14:211-296 (April) 1947

Evolution of Gallbladder Disease M. E Rehfuss —p 227.
Surgical Aspects of Cholecystitis M Thorek —p 236
Chronic Biliary Tract Disease F. Glenn —p 240
Local Sulfanilaminotherapy in Chronic Thromboulcerative Colitis Means of Single or Double Colonic Tube J Nasio —p 253
Unusual (Benign) Hematemesis Gastric Telangiectatic Dysplasia, Rendu Osler-Weber's Disease H. I. Goldstein —p. 258

Gastritis in the Toothless.—Reviewing the histories of 3,684 patients with gastrointestinal disturbances, Rodriguez-Olleros found 168 who had extensive deficiencies of dentures which made proper mastication impossible. Nearly half of these patients, or 48.8 per cent, had primary gastritis, whereas of the *remaining 3,516* patients with efficient mastication only 6.1 per cent had gastritis. The author believes that the part played by mechanical irritation of the stomach produced by deficient mastication is more important in the genesis of gastritis than the medical literature of today suggests.

Rocky Mountain Medical Journal, Denver

44:177-256 (March) 1947

Diagnosis of Rheumatic Fever in Children. S. Gibson —p 195.
Dynamic and Therapeutic Features of 17 Cases of So Called Psychogenic Asthma E. G. Billings —p. 197
Management of *Hyperthyroidism H. H. Davis —p 199.*
*Coccidioidomycosis and Chest Roentgenogram D. Clark —p. 203.
Clinical Experience with Methergine, New Oxytocic. B. C. Williams. —p 207.
Clinical Observations with Methergine, a Partial Synthetic Oxytocic. M. J Baskin, E L Harvey and D M. McEndaffer.—p 208.

Coccidioidomycosis and the Chest Roentgenogram.—Clark says that from 70 to 80 per cent of the people who live in certain sections of western Texas, New Mexico, Arizona and southern California are found to have a positive coccidioidin skin test indicating active or inactive coccidioidomycosis infec*tion. A sizable percentage of the transient population to these* areas will likewise become infected. The great majority of infections are mild and self limited and involve the lungs and associated lymph nodes Most of the residual lesions are visualized on the roentgenogram and are confused with tuberculosis, cancer, Boeck's sarcoid or pulmonary fibrosis due to other agents The greatest difficulty arises in the differentiation of tuberculosis and coccidioidomycosis It is important to make a differentiation, because inactive lesions of coccidioidomycosis can be disregarded as a cause of future disability whereas the lesions of tuberculosis require observation and treatment. It is frequently impossible to differentiate a chest lesion in which both the coccidioidin and tuberculin skin tests are positive. Sputum should be studied for the tubercle bacillus and the presence of Coccidioides immitis. If the patient is not raising sputum, a number of cultures for the tubercle bacillus should be made of gastric washings. If no organisms are found, the character of the chest lesion may be suggestive of coccidioidomycosis.

Southern Medical Journal, Birmingham, Ala.

40:197-280 (March) 1947 **Partial Index**

Adventures in the Esophagus J. T. Howard —p 197.
*Exophthalmos in Relation to Orbital Tumors. Report of Eight Cases. S B Forbes —p 206
Comparison of Pathologic Anatomy of Central American Tropical Ulcers and Those of a Variety of Leg Ulcers of North America A Golden —p 214
Sympathectomy for Peripheral Vascular Disease. J W. Hendrick and T. B Aycock —p 219
Whither Orthopedics L D Baker —p 228
Systemic Disturbances Occurring During Spinal Anesthesia D. A. Davis —p 230
*Total Intravenous Alimentation, Its Technics and Therapeutic Indications R S Bigham Jr, R E Mason and J E Howard —p *238.*
Catgut Closure of Low Midline Incision and Early Ambulation C. L. Perry —p 246
Commonly Unrecognized Diseases of Nasopharynx Results of Studies of 140 Autopsy Specimens A R. Hollender —p 248
Signs and Symptoms That Suggest Serious Lesions of Nervous System. W. T Haverfield —p 252
Disorders of Personal Time in Depressive States E W Straus. —p 254
Certain Factors Influencing Cancer Curability A G Levin —p 259.
Syphilis of Cervix W. F. Guerriero, W. B Mantooth and W. Moore. —p 261.
Pruritus Ani in Office Practice V K. Allen —p 264

Exophthalmos and Orbital Tumors.—Forbes describes 8 cases of unilateral exophthalmos due to orbital tumors. The tumors causing the proptosis were a lipoma, an extraorbital squamous cell carcinoma, a pyocele, a mucocele, a muscular hypertrophy or tumor associated with an exophthalmic goiter with two thyroidectomies, a true primary pseudotumor in all probability, and in 2 instances a cavernous hemangioma. The author describes a method of delivering a large hemangioma *en masse* and directs attention to the use of the electric saw for resection of the bony wedge in the Kronlein operation. Refractive changes may be of diagnostic value in cases of retrobulbar tumor. This was proved in 2 of the reported cases.

Total Intravenous Alimentation.—Bigham and his co-workers investigated protein metabolism during periods of total intravenous feeding in more than 25 patients. The group has included normal persons, patients with acute infections such as malaria and ulcerative colitis, degenerative diseases and patients before and after major surgical operations. The mixtures have consisted of "amigen," glucose, salts, water and vitamins. As an adjuvant measure in preoperative and postoperative therapy in certain types of cases the procedure has afforded the surgeon a relaxed empty bowel easy of handling. The postoperative course has been unusually benign and free of distention in every instance but 1. Except where there has been an irritative lesion of the intestine, as in ulcerative colitis, stools usually cease under this therapy in two to three days.

Surgery, St. Louis

21:283-442 (March) 1947

Primary Anastomosis in Treatment of Carcinoma of Colon. R. W. McNealy and V. G. Lands.—p. 283.
Treatment of Acute Appendicitis in a Closed City. A. T. Hays.—p. 297.
Incomplete Removal of Cystic Duct as Factor in Producing Postcholecystectomy Complications. N. F. Hicken, L. B. White and Q. B. Coray.—p. 309.
Causalgia: Review of Its Characteristics, Diagnosis and Treatment. J. W. Kirklin, A. I. Chenoweth and F. Murphey.—p. 321.
*Benign Cavernous Hemangioma of Spleen: Literature Review and Case Report. G. B. Hodge and D. A. Wilson.—p. 343.
*Cystadenoma of Pancreas, with Presentation of 1 Case and Review of 28 Cases Collected from Medical Literature. R. E. Benson and W. Gordon.—p. 353.
Aneurysm of Renal Artery: Report of Additional Case. L. V. Marrone.—p. 362.
*Clostridial Wound Infections and Gas Gangrene: Arterial Damage as Modifying Factor. J. P. North.—p. 364.
*Penicillin in Treatment of Craniocerebral Injuries of War, with Particular Reference to Its Intraventricular Use. K. H. Abbott.—p. 373.
War Wounds of Chest. J. D. Martin Jr.—p. 381.
Ceepryn as Antiseptic for Preoperative Preparation of Skin. J. A. Key.—p. 390.

Benign Cavernous Hemangioma of Spleen.—Hodge and Wilson found only 31 cases in the literature that appear to represent true benign cavernous hemangioma of the spleen. Their patient was a Negro woman aged 35, who was admitted to the hospital with a complaint of an upper abdominal mass of four months' duration, with rapid increase in size in the last three weeks. The patient was operated on and a tumor weighing 13,130 Gm. was removed. She recovered. The diagnosis of benign cavernous hemangioma may be extremely difficult. It was an incidental finding in 11 of 12 necropsy cases. In the other case there was rupture of the lesion with death. In the 19 patients treated surgically 3 had a spontaneous rupture with serious hemorrhage into the abdominal cavity. A diagnosis of perforated gastric ulcer was made in 2 and appendicitis in 1. The other surgical cases presented the following combinations of signs and symptoms: abdominal mass or splenomegaly, pain, dyspnea, dysphagia, gastrointestinal disturbances and anemia. Splenic hemangioma should be suspected in patients with splenomegaly unrelated to a general disease process. When rupture occurs, shock, pain and signs of generalized peritoneal irritation are usually present. Shock must be combated, and immediate operation is imperative.

Cystadenoma of the Pancreas.—Benson and Gordon report the history of a woman aged 65 which illustrates the efficacy of surgical excision of a cystadenoma of the pancreas. They review a series of 28 cases collected from the literature. Cystadenoma of the pancreas is a benign, multilocular, cystic adenomatous neoplasm which most often originates from the tail or body of the pancreas. Clinically this tumor is characterized by a slow growth, absence of early symptoms and later development of a palpable tumor, upper abdominal pain and weight loss. Pancreatic cystadenomas occur much more frequently in women than in men (ratio 8:1). Complete surgical removal of the tumor is the treatment of choice.

Arterial Damage in Clostridial Wound Infections and Gas Gangrene.—Experience with the treatment of clostridial wound infections occurring among Chinese and American troops in North Burma convinced North of the importance of differentiating between those with major vascular damage and those without such injury. Gas gangrene is unlikely to develop unless the integrity of the main arterial blood supply is impaired either by the initial trauma or secondarily by such factors as tension within closed tissue compartments or external constriction by improperly applied plaster casts. There were 32 cases of true gas gangrene, representing an incidence among combat wounded of 7 cases per thousand casualties. The mortality in this group was 31.3 per cent, and no one survived without a major amputation. Wound infection by clostridial organisms in which the main blood supply of the part remains intact presents a much more favorable prognosis. In 37 such patients none developed gas gangrene, none required amputation and only 1 died. *Limited surgical excisions which eliminate anaerobic conditions from the wound are adequate for this type of case.*

Penicillin in Craniocerebral Injuries.—Abbott records observations on the use of penicillin in 62 cases of severe open (compound) craniocerebral injuries which were studied in the Southwest Pacific Theater of Operations. Included in this group were 19 cases in which one or more cerebral ventricles had been exposed or perforated. Penicillin was placed in the ventricles of each of these patients in doses of 25,000 to 50,000 units. In no instance were untoward toxic or irritative reactions observed. In 1 case 100,000 units of penicillin was placed in the cisterna magna in the treatment of pneumococcic meningitis. Only transitory and mild untoward symptoms resulted, and recovery ensued.

United States Naval Medical Bulletin

47:219-390 (March-April) 1947. **Partial Index**

Medicine at the Crossroads. R. H. Draeger and S. Warren.—p. 219.
*Acute Coronary Insufficiency: New Concept of Acute Coronary Diseases. A. M. Master and O. Auerbach.—p. 226.
*Penicillin Therapy in Relapsing Fever. J. F. Shaul and T. H. Saferstein.—p. 238.
Multiple Pulmonary Calcifications. A. C. Wyman.—p. 244.
Technic for Root Canal Therapy and Root Resection as Aid to Problem of Dental Officer Afloat. W. M. Lancaster.—p. 249.
Emotional Disturbances Encountered in Carrier Pilots. W. H. Requarth.—p. 253.
Repair of Soft Tissue Defects of Foot. W. G. Hamm and S. B. Hardy.—p. 263.
Vitamin Deficiency Diseases in Allied Prisoners of the Japanese. J. E. Nardini.—p. 272.
Subnormal Intelligence in Maladjusted Naval Trainee. M. M. Jackson.—p. 279.
Symptoms and Management of Arterial Hypertension Among Naval Personnel. R. E. Smalley.—p. 287.
Treatment of Renal Colic: Special Emphasis on Crystalluria. P. R. Stalnaker.—p. 297.
Chronic Asthma: Results of Treatment in 100 Cases. D. S. Smith. p. 302.

Acute Coronary Insufficiency.—Master and Auerbach emphasize that there are several acute coronary artery diseases rather than one. They are divided into two main divisions: (1) acute coronary insufficiency and (2) acute coronary artery occlusion. The concept of acute coronary insufficiency as a clinical entity is new. The precipitating causes are those of the ordinary episode of angina pectoris. The myocardial anoxia may be severe and prolonged. There is a disproportion between the demands of the myocardium and the oxygen or blood available to it. Diffuse, focal, disseminated areas of necrosis may be found in the subendocardium and the papillary muscles. There is no involvement of the pericardium or endocardium. The *treatment is prophylactic, preventive, and it may be life saving.* The prognosis is better than in acute coronary artery occlusion, which is a sudden complete closure of the vessel and results from advanced arteriosclerosis in some portion of an artery. The infarct is massive, involving endocardium and pericardium, with frequent mural thrombosis on the inner surface of the heart and subsequent embolization, and with frequent pericarditis. Treatment is of no avail.

Penicillin Therapy in Relapsing Fever.—Shaul and Saferstein report 4 cases of North African fever, which were treated with penicillin. Two patients did not have relapses. A third patient, who might have escaped a relapse if a longer initial course of penicillin had been given, received a second course and was cured, as was the fourth patient treated during the first relapse. The optimum therapeutic amount of penicillin appears to be between 1,560,000 and 2,800,000 units given in 40,000 unit doses every three hours intramuscularly.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

5:141-180 t.) 1946

- *Nodule Formation in Rheumatic Disease. G. D. Kersley, H. J. Gibson and M. H. L. Desmarais.—p. 14
- Pleuropneumonia-like Organisms in Arthritis. G. M. Findlay.—p. 153.
- Nature of Fibrositis: III. Multiple Lesions and Neural Hypothesis. M. Kelly.—p. 161.
- Epilogue to Series Entitled "The Nature of Fibrositis." M. Kelly. —p. 167.
- Incidence of Rheumatism. B. R. èt.—p. 168.
- Review of Gout, 1939-1946. L. Cll.—p. 171.

Nodule Formation in Rheumatic Disease.—Kersley and his associates kept separate clinical records and biopsy reports on all cases of rheumatic or plorheumatic disease in which nodules were palpable and later classified them clinically, comparing their clinical diagnosis with the findings of the pathologist. Twenty-seven cases have been so examined. According to the clinical and pathologic c the authors differentiate five groups: (1) gout, (2) typical rheumatoid arthritis, (3) rheumatic fever, (4) fibrositis and (5) fus nodules in the absence of signs of rheumatic disease. The study emphasizes the diagnostic value of biopsy of nodules in rheumatic diseases.

British Heart Journal, London

8:171-242ct.) 1946

- *Ammi Visnaga in Treatment of Anginal Syndrome. G. V. Anrep, G. S. Barsoum, M. R. Kenawy and Ciisrahy.—p. 171.
- Premature Systoles Originating in Sinoauricular Node. R. Langendorf and S. S. Mintz.—p. 178.
- Dissecting Aneurysm of Aorta, with Electrocardiograms Suggestive of Cardiac Infarction. G. Bourne and P. V. Mills.—p. 181.
- Chronic Dissecting Aneurysms. A. Jones and F. A. Langley.—p. 191.
- Dissecting Aneurysm with Survival for Three Months After Rupture into Pleura. M. Campbell.—p.
- *Dissecting Aneurysm of Aorta: New Sign. J. A. Nissim.—p. 203.
- Aneurysmal Dilatation of the l Auricle, with Erosion of Spine. H. Ashworth and A. Morgan Jr.—p. 207.
- Early Diagnosis of Rheumatic Valvular Disease in Recruits. J. Parkinson and R. Hartley.—p. 212.

Ammi Visnaga for the Anginal Syndrome.—According to Anrep and his associates Ammi Visnaga, known in Arabic as "Khella," grows wild in the eastern Mediterranean countries and in Arabia. The decoction of its dried seeds is frequently prescribed by local physicians a diuretic and antispasmodic in cases of ureteral stones. Of the several crystalline substances isolated from the seeds the most important is khellin ($C_{14}H_{12}O_5$). The authors investigated the action of khellin on the cardiovascular system in dogs with special reference to the coronary circulation and the heart muscle and they also studied its action clinically on patients with angina pectoris and coronary thrombosis. The substance was found to be an effective vasodilator with a selective action on the coronary vessels, so that coronary flow was increased by doses insufficient to lower the general blood pressure. Continuous treatment by the oral or intramuscular routes or by the two combined gave favorable results in 35 of 38 cases of angina pectoris. The drug was given continuously for several weeks 8 patients after coronary thrombosis and appeared to act favorably.

New Sign of Dissecting Aneurysm of Aorta.—Nissim discusses improvement in the recognition of dissecting aneurysm of the aorta. He reviews clinical and postmortem observations on a man aged 71 in whom a new sign of the disease is described. There was a difference between the right and left carotid pulsations; they were reduplicated on the right and single on the left, without a coexisting noticeable difference in the intensity of the pulsations on the two sides. There were two almost equal beats in quick succession on the right carotid for every single beat on the left. The explanation must lie in the difference of the rate of propagation of the pulse wave through the lumen of the artery and through its dissected coats where the blood was probably partly clotted. At necropsy this was the only pathologic finding that could account for it. The full significance of this sign was not realized until then.

British Journal of Radiology, London

20:85-128 (March) 1947

- Radiotherapeutic Treatment of Cancer Corporis Uteri. J. Heyman. —p. 85.
- Size of Vaginal Vault in Relation to Treatment of Cancer of Cervix. J. Moore and Margaret Tod.—p. 92.
- Effect of X-Rays on Ascorbic Acid Concentration in Plasma and in Tissues. Carol H. Kretzschmar and F. Ellis.—p. 94.
- Clinical, Radiologic and Pathologic Aspects of Pulmonary Hemosiderosis. L. D. W. Scott, S. D. S. Park and A. C. Lendrum.—p. 100.
- Standardized Radiologic Pelvimetry: II. Qualitative. E. P. Allen. —p. 108.
- Pneumonia of Lobe of Azygos Vein: Report of Case. T. C. Studdert and A. K. Turbull.—p. 119.
- Radiologic Anatomy of Labyrinth. F. Pygott.—p. 121.

British Medical Journal, London

1:367-402 (March 22) 1947

- *Poisoning with a Preparation of Iron, Copper and Manganese. G. Forbes.—p. 367.
- *Outbreak of Diphtheria in a Highly Immunized Community. J. Fanning. —p. 371.
- Faucial Diphtheria Among Army Personnel in Belgium, 1945. J. H. Bolton and M. J. Pivawer.—p. 373.
- *Penicillin in Treatment of Diphtheria. M. N. De, J. R. Chatterjee and L. Ganguli.—p. 376.
- Case of Mesenteric Thrombosis Complicating Multiple Wounds: Recovery Following Massive Resection. W. N. Hine.—p. 380.

Poisoning with Preparation of Iron, Copper and Manganese.—Forbes discusses the toxicology of the salts of iron, copper and manganese and describes 2 cases of fatal acute poisoning due to a proprietary preparation containing ferrous sulfate, manganese sulfate and copper sulfate. Results of the chemical analysis of the liver and the bowel and its contents are given in each case. A short series of animal feeding experiments is described, proving that the ferrous sulfate is the noxious ingredient in the preparation concerned.

Diphtheria in a Highly Immunized Community.—The chief points brought out in the outbreak described by Fanning are (1) the possibility of an alarming outbreak of diphtheria in a highly immunized community (94 per cent previously immunized, 80 per cent Schick negative), (2) the failure of previous immunization to protect against a severe attack in certain cases and (3) the occurrence of a high proportion of cases among Schick-negative reactors. The outbreak occurred in a private day school for girls. On the basis of observations in this outbreak the author emphasizes the necessity for repeated doses of antigen during the whole of school life. The interval suggested between doses is three years. The limited value of the Schick test as a measure of immunity is pointed out.

Penicillin in the Treatment of Diphtheria.—De and his associates of the Medical College Hospitals of Calcutta review observations on 27 cases of diphtheria in which only penicillin was used for treatment. Sixteen of the patients were bacteriologically positive and 11, though bacteriologically negative, were clinically typical cases of diphtheria. Twenty were early and 7 moderately severe. Recovery occurred in all cases without developing complications; the temperature was normal within three days, the throat swabs became negative within three to seven days, and the patches disappeared within two to five days. The author thinks that this small group of cases does not permit assessment of the value of penicillin, the less so since only early or moderately severe cases with slight toxemia were selected. Penicillin cannot replace antitoxic serum in severe cases of diphtheria where immediate neutralization of toxin is imperative.

Journal of Endocrinology, London

5:1-58 (Feb.) 1947

- Serum Gonadotropin in Welsh and Shetland Ponies. F. T. Day and I. W. Rowlands.—p. 1.
- Measurement of Lactational Performance in the Rat in Studies of Endocrine Control of Lactation. A. T. Cowie and S. J. Folley.—p. 9.
- Adrenalectomy and Replacement Therapy in Lactating Rats. A. T. Cowie and S. J. Folley.—p. 14.
- Late Effects of Castration and Administration of Sex Hormones on the Male Trichosurus Vulpecula. A. Bollinger and A. J. Tow.—p. 32.
- Possibility of Determining Androgen Production by Measuring Acid Phosphatase in Semen: Investigations in Cryptorchid Patients. H. Engberg, E. Anderson, B. Sury and J. Raft.—p. 42.
- Antigenic Properties of Iodinated Proteins. A. S. Parkes.—p. 49.

South African Medical Journal, Cape Town

21:177-212 (March 22) 1947. Partial Index

Relief of Pain. J. Drummond.—p. 178.
Modern Anesthetic Practice. H. Grant-Whyte.—p. 181.
Analgesia and Anesthesia in Obstetrics. O. S. Heyns.—p. 190.
Clinical Experiences with Nitrogen Mustard in Hodgkin's Disease. H. O. Hofmeyr.—p. 195.
Sensory Disturbances in Chronic Visceral Disease. G. W. H. Schepers. —p. 198.

Belgisch Tijdschrift voor Geneeskunde, Louvain

3:97-144 (Feb.) 1947. Partial Index

*Medical Indications for Extirpation of Spleen: Results. A. Dirix and J. Vandenbroucke.—p. 97.
Sensitizer for Therapeutic Action of Digitalis Substances. H. Handovsky.—p. 104.

Medical Indications for Splenectomy.—Dirix and Vandenbroucke review observations on 26 cases in which splenectomy was performed. Five patients had thrombopenia and 8 had hemolytic icterus which was either congenital or acquired. Other conditions for which splenectomy was done included Banti's syndrome, thrombophlebitis of the splenic vein with congestive splenic tumor, paroxysmal hemoglobinuria of the Marchiafava type, hemolytic anemia of unknown origin, splenomegalic cirrhosis, congestive tumor of the spleen presenting the clinical picture of splenic panmyelophthisis and malignant tumor of the spleen. There were 7 fatalities among the 26 patients. The results were favorable in the patients with essential thrombopenia, hemolytic icterus and thrombophlebitis of the splenic vein with congestive tumor. In the group with Banti's syndrome, in which the splenic factor is not entirely clear, splenectomy was a failure and served to increase the mortality rate. In the isolated case of splenic panmyelophthisis the results were favorable.

Progrès Médical, Paris

75:81-112 (Feb. 24) 1947

Complete Physiologic Section of Spinal Cord. J. A. Chavany.—p. 83.
*Treatment of Arterial Hypertension with Complete Dechloridation. H. Chabanier and C. Lobo-Onell.—p. 85.
Occupational Pathologic Syndrome. M. Gautrelet and J. Sterboul.—p. 90.

Dechloridation for Arterial Hypertension.—Chabanier and Lobo-Onell treated 9 patients, 3 men between the ages of 45 and 62, and 6 women between the ages of 43 and 52, with arterial hypertension as the only manifestation of nephroangiosclerosis with complete dechloridation for four to thirteen months. The hypertension was reduced to normal in 2 patients, a partial reduction resulted in 5 patients and failure occurred in 2 patients. The hypertension was reduced considerably in a woman aged 32 with chronic diffuse glomerulonephritis who had been placed on a salt free diet for six months. Some of the patients did not interrupt their occupational work, and the rest were able to resume their occupation in the course of treatment. The effect of the complete dechloridation has been slow and progressive as compared to that of surgical treatment of hypertensive syndromes. Dechloridation has been effective while hypotensors failed. Untoward reactions did not develop in spite of prolonged complete dechloridation. This treatment is suggested particularly for patients over 40 years of age with nephroangiosclerosis in the premalignant or prenephritic stage and for the chronic or vascular stage of diffuse glomerulonephritis.

Helvetica Medica Acta, Basel

14:1-92 (Feb.) 1947

Porphyrias and Myoporphyrias. L. Belloni.—p. 3.
*Regulatory Apparatus at Vascular Pole of Corpusculum Renis in Hypertension Produced by Compression in Rats. G. Schloss.—p. 22.
Variations of Cytochrome C Content in Myocardium and Striated Muscle in Human Pathology. Y. Gobat.—p. 45.
Electrocardiographic Studies in Various Functional Stages of Thyroid. F. Blum and H. Spörri.—p. 74.

Regulatory Apparatus at Vascular Pole of Corpusculum Renis.—Schloss demonstrates that in rats it is possible to produce hypertension by compressing one or both renal arteries with a clamp. If the throttled kidney is removed at the onset of hypertension the blood pressure decreases to normal values. Retention of water is accompanied with a striking decrease in blood pressure. Both of these manifestations apparently are caused by circulatory insufficiency. The terminal retention of urea in some rats is due to functional disorders in the renal tubules of the kidney which has not been blocked. Hypertension can exist without tissue changes in the blocked kidney, but atrophic changes begin in this kidney usually after a few days. Discussing the changes observed in the granulated epithelioid cells of the afferent arterioles of the blocked and unblocked kidney, the author says that these so-called e-cells are probably not essential for proper renal function. He was unable to detect in rats any connection between the e-cells and the hypertension due to constriction or any other evidence that e-cells can produce the pressor substance "renin." On the other hand, the renal tubules seem to play an important role in the production of "renin."

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:353-412 (Feb. 15) 1947

Case of Fatal Hemolytic Shock Following Blood Transfusion, Resulting from Rhesus Factor. J. A. Rodbard and S. I. de Vries.—p. 354.
Data on the Rhesus Factor in the Netherlands. J. J. van Loghem Jr. —p. 360.
*Epidemiology of Acute Anterior Poliomyelitis. G. D. Hemmes.—p. 368.

91:413-476 (Feb. 22) 1947

Spleen and Anemia: "Primary Splenic Panhematopenia." S. van Creveld. —p. 416.
Beware of Phenothiazine. D. P. R. Keizer.—p. 424.
*Peculiar Localization of Pain in Chronic Cholecystitis. N. J. Teljer. —p. 428.

Epidemiology of Acute Anterior Poliomyelitis.—Hemmes analyzes some controversial problems concerning the spread of poliomyelitis on the basis of observations made in the Netherlands during 1923 to 1945. He denies the occurrence of "stille feiung" (silent immunization). He advances the hypothesis that the virus which is excreted by human subjects does not infect others directly but has one or several intermediate hosts, which in turn may perhaps contaminate foodstuffs.

Peculiar Localization of Pain in Chronic Cholecystitis.—Teljer's observations were made on himself. For months he had pains in the right leg in the region of the sciatic nerve. This pain became disabling, but the diagnosis of sciatica proved incorrect. Pains in the left side of the back, fever, urobilinuria and other signs suggested cholecystitis and perhaps a complicating pancreatitis. Removal of a diseased gallbladder completely counteracted the symptoms.

Acta Chirurgica Scandinavica, Stockholm

95:1-192 (Jan. 20) 1947. Partial Index

Modification of Nicola's Operation for Habitual Dislocation of Shoulder. T. Jerre.—p. 1.
Case of Spontaneous Rupture of Subclavian Artery. E. Schroeder. —p. 17.
Cat Bite—Pasteurellosis—Halisteresis. O. Kapel.—p. 27.
Study of New Bone Formation Provoked by Subperiosteal Injections of Blood Plasma, Extract of Bone Marrow, etc.: Investigation by Experiments on Animals. A. Hellstadius.—p. 31.
*Diaphragmatic Hernia. Y. Candolin.—p. 61.
Problem of Hypoproteinemia in Delayed Gastric Emptying After Stomach Resection. L. Efskind.—p. 81.
Three Cases of Osteomyelitis in Children Treated with Penicillin. H. Tønnesen and B. Faber.—p. 9
Low Spinal Cord Injuries Following Spinal Anesthesia. E. Schildt. —p. 101.

Diaphragmatic Hernia.—Candolin reviews observations on 8 cases of diaphragmatic hernia. In 4 cases the hernia resulted from perforating trauma, in 1 from blunt trauma; there was 1 hiatus hernia and 2 cases were congenital. In 1 of the 4 cases in which incarceration existed it developed in connection with a pregnancy in the fourth month. In this woman the hernial sac filled the whole of the left part of the thorax and contained half the stomach, all of the small intestine, the major portion of the large intestine and the pancreas. Five patients were operated on by the abdominal route (2 died), 1 by the thoracic approach (died); 2 were not operated on (1 died from incarceration). The author believes that the transabdominal approach is less difficult than one might imagine. Operation should be performed during the sympto

Book Notices

Clinical Hematology. By Maxwell M. Wintrobe, M.D., Ph.D., Professor of Medicine, University of Utah School of Medicine, Salt Lake City, Utah. Second edition. Cloth. Price, $11. Pp. 862, with 211 illustrations. Lea & Febiger, South Washington Square, Philadelphia 6, 1946.

The first edition was one of the most comprehensive and authoritative textbooks on clinical hematology and the second edition justly maintains that distinction. The new edition includes practically every significant advance in hematology since the first edition was printed, as well as the addition of new illustrations and diagrams that add to the clarity of the text. Current material on folic acid, the Rh factor, nitrogen mustards, radioactive phosphorus, mineral and porphyrin metabolism, factors concerned with erythropoiesis and erythrocyte destruction, thiouracil and the newer hemostatic agents are some of the additions. These subjects will especially interest the prospective purchaser, but practically every chapter has been revised or modified to conform with the most current and accepted concepts. The author's ability as a teacher, clinician and investigator is reflected throughout, and many involved and controversial phases of hematology are presented in a concise, objective and lucid manner. Because of the careful editing, the book covers a range of subject matter that one would expect to find only in a larger treatise of several volumes. The extensive bibliography at the end of each chapter is painstakingly selected, as are the illustrations and diagrams. The author has wisely chosen to discuss diagnostic laboratory procedures in the appropriate section in each part of the book and has reserved for a separate chapter on methods only those procedures which could not be logically discussed in the appropriate chapter. This is a unique departure from most books on hematology but was done with the conviction that a laboratory procedure must have a background of understanding if it is to be intelligently applied and properly evaluated. The tests discussed are for the most part simple procedures which have been selected on the basis of their use in the doctor's office. A complete review of the contents of the entire book is not possible, but the student or physician may purchase this book with the conviction that he is buying one of the most comprehensive, current and authoritative textbooks on hematology available in any language.

Further Studies in Encephalography. By E. Graeme Robertson, M.D., F.R.C.P., F.R.A.C.P., Neurologist, Royal Melbourne Hospital, Melbourne. Cloth. Pp. 104, with 53 illustrations. Hafner Publishing Co., Inc., 31 E. 10th St., New York 3; Macmillan & Co., Ltd., 32-34 Flinders St., Melbourne, C 1, 1946.

The author discusses pressure gradients and the flow of cerebrospinal fluid and gas during their interchange in encephalography. In vivo observations are substantiated by painstaking in vitro experiments. For example it appears that, when the head is flexed, inflow of gas into the ventricular system is due to the outflow of fluid from the cerebral subarachnoid spaces, which allows expansion of the cerebral hemispheres, thus permitting inflow of gas into the ventricles. Indeed, by properly posturing the head it is possible to fill either the subarachnoid spaces or the ventricles with gas.

When the head is flexed 8[illegible] to 90 degrees gas usually enters the fourth ventricle and the aqueduct of Sylvius, which is a useful method of demonstrating lesions affecting these structures. A simple pendulum attached to a celluloid protractor determines the desired angle of flexion. The base line of the protractor is taped along the orbitomeatal base line of Reid.

The technic of encephalography includes a description of special charts, the use of two needles simultaneously (the lower needle being attached to a water manometer so that constant pressure may be maintained throughout the procedure), the advantages of oxygen and the slow introduction of gas and the choice of anesthesia. When local procaine alone is not feasible, tribromoethanol or paraldehyde by rectum, ether or intravenous sodium pentothal may be employed. The author gives the usual warning against the use of sodium pentothal in children but does not stress the necessity of an airway in case of laryngeal spasm.

The significance of films reproduced in the text is clearly explained by accompanying diagrams, especially in the chapter on brain stem lesions, which is particularly illuminating. Attention is drawn to the fact that shift of the falx cerebri is often helpful in lateralizing a brain tumor, especially of the temporal lobe. Pertinent observations are made regarding encephalography in cerebral atrophy and hydrocephalus, though these subjects are not dealt with as fully as they might be. Finally, the author states that encephalography may be used in the presence of increased intracranial pressure, and for the localization of posterior fossa as well as supratentorial tumors. With this opinion we cannot agree.

This is an excellent, though in some respects incomplete, treatise on the subject of encephalography that can be recommended without hesitation to every one interested in the subject.

Human Torulosis: A Clinical, Pathological and Microbiological Study with a Report of Thirteen Cases. By Leonard B. Cox, M.D., M.R.C.P., F.R.A.C.P., Consultant in Neurology to the Royal Australian Air Force, and Jean C. Tolhurst, M.Sc., Senior Bacteriologist to the Alfred Hospital, Melbourne, Australia. Cloth. Price, 25s. Pp. 149, with 67 illustrations. Melbourne: Melbourne University Press, in association with Oxford University Press, Melbourne and London. 1946.

The authors present a detailed study of 13 proved cases of torulosis, 8 of which came to postmortem examination. Combined with the discussion of their own cases are numerous illustrative excerpts from articles in United States, English, South African and Australian medical journals in which there have been reported some 120 cases of the disease. These are documented by a bibliography of 134 references.

The presentation of the subject is divided into ten sections. The first is devoted to historical background, the second to detailed discussion of the clinical and pathologic findings, and the remaining ones to the infection in the various physiologic systems, the microbiology of the causative organisms, torulosis of experimental animals, the detailed pathology of the disease, laboratory diagnosis, sources and routes of infection, treatment, summary and conclusions. The authors believe that the disease is more common than reports in the literature would indicate. In the majority of cases it takes the form of a meningitis or meningoencephalitis, febrile or afebrile and chronic or subacute. They demonstrated torula infection of the lungs in 5 of their fatal cases, a higher incidence than is reported elsewhere in the literature of the disease. They also point out that in over 15 per cent of cases lymphadenopathy occurs but seldom with demonstrable invasion of the lymph nodes by Torula histolytica. The occasional occurrence of Hodgkin's disease in chronic cases of torulosis leads them to believe that there is occasionally a direct etiologic relationship.

The illustrations include many excellent photographs of the gross lesions and excellent photomicrographs of the histologic pathology and of the various forms of the organism in culture. Torulosis, a systemic fungous infection caused by Cryptococcus neoformans (Torula histolytica), is likewise known as European blastomycosis or Busse-Buschke's disease. While it is still relatively uncommon, it has a wide geographic distribution, and numbers of cases have been reported in the Eastern and the Southern United States. This monograph is a distinct addition to the literature on the mycoses and is especially valuable because of the detailed studies of the new cases reported and for the condensation of the literature of the disease and the appended bibliography.

Some Chapters in Cambridge Medical History. By Sir Walter Langdon-Brown. Cloth. Price, $1.75. Pp. 119. Cambridge University Press, Bentley House, 200 Euston Rd., London, N. W. 1; Macmillan Company, 60 Fifth Ave., New York 11, 1946.

"History is the shadow cast by a few great men." Around this central theme Sir Walter Langdon-Brown gives the story of the foundations and growth of the Cambridge School of Medicine in a series of essays; a second implied theme—tradition, continuity and quality—becomes evident as the figures of medical history of four hundred years pass in review. Chapter headings outline the record: John Caius and the revival of learning; William Gilbert and the dawn of experiment; Francis Glisson and the insurgent century; William Heberden and the age of reason; John Haviland and the beginning of reform; The great triumvirate (Paget, Humphry and Foster) and the rise of the medical school; Clifford Allbutt and the transition from the nineteenth century. Thus are presented some of the beginnings of British medicine, the seventeenth century of individual achievement, the eighteenth century of consolidation of gains in medical science and the nineteenth century of educational building. The limitations of the subject confine references to Cambridge men for the most part, except for an occasional migration to Oxford or where affairs of the Royal College of Physicians concerned Cambridge activities. One interested in *medical* history will find here a wealth of historical detail attractively told in beautifully turned English which would *meet* the ideals of Sir Clifford Allbutt himself.

Textbook of Medical Treatment. By Various Authors. Edited by D. M. Dunlop, B.A., M.D., F.R.C.P., *Professor of Therapeutics and Clinical* Medicine, University of Edinburgh, Edinburgh, L. S. P. Davidson, B.A., M.D., F.R.C.P., Professor of Medicine and Clinical Medicine, University of Edinburgh, Edinburgh, and J. W. McNee, D.S.O., D.Sc., M.D., Physician, H. M. the King in Scotland. With a foreword by A. J. Clark, B.A., M.D., D.P.H. Fourth edition. Cloth. Price, $8. Pp. 923, with 38 illustrations. William Wood & Co., Mount Royal and Guilford Aves., Baltimore 2, 1946.

This large manual treats therapeutics comprehensively. It should serve as an excellent textbook for students and general practitioners to amplify the treatment stated in the books on general medicine. The fourth edition is entirely rewritten and contains a splendid chapter on penicillin therapy. Various newer drugs, including thiouracil, are carefully evaluated. Emphasis is given to general management rather than to a mere enumeration of drugs. This should serve as a basis for rational and critical judgment of all therapeutic agents. Included are sections on the treatment of venereal and skin diseases, tropical medicine and an excellent chapter on psychosomatic medicine.

Howell's Textbook of Physiology. Edited by John F. Fulton, M.D., Sterling Professor of Physiology, Yale University School of Medicine, and others. Fifteenth edition. Cloth. Price, $8. Pp. 1,304, with 507 illustrations. W. B. Saunders Company, W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, 1946.

Since its first appearance in 1905 this has been a standard physiology textbook for medical students. Now, after forty-one years, it is no longer a one man book but has been largely rewritten by a Yale group of authors, many of whom are authorities in major fields of physiology. It is a readable, reliable and up to date textbook which follows the general organization of previous editions. However, its value would be greatly bolstered by (1) reduction of the section on the nervous system, which now occupies more than a third of the pages, (2) the addition of a chapter on the liver and of a separate section on the endocrines, of which only reproduction is at present seriously considered, (3) a grossly expanded consideration of the role of physiology in medicine and (4) the inclusion of a chapter on aviation physiology.

How to Live: Rules for Healthful Living Based on Modern Science. By Irving Fisher, Ph.D., LL.D., and Haven Emerson, M.D. Prepared in collaboration with the Hygiene Reference Board of the Life Extension Institute. Twenty-First edition. Fabrikoid. Price, $2.50. Pp. 354. Funk & Wagnalls Co., 153 E. 24th St., New York, 1946.

Since the first edition of this book was published, it has had general acceptance as a competent guide to personal hygiene. For the most part it follows accepted dicta but occasionally breaks over into faddism or personal prejudices. Its point of view on the use of tobacco is distinctly in that classification. It condemns also the use of caffeine and of coffee and presents "pros and cons" on meat which lean heavily on the "con" side. Discounting these prejudices, however, the book contains a vast amount of useful information about health and its maintenance, written in easily understandable language.

How Can We Teach About Sex? By Benjamin C. Gruenberg. Public Affairs Pamphlet No. 122. Paper. Price, 10 cents. Pp. 31, with 7 illustrations. Public Affairs Committee, Inc., 22 E. 38th St., New York 16, 1946.

This booklet, developed by a well known authority on sex education, is a condensation in brief and readable form on what doctors and educators have concluded in relation to teaching about sex. It tells parents and educators what to do and what not to do. It contains a reading list divided according to the interests of parents and teachers, young men and women of college age, high school boys and girls, and children. The booklet can well be recommended to interested parties, particularly parents, teachers and the discussion groups of men's, women's and civic organizations.

Penicillin in Neurology. By A. Earl Walker, M.D., Associate Professor of Neurological Surgery, The University of Chicago, Chicago, and Herbert C. Johnson, M.D., Resident Neurological Surgeon, The University of *Chicago. Cloth. Price, $5. Pp. 202, with 72 illustrations. Charles C* Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1946

This little monograph will find a warm welcome and will be useful. Since the introduction of penicillin a few years ago the drug has become a most useful therapeutic agent in many neurologic diseases, while it has proved disappointing in others. The authors have prepared an extensive survey of the already voluminous literature. They have combined this with their own considerable experimental and clinical observations to write this clear, concise and useful monograph. They discuss the various methods of administering the drug, its toxicity to the central nervous system, its irritative effect when applied to the cerebral cortex and the resulting convulsions, and its use in the treatment of infections of the meninges, brain and skull and of syphilis of the nervous system. There is appended a brief chapter dealing with some other antibiotics, such as streptomycin, streptothricin, actinomycin and clavacin. Although the book is to be recommended for current use, it must soon become out of date in this field of intensive investigation and rapid progress.

An Introduction to Social Biology. By Alan Dale, B.Sc. Cloth. Price, 15s. Pp. 396, with 189 illustrations. William Heinemann, Ltd., 99 Great Russell St., London, W. C. 1, 1946.

This book was originally prepared as a guide to the teaching of students of high school age in Great Britain. It covers such topics as the evolution of man, reproduction, man's relation to his environment and his health, nutrition, the balance of nature and reasons for man's dominance over other animals. The book is so advanced in its discussions that it would seem to American readers far too advanced for other than students of college age. It would be particularly useful to students in the first year of medicine who have not had opportunity for a thorough grounding in biology. The author has studied a vast amount of recent literature in the fields of science and medicine. Hence the work would serve also to bring up to date the physician who has had little time for reading in fields correlated with medicine.

Allgemeine Neurosenlehre: Biologie, Psychoanalyse und Psychohygiene leibseelischer Störungen in 22 Vorlesungen. Von Prof. Dr. Rudolf Brun, Dozent für Neurologie und Neurobiologie an der Universität Zürich. Second edition. Cloth. Price, 32 Swiss francs. Pp. 518, with 6 illustrations, Benno Schwabe & Co , Klosterberg 27, Basel 10, 1946.

In the revisions for this edition Professor Rudolf Brun was helped considerably by Dr. Heinrich Meng, who at one time was a psychoanalyst in Frankfort on Main. The book represents twenty-two lectures on the "biology, psychoanalysis, mental hygiene and psychosomatic disturbances"; it has covered considerable territory and, of necessity, in a rather eclectic manner. Despite the fact that the book was published in 1946, it already gives the impression of being somewhat out of date because the major developments in psychoanalysis and psychiatry of the past two decades were taken but little into consideration.

Musical Sons of Aesculapius. By Willard Marmelszadt, M.D. Foreword by Victor Robinson, M.D. Cloth. Price, $3. Pp. 116, with illustrations. Froben Press, 4 St. Luke's Place, New York 14, 1946.

Some years have passed since Fielding Garrison wrote his essay on "Medical Men Who Have Loved Music." This book deals with physicians who were themselves musicians and brings forth many interesting facts as to the extent to which such physicians participated in the musical life of their communities. The volume refers to many contemporaneous doctors who are associated with medical orchestras, chamber music groups and some who are noted as composers and virtuosos.

Science Since 1500: A Short History of Mathematics, Physics, Chemistry, Biology. By H. T. Pledge, Librarian, Science Museum of London, London. *Cloth.* Price, $5. Pp. 357, with illustrations. The Philosophical Library, Inc., 15 E. 40th St., New York 16, 1947.

This book is offered as a short history of mathematics, physics, chemistry and biology. It is a reference work of great value but is certainly not easy reading for those who wish merely to be generally informed in the fields concerned. The illustrations are well chosen, and the index is so complete as to aid greatly the reference quality of the work.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

LUMBAR SYMPATHECTOMY FOR ARTERIOSCLEROSIS AND ULCERATION OF LEGS

To the Editor:—I would appreciate the present consensus on sympathectomies for the relief of pain and ulceration of the legs on patients suffering from arteriosclerosis of the extremities complicated by diabetes mellitus. One patient that I have in mind was benefited by a paravertebral nerve block. There was an increased warmth of the extremities both objectively and subjectively. What is the outlook if the patient is subjected to a sympathectomy?

M.D., Florida.

Answer.—Lumbar sympathectomy has given excellent results in the relief of pain and has also stimulated healing of leg ulcers in patients with arteriosclerosis of the lower extremities, with and without the complication of diabetes mellitus. The pain in such cases may be of two types: the cramplike pain of muscle ischemia and the aching and tenderness directly resulting from the ulcer.

The relief of the cramplike pains, usually induced by exercise and commonly felt in the calf and foot, as well as the deep seated aching which may follow the more intense pain, depends largely on the amount of vascular spasm present, especially in the collateral circulation. If the blood supply to the distal part of the extremity is increased when vasospasm is relieved by a paravertebral nerve block or the intravenous injection of tetraethylammonium bromide or chloride, it may be safely concluded that a sympathectomy will give satisfactory results. The actual increase in blood supply may be measured by an electrothermocouple or a plethysmograph, but the subjective sense of increased warmth and frequently the relief of pain are excellent criteria on which to judge the desirability of a sympathectomy. If increase in temperature or blood flow is not demonstrated after autonomic block, sympathectomy probably will not give relief of pain of either type.

The healing of chronic indolent leg ulcers following lumbar sympathectomy in properly selected cases has been gratifying. In many instances the relief of vascular spasm has been followed almost immediately with relief of local pain and improvement in the vascularity of the ulcer bed and periphery. Large ulcers may be healed more rapidly by skin grafting.

The urine should be made sugar free, either by suitable diet or with the addition of insulin, before a sympathectomy is performed. A bilateral lumbar sympathectomy is advisable for the majority of patients, even though pain or ulceration has appeared only in one leg, since such involvement may thereby be prevented in the other. The usual extraperitoneal approach to the lumbar ganglions has a low surgical risk, and the patient can be up in two or three days and returned home in a week.

The outlook in the specific case mentioned should be good following lumbar sympathectomy, since there was increased warmth following paravertebral nerve block.

EFFECTS OF PHILGAS EXPLOSION

To the Editor:—What is the effect of an explosion of Philgas on the bronchial tree? Philgas is a bottle gas generated from a liquid and without odor, used for steam and ovens. A chef and restaurant manager attributes his profuse and productive morning cough and difficulty in breathing to an explosion of this gas about two years ago. He was severely burned on both arms at this time. X-ray studies with lipiodol reveal moderately extensive bilateral lower lobe emphysema attributed to narrowing and stenosis of the bronchioles. The pleura is thickened on both sides. Sputum examinations are negative for tuberculosis. The Wassermann test was negative. Allergic history is negative.

M.D., New Jersey.

Answer.—The history of symptoms immediately after the explosion is not sufficient to warrant any definite statements. Explosions may cause small tears and hemorrhages in the bronchial tree, which might later develop into a chronic infection such as bronchitis or bronchiectasis. This should cause bloody sputum, however, shortly after the injury, and if this was not present in the case reported, the explosion most likely was not the cause of the present symptoms and findings. Philgas is propane to which a mercaptan has been added, making it definitely not odorless. There is nothing from the gas itself which would be a pulmonary irritant

POSTOPERATIVE VENOUS THROMBOSIS IN THE LEGS

To the Editor:—A month ago I was operated on for intractable duodenal hemorrhage. The operation was a subtotal gastrectomy. A penetrating ulcer in the first part of the duodenum was found. Spinal anesthesia was employed. My condition at the time of operation was poor, my hemoglobin after a transfusion being 60 per cent. I am 37 years old. I made an uneventful recovery until forty-eight hours after the operation, when during the administration of an intravenous glucose-saline solution I was seized with severe pains in both lower extremities, followed by a chill. The chill was attributed to pyrogens, but on the following day there was deep tenderness in both calves, particularly on the left side. This delayed my recovery and now, two weeks after leaving the hospital, my left leg is quite swollen and both legs are quite painful. The treatment in vogue here is Dicumarol to the exclusion of virtually everything else. I receive now 100 mg. every four days. Does phlebitis begin as early as the second day generally? Could Dicumarol given early enough have prevented my condition? (It was started three days after operation.) At no time have I had a rise of temperature attributable to the phlebitis. Is this usual? Does the application of hot fomentations expedite recovery? My surgeon claims that it does not. Is there any danger of embolism in my present state if I walk? To *recapitulate:* I do not have fever, I have tenderness, I have edema, there has never been any involvement of the saphenous veins, there is no redness or heat in the legs, I am getting Dicumarol. Is the edema likely to be permanent? When can I safely resume my professional duties?

M.D., Illinois.

Answer.—There can be little doubt that the inquirer had venous thrombosis in the calves of both legs, as there was tenderness which was followed by edema.

Venous thrombosis does not ordinarily occur as early as the second postoperative day but it can happen, as it obviously did in the case under consideration.

Venous thrombosis may or may not be associated with an increase in oral temperature. The absence of an increased oral temperature does not exclude the diagnosis of venous thrombosis.

Good evidence that the application of hot fomentations favors cessation of venous thrombosis is lacking, but it is a time honored procedure, probably because it lessens distress and, along with elevation of the extremities, seems to hasten the disappearance of edema.

There is substantial and acceptable evidence that venous thrombosis is prevented by the administration of Dicumarol (3-3′-methylene-bis-[4-hydroxycoumarin]). However, it could not safely be used in a case like this as early as the second postoperative day because of the danger of inducing hemorrhage. As venous thrombosis usually occurs after the fourth or fifth postoperative day, administration of Dicumarol to prevent venous thrombosis is ordinarily begun on the third or fourth postoperative day. There is no acceptable standard dose of Dicumarol. The amount administered depends wholly on the effect of the drug on the percentage of prothrombin in the blood, and it is necessary when giving Dicumarol to determine the percentage of prothrombin in the blood at daily intervals; in exceptional cases when Dicumarol is administered over a long period it may be possible to administer it satisfactorily with a determination of the prothrombin time every second or third day. In the treatment or prevention of venous thrombosis it is desirable that the percentage of prothrombin in the blood be maintained between 10 and 30. The usual procedure is to give 300 mg. of Dicumarol on the first day and subsequently to consider administration of it only after the report has been received relative to the value for prothrombin in the blood. Ordinarily Dicumarol is not given if the prothrombin percentage in the blood is less than 20, and 200 mg. is administered if the prothrombin percentage in the blood exceeds 20. In the treatment of acute postoperative venous thrombosis, administration of the drug is ordinarily discontinued after there has been satisfactory reduction of the prothrombin in the blood until the patient leaves the hospital. Experience indicates that there is no need to continue administration of Dicumarol beyond this period except in unusual cases.

As operation was performed a month ago in the case under consideration there seems little further need for Dicumarol. The prospect of pulmonary embolism is extremely small if not wholly nonexistent. The problem presented at this time is that of preventing manifestations of chronic venous insufficiency, and this can be accomplished by the application of an adequate support to the limb to prevent edema. If this can be accomplished by means of ordinary elastic bandages, that method is satisfactory; if the edema cannot be prevented by this method, the inquirer may try the best grade of elastic stocking. If this procedure does not control the edema, he may use a pure gum rubber bandage 3 inches wide and 15 feet long (Davol Rubber Company, Providence, R. I.). The support should be worn until edema does not occur when the support is discontinued. In about half of the instances the support can be discarded within a period of three or four months. In other instances it may be advisable to wear it indefinitely. Patients are instructed to discard the support for one day each month and to reapply it only if edema occurs.

There does not seem to be any reason why normal activity cannot be resumed.

TREATMENT OF HOOKWORM INFECTION

To the Editor:—A veteran contracted hookworm infection while serving in the Philippines. After six months of treatment with carbon tetrachloride, tetrachlorethylene and hexylresorcinol he still has symptoms and shows worms and ova in the stools. Is there anything new or any routine suggested for eradication of these helminths? *M. A. Polk, M.D., Chicago.*

Answer.—It is indeed a rare case of hookworm infection in which the proper use of carbon tetrachloride, tetrachlorethylene and hexylresorcinol fails to give relief. Although only about 80 per cent of the hookworms will be removed by hexylresorcinol in mass treatments of several thousand cases, it is usually possible to reduce the number of worms in any single individual below the dangerous level by the proper use of this drug. This substance can be taken in 1 Gm. doses and repeated the second day, or 2 Gm. may be taken in a single dose. The taking of a single gram of hexylresorcinol and the repetition of this two weeks later if necessary may reduce the number of worms present to less than 25, which is a number which will not produce symptoms. Precautions should be taken to see that the patient takes a light evening meal and that the hexylresorcinol is given to the patient in the morning without any breakfast. Although water may be taken in any amount, food should not be taken for at least four hours after giving the drug. This will prevent the hexylresorcinol reacting with the food and allow its maximum effect on the worm. It is well worth checking a patient who has reacted to such active drugs so poorly in order to know that he has actually taken the required amount at the proper time.

ELECTROLYTE RESORPTION BY RENAL TUBULES

To the Editor:—In Best and Taylor: Physiological Basis of Medical Practice (ed. 3, 1946, p. 639) the following statement is made: "The absorption of sodium is influenced by the adrenal cortex and the posterior pituitary. The hormone of the adrenal cortex is essential for the normal reabsorption of sodium. . . . The antidiuretic hormone of the pituitary exerts the opposite effect, inhibiting the absorption of sodium from the proximal tubule and increasing the reabsorption of water and chloride mainly from the distal tubule." I presume there is a misprint and that the sentence should read "increasing the reabsorption of water and decreasing the reabsorption of chloride." Is it true that sodium is lost with chloride or do both the pituitary and the adrenal conserve sodium?

Samuel L. Immerman, M.D., Philadelphia.

Answer.—The only well established hormonal influence on sodium resorption by the renal tubules is that known to be produced by the adrenal cortex. At present it cannot be stated definitely that the posterior pituitary has a specific effect on the resorption or excretion of either sodium or chloride. A slight but variable decrease in chloride resorption has been produced by the antidiuretic hormone. According to Pitts and Lotspeich (*Am. J. Physiol.* **147**:138, 1946) there is a reciprocal relation in the resorption of bicarbonate and chloride ions by the kidney tubules. Certainly many factors must be studied simultaneously before one would be in a position to conclude that a hormone directly affects the resorption of any ion from the tubules of the kidney. Most studies are lacking in a sufficiently complete characterization of the electrolyte pattern of the blood and urine at the time of studying the effect of any given glandular extract or deficiency state.

REPEATED SKIN INFECTIONS

To the Editor:—A woman develops skin infections following any trauma to the skin, such as minute punctures of the skin following cooking or washing. In a few days there is a local area of erythema which becomes infected and pustular. The condition heals without scar formation after three weeks. All laboratory tests and blood chemical studies have been negative. At the present time the patient is receiving a course of staphylococcus ambotoxoid. Are there other methods of increasing skin immunity for preventing infections of this type? Can staphylococcus ambotoxoid be bolstered by the adjuvant injection of liver extract or foreign protein injection? *M.D., New York.*

Answer.—It is presumed that the patient described in the query has had a physical examination and that nothing abnormal has been found. In addition, anemia, diabetes and diseases of the kidneys should be ruled out. Minimal changes may be present in the skin of the hands caused by excessive use of soap cleansers and water in the kitchen. There remains a group that is an easy prey to ordinary skin infections in whom all clinical and laboratory study proves fruitless for any clue which may be causative. Nonspecific measures such as the parenteral use of milk products and some of the metals, such as tin and manganese, occasionally yield brilliant results. This approach is being utilized now much less than formerly. Staphylococcus toxoid may be helpful. Recently the systematic and regular use of 70 per cent alcohol spongings of the skin has been advocated. A prolonged application of some well tolerated antisep is worth while. Daily soaks of the hands with aqueous potassium permanganate solution 1:5,000 or 1:7,000 may be helpf but stains the skin. Mercury bichloride may be used in streng of 1:5,000. Ointments such as 0.5 to 5 per cent ammoniated mercury have stood the best test of time. Ammoniated mercury may be irritating to a few. Furacin dressing is a proprietary ointment which is apparently an efficient remedy. The sulfonamides sensitize the skin too often to justify advocating their use locally, even though they are efficient. The internal use of these remedies should be reserved for some more serious occasions. Penicillin locally, while not as frequent a sensitizer as the sulfonamides, is proving to be such with seemingly increasing frequency. The use of ultraviolet rays in suberythema doses at regular intervals may be of decided benefit to patients who are easy victims of the simple staphyloccic infections.

DIPHTHERIA ANTITOXIN FOR NONDIPHTHERITIC PHARYNGITIS

To the Editor:—Is diphtheria antitoxin of therapeutic value in any disease besides diphtheria? A recent survey of the records of reported cases of diphtheria compared with records of diphtheria antitoxin supplied by the state department of health shows that antitoxin has been used in several cases in dosages of 20,000 to 40,000 units. When questioned, the doctors replied that it was their custom in practice to use diphtheria antitoxin if patients had "nasty" throats which did not respond to penicillin and sulfonamides. This usually produced a clinical improvement. Since diphtheria does not always produce the "typical membrane" and may be present when culture and smears are negative, should these cases that respond to antitoxin be diagnosed as diphtheria?

J. T. Millington, M.D., Wilkes-Barre, Pa.

Answer.—It is true that some severe inflammations of the throat subside following the administration of diphtheria antitoxin. However, this does not necessarily mean that the antitoxin was responsible for the improvement. Unless the condition present was actually diphtheria, although unconfirmed by laboratory diagnosis, it should not be assumed that the diphtheria antitoxin was accountable for the favorable action.

Many years ago, before diphtheria antitoxin was as highly refined and concentrated as at present, it was sometimes believed that diphtheria antitoxin was beneficial in certain inflammatory conditions of the throat not due to diphtheria. This was explained on the basis of a foreign protein reaction. But when diphtheria antitoxin is used for remedial purposes, a definite diagnosis of diphtheria should be established only by laboratory procedures. Even when the culture is positive for diphtheria it may be advisable to make a test for virulence.

WATERY SECRETION FROM NIPPLE

To the Editor:—A woman aged 55, who has been in good health except for a hysterectomy about five years ago for a fibroma of the uterus, recently noticed a watery secretion from her left nipple. The breast is normal in appearance and to palpation. Axillary or supraclavicular glands are not palpable. The kidney is normal. The blood pressure is 150/90. She is extremely frightened from reading about precancerous conditions in lay papers. I know of milk and watery secretions from the breasts of children, both girls and boys, and I consider this condition of no consequence. Am I wrong? Would you suggest that I give her glandular therapy, and if so would it be estrogen or androgen?

Simon Steinbach, M.D., New York.

Answer.—Watery secretion from the nipple of the breast as described may be due to irritation of the nipple or to stimulation of the ducts themselves. If an intraductal papilloma or intraductal carcinoma was present the secretion should be dark or blood tinged. As this is not the case, one would be justified in carefully observing the patient at frequent intervals. If at any time a thickening of one of the ducts is found or the character of the secretion is altered, simple mastectomy would be preferable to cannulating the ducts in an attempt to dissect out the one under suspicion. Glandular treatment would be contraindicated, as the stimulation of the estrogens might be aggravating and androgen therapy could mask the symptoms. X-ray treatments have proved satisfactory in drying up such secretion.

CLIMATE FOR BRONCHITIS

To the Editor:—What is the present opinion regarding the effect of climate on chronic bronchitis in a child 2 years old? Would a mild dry climate or a mild moist climate be better? A 2 year old girl has mild chronic bronchitis characterized by frequent severe attacks of acute bronchitis. Would the Gulf Coast or central Texas be better? *Lieutenant, M. C., A. U. S.*

Answer.—A mild dry climate is best for a child with chronic bronchitis. The climate of central Texas would be much preferable to that of the Gulf Coast.